

THE COST AND BENEFITS OF EDUCATION IN IRAQ:

AN ANALYSIS OF THE EDUCATION SECTOR AND
STRATEGIES TO MAXIMIZE THE BENEFITS OF EDUCATION



EXECUTIVE SUMMARY

There has been remarkable progress in education in Iraq. Enrolment in primary education grew tremendously over the past decade, increasing at about 4.1% per year. As of 2015-2016, 9.2 million students are enrolled across all education levels in Iraq. The total enrolment in primary education almost doubled to six million children in 2012 from 3.6 million in 2000. Girls' enrolment grew at all levels and at faster rates than boys' enrolment, although they are still enrolled in lower numbers than boys and tend to drop out at a higher rate.

The rising number of students and recent financial crisis in Iraq pose new challenges in terms of providing sufficient education resources for the growing number of students. Unless Iraq increases its public education resources, its expanding enrolment will continue to strain existing education resources. In fact, as of 2013, 13.5% of school-aged Iraqi children (1.2 million children) did not have access to basic education.¹ For those who are in school, there are large drop out and repetition rates. The quality of education and learning outcomes is decreasing, due in part to multiple-shifting of schools and dropping teacher retention rates. Government spending on education infrastructure also remains low, although there is a marked increase in private schools yielding higher achievement rates.

Looking at Iraq Centre and the Kurdistan Region of Iraq (KRI), this report aims to update the education situation, quantify the economic benefits of education, and identify sources of inefficiencies as well as key priority themes in the education sector with clear links to the National Education Strategy 2011-2020. This report quantifies the unit cost of public education, the benefits of education as observed in the labour market, and the forgone economic benefit of education due to dropouts at the primary or secondary education level for both boys and girls. It is widely accepted that a worker with a higher level of education is more income-secure and can earn a higher salary than a worker with a lower level of education. Hence, the dropout rate from school is not only a human rights issue but also a long-term economic issue for that individual as well as for the overall Iraqi society.

Major Findings

Around 355,000 internally displaced children remain out of school in Iraq, representing 48.3% of the total internally displaced school-age children. In conflict affected governorates such as Salah al-Din and Diyala more than 90% of school-age children are left out of the education system. Overall, a large proportion of school-age internally displaced children are missing an opportunity to receive their education.

Relatively large gender gaps remain in secondary education in Iraq Centre, where there are 142 boys and 121 girls for every 100 girls at lower secondary level and upper secondary level respectively in 2015-2016, highlighting the need for efforts to bring more girls to higher levels of education. Similarly, in primary education, the out-of-school rate of girls is 11.4%, more than double the rate for boys at 5.4%.

Dropout rates in primary and secondary education in Iraq Centre (2015-2016) and KRI (2014-2015) are 2.6% and 1.7%, respectively, and the overall rate is on the rise. Similarly, repetition rates are also increasing. In 2014-2015, 16.8% of all students across Iraq Centre and KRI repeated grades, with highest rates in the lower secondary level of Iraq Centre (27%). This report finds that through dropout and repetition, about 20.1% and 13.7% of the education budget in Iraq Centre and KRI were wasted in 2014-2015, constituting a critical inefficiency in the education system. The economic cost of dropouts and repetition in 2014-2015 in Iraq was 1.5 trillion IQD or 18.8% of the total education budget.

Iraq Centre spends 1.3 million IQD per student (about 1,116 USD), covering from pre-school to upper secondary education, significantly higher than KRI's spending of 47,125 IQD per student (about 40 USD) in 2014-2015. Infrastructure spending, though, has remained almost non-existent. One out of every two public schools either requires rehabilitation or is unqualified which means that they do not meet national school construction standards. Since 2013-2014, total spending on education has decreased from 7.9 trillion IQD to 6.7 trillion IQD in 2015-2016. Little was spent on the investment budget, which has been declining at an even faster rate. As of 2015-2016, Iraq spends only 5.7% of its government expenditure on education, which puts the country on the bottom rank of Middle East countries in any given year.

¹ Data: Iraq country report on Out of School Children (UNICEF 2014)

As a result, the quality of education remains a significant concern. Three out of every ten public schools in Iraq run with a multiple shift, and this has been consistent for many years. This high level of multiple shifting negatively affects learning outcomes. There are significant differences in the success rates of the primary education certificate exam by type of schools and whether or not the school runs multiple shifts, with the morning shift passing at 92% as compared to a 72% passing rate for the evening shift. Despite recent growth in total number of teachers, the number and share of qualified teachers has decreased at all education levels except pre-school. The biggest drop was in primary school, where the number of qualified teachers dropped by 4%.

It is not surprising, then, that the growth of private schools has far outpaced growth in the public system. The 2011-2012 primary school exam results show that 97% of students in private schools pass the exam. Yet to mitigate the financial barriers to accessing private schools for poor Iraqi children, this report finds that Iraq's education policy to promote private schools needs to be coupled with financial assistance to lower the cost of private schools, and/or low cost private schools should be promoted to close gender and wealth gaps and reap the maximum social benefits of education spending.

The value of education to an individual, a family and a nation is well documented. This report uses data from the Iraq Household Socio-economic Survey (IHSES) in 2012 to estimate returns to additional years of education, the present values of the life-long earnings of workers, and missed wages that would have been earned by children who dropped out of different levels of education. Employment rates go up with increasing level of education for males and females in both Iraq Centre and KRI. Education has a positive and significant contribution towards earnings, regardless of gender, sector of employment or region. In a country where around one in every five men aged 15-24 and one in every 10 men aged 25-34 is unemployed, education is a valuable tool to keep a family out of poverty and to keep children out of labour.

Our analysis shows that a total of 1.1 trillion IQD will be lost from the Iraq economy due to unrealized potential wages caused by drop outs from education in 2014-2015 alone. The financial return on education can be better compensated for in men, who can make up for a lack of schooling with work experience to certain extent. However, for women, this analysis shows that education has an outsized economic benefit that cannot be replaced by work experience to the same extent as men. This provides strong evidence in support of current efforts to expand girls' enrolment across all education levels in Iraq Centre and KRI.

Policy Recommendations

The report identifies three major pillars of inefficiency in the Iraq education sector: (a) overall inefficiency, (b) inefficiency due to limited access to education, and (c) internal inefficiency of education system. It provides seven policy recommendations to address these sources of inefficiencies in Iraq Centre and KRI.

(a) Improving Overall Efficiency and Effectiveness of Education Policy

1. Information management systems for education statistics (EMIS) and public financial information need to be improved.
2. Coordination within the Ministry of Education in both Iraq Centre and KRI should be improved, and the coordination mechanism among education stakeholders to implement and monitor the progress of the National Education Strategy should resume. Use of block grant mechanisms could improve overall efficiency in utilizing Iraq's education budget.

(b) Reduction of Out of School Children

3. Constructing schools, focused on primary, lower secondary and basic levels, should be considered as a top priority in Iraq, given the high number of multiple shift schools and schools that need rehabilitation.
4. Sustainable education finance should be established for both Iraq Centre and KRI. Education expenditures are drastically decreasing and little capital investments have been made.
5. Promotion of private education should be complemented with income transfer programs or programs to support children from lower socio-economic status in order to address the potential issues of widening wealth and gender gaps in education.
6. Provision of quality education to internally displaced children should be accelerated in order to provide protection and education to these children, especially girls.

(c) Improving Internal Efficiency

7. An overall strategy to improve the internal efficiency of the education system should be developed for both Iraq Centre and KRI, and implemented accordingly. The strategy needs to cover various issues discussed in this report such as impacts of the automatic promotion policy, methods of learning assessment, and extension of compulsory basic education to lower secondary education.

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ABBREVIATIONS

ALP:	Accelerated Learning Program
EMIS:	The Education Management Information System
GDP:	Gross Domestic Product
GPR:	Gender Parity Ratio
IDPs:	Internally Displaced Persons
IHSES 2012:	Iraq 2012 Household Socio-Economic Survey, second round
ISIL:	The Islamic State in Iraq and the Levant
IQD:	Iraqi Dinar
KRG:	The Kurdistan Regional Government
KRI:	The Kurdistan Region of Iraq
LCU:	Local Currency Unit
LFPR:	Labour Force Participation Rate
MENA:	Middle East and North Africa region
MOE:	Ministry of Education
NPV:	Net Present Value
OCHA:	UN Office for the Coordination of Humanitarian Affairs
OOSC:	Out of School Children
PTR:	Pupil-Teacher Ratio
UR:	Unemployment Rate

Chapter 1: Introduction

1.1 Background

In the 1980s before the Gulf War, Iraq's education system was one of the most advanced in the region with near universal primary education. However, the negative effects of economic sanctions during the 1990s and repeated international and domestic conflicts in the 1990s and in 2003 led to deterioration in infrastructure and shortage of teaching-learning materials. Since then, there has been a remarkable progress in education in Iraq. Enrolment in primary education grew tremendously over the past decade, increasing more than 4.1% per year. The total enrolment in primary education reached six million children in 2012 from 3.6 million in 2000. The national net enrolment ratio of primary education increased from 85.8% in 2006 to 90.4% in 2011. The enrolment in lower secondary school also increased significantly from 49.2% in 2000 to 79.1% in 2013 (UNICEF 2010, 2014a).

However, the overall education situation in Iraq has not yet recovered to the level attained prior to the Gulf War. As of 2013, ten years after the invasion of Iraq, 13.5% of school-aged Iraqi children (1.2 million children) did not have access to basic education - six years of education in primary school, which is compulsory, plus three years of education in lower secondary school. About 500,000 children at primary school age and 650,000 children at lower secondary school age were out of school, which included children who dropped out from school and those never attended school (UNICEF 2014a). Reasons for non-enrolment include persistent violence and insecurity, poverty, poor quality of instruction and politicization of the curriculum (UNICEF 2010; UNESCO 2011a).

An additional 1.2 million children aged 5 to 14 are at risk of dropping out (World Bank, 2016a). Girls are under-represented in both primary and secondary schools and tend to drop out at higher rates than boys. For example, in primary education, the Out-of-School Children (OOSC) rate of girls is 11.4%, more than double the OOSC rate for boys at 5.4%. The dropout rates of girls in primary education is 20.1% compared to the boys' rate of 16.5% in 2013 (UNICEF 2014a).

The conflict in Syria and the rise of Islamic State since 2011 has created a protracted humanitarian crisis with more than 10 million internally displaced persons (IDPs) in need of humanitarian assistance, a direct consequence of conflict and violence linked to the takeover of Iraqi territory by the Islamic State in Iraq and the Levant (ISIL). The humanitarian crisis in Iraq sees no signs of easing and an additional two to three million more Iraqis may become displaced in 2016 (UNOCHA, 2015). Displaced children face challenges in continuing their education, leading to higher numbers of out of school children, and children exposed to serious child protection threats such as being recruited as suicide bombers and human shields (UNOCHA, 2015).

The challenges to the education system in Iraq are felt broadly – in essence, they are also challenges to the basic human rights of all Iraqis. These obstacles represent a missed opportunity to provide education to a young population and for Iraqi young people to attain bright and secure futures. All children need an education – especially those currently out of school – because a quality labour force and educated citizens are required to rebuild a nation.

1.2 Education System in Iraq

1.2.1 Education Policy Environment

The Government of Iraq has ratified a number of international conventions including the Universal Declaration of Human Rights, Convention on the Elimination of All Forms of Discrimination Against Women, Convention on the Rights of the Child, and Core Conventions of the ILO including C182 (Elimination of the Worst Forms of Child Labour). The 2005 Iraqi constitution considers education as a key pillar, stipulating the right to education for all guaranteed by the State as well as free primary and compulsory education.

The National Development Plan 2013-2017 (Government of Iraq, 2012b) and Regional Development Strategy for Kurdistan Region 2012-2016 (Kurdistan Regional Government, 2011) provide overall midterm education strategies, covering both pre-university and university education. Both strategies identify a series of challenges in pre-university education including low literacy rate, need for higher enrolment in all levels of education, urban-rural disparities, lack of school infrastructure, low quality of education, gender issues and a weak information management system.

The National Strategy for Education and Higher Education in Iraq for the years between 2011 and 2020 (hereafter, the national education strategy) was developed in 2011 under the Higher Oversight Committee chaired by the Deputy Prime Minister for Services, in collaboration with UNESCO, UNICEF and the World Bank. The membership of the Higher Oversight Committee includes Ministers of Education, Higher Education, Finance and Planning, in addition to both the Ministers of Education and Higher Education in Kurdistan Regional Government (KRG). The national education strategy was developed based on the findings of a situation analysis and identified the national strategic directions and frameworks for education development as well as policy strategies with cost estimations and a clear division of labour among major stakeholders including international organizations.

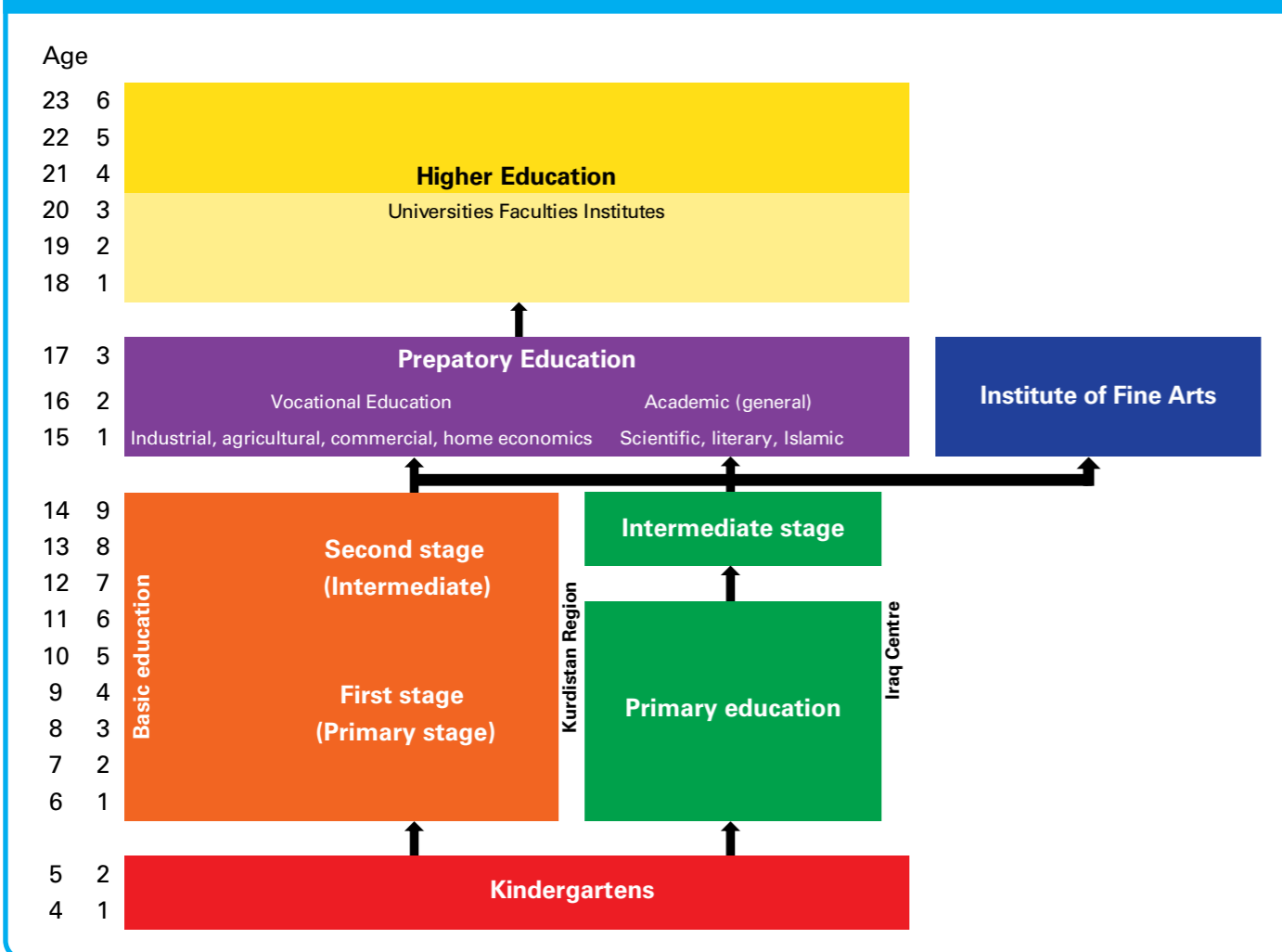
The strategic issues that the national education strategy identified include (1) institutional framework, (2) education infrastructure, (3) access and retention including education for children with disabilities and girls, (4) quality of education, (5) education finance, and (6) research. The national education strategy does not, however, clearly state target indicators or monitoring and evaluation mechanisms among stakeholders. As of 2016, the coordination mechanism between the Ministry of Education and international organizations relies on bi-lateral discussion and agreement. Neither the sector-wide evaluation nor annual progress review workshop has been implemented. Nevertheless, team were formed to evaluate, monitor and observe the national strategy for education and higher education in Iraq where several workshops were organized, however, the projects were suspended due to lack of funding.

1.2.2 Education System

In Iraq, both the Ministry of Education and the Ministry of Higher Education and Scientific Research supervise and manage education in all of Iraq except for the Kurdistan Region of Iraq (KRI), which has a different education system.

The education system in Iraq Centre (all of Iraq except KRI) consists of (a) two-year kindergarten stage, (b) six-year primary and compulsory stage, (c) six-year secondary stage with two levels: a three-year lower secondary level and a three-year upper secondary level. The general and vocational education tracks are provided in the three-year upper secondary level education. The KRG provides, on the contrary, a nine-year basic and compulsory education followed by a three-year upper secondary education.

Figure 1: Structure of the education system in Iraq



Source: UNICEF (2014a)

1.2.3 Macroeconomic Overview

Population, GDP and GDP Growth Rate

Iraq's population was 36.4 million in 2015, up 14.3% from 2011. Gross Domestic Product (GDP) growth slowed down from 2012 to 2014 from a growth rate of 13.9% to -2.1% annually, mainly due to a lower global price of oil. In 2015, the economy started to recover and grew by 2.1%. Similarly, GDP per capita decreased from its peak in 2013 at 5,150 USD to 4,963 USD in 2015.

Table 1: Macro data of Iraq

	2011	2012	2013	2014	2015
Population, Iraq ('000)	31,867.8	32,957.6	34,107.4	35,273.3	36,423.4
Population, KRI ('000)	--	--	--	--	3,941.5
GDP Growth (annual %) based on constant LCU	7.5	13.9	6.6	-2.1	2.1
GDP per capita (current LCU)	689,655	7,713,709	7,948,189	7,388,322	5,403,675
GDP per capita (constant 2010 USD)	4,675	5,150	5,303	5,019	4,963

Note: Data for KRI was obtained from IOM Iraq
Source: World Bank (2016b), IOM Iraq (2016)

Employment, Labour Force Participation and Unemployment Rate

Based on the available data from Household Socio-Economic Survey 2012 (IHSES 2012), of Iraqis 15 to 60 years old, 44.8% are workers, defined as those working more than one hour in the week prior to the survey, 9% are unemployed, and 46.3% are economically inactive (Government of Iraq, 2012a). This indicates that the labour force participation rate (LFPR)² is 53.7% with an unemployment rate (UR)³ of 16.7%. As for the Ministry of Education, the rate of employment for Primary education female teachers is more than twice the number of male teachers by 2.15% while the number of secondary education female teachers is 1.5% higher than male teachers.

Men of working age are 78.8% employed and 11.7% unemployed, while 9.5% choose not to work. Proportions of unemployment across age groups suggest high unemployment among youth, as around one in every five men aged 15-24 and one in every 10 men aged 25-34 is unemployed. Men 15 to 24 years old have the highest unemployment rate (22.3%) across all the age groups - three times higher than that of men between 35 and 44 years old (7.3%).

Significant differences in labour force participation and employment exist between male and female workers. Working age women are employed at a rate of 12.3%, considerably lower than 78.8% for men. Similar to their male counterparts, unemployment is higher for young people and decreases, from 48% for those aged 15-24 to 7.8% for those aged 55-60. Unemployment for women is consistently higher than for men across all ages. Women's labour force participation is 18.7% overall, and it can be hypothesized that many working age women are discouraged from participating in the labour market.

Youth unemployment is a key issue. Employment rates for the 15-24 age groups (71.0% for men and 7.8% for women) are lower than most of other age groups. This suggests that even if youth are willing to work, they find it more difficult to do so than older people, resulting in high youth unemployment rates – the social and economic impacts of which are significant.

This comparison of LFPR and UR across age and sex of workers give us two major implications to consider when forming education policies. First, combating youth unemployment is a common theme for both male and female workers. Education needs to provide skills and knowledge relevant for current labour markets. Government needs to implement policies to ensure a smooth transition from education to the world of work. Second, special attention must be given to improving participation of women through providing relevant education, and encouraging female participation in the labour market through active labour market policies.

² LFPR = (Employed Workers + those who are not employed but looking for a job)/Total Population

³ UR = (Those who are not employed but looking for a job)/(Employed Workers + Those who are not employed but looking for a job)

Table 2: Labour force participation rate and unemployment rate among men and women 15 to 60 years in Iraq

			Age Group					Total
			15-24	25-34	35-44	45-54	55-60	
Male	Work	Look for a job	34.5	34.0	29.2	20.0	9.1	29.8
		Not look for a job	36.5	50.5	57.4	57.9	52.8	49.0
		Total (employment rate) (a)	71.0	84.6	86.6	77.9	61.9	78.8
	Not Work	Look for a job (b)	20.4	9.9	6.9	7.5	5.3	11.7
		Not look for a job (c)	8.6	5.6	6.6	14.6	32.8	9.5
		Total	29.0	15.4	13.4	22.1	38.1	21.2
	Total	Look for a job	54.9	43.9	36.1	27.5	14.4	41.5
		Not look for a job	45.1	56.1	63.9	72.5	85.6	58.5
		Total (d)	100.0	100.0	100.0	100.0	100.0	100.0
	LFPR	{{(a)+(b)} / (d)}	91.4	94.4	93.4	85.4	67.2	90.5
	UR	(b)/{(a)+(b)}	22.3	10.4	7.3	8.8	7.9	12.9
	Female	Work	Look for a job	0.6	1.1	1.3	0.8	0.5	0.9
Not look for a job			7.2	10.8	13.8	16.4	12.8	11.4
Total (employment rate) (a)			7.8	11.9	15.2	17.2	13.3	12.3
Not Work		Look for a job (b)	7.2	8.4	6.1	3.3	1.1	6.4
		Not look for a job (c)	85.0	79.7	78.7	79.6	85.5	81.3
		Total	92.2	88.1	84.8	82.8	86.7	87.7
Total		Look for a job	7.8	9.5	7.4	4.1	1.7	7.3
		Not look for a job	92.2	90.5	92.6	95.9	98.3	92.7
		Total (d)	100.0	100.0	100.0	100.0	100.0	100.0
LFPR		{{(a)+(b)} / (d)}	15.0	20.3	21.3	20.4	14.5	18.7
UR		(b)/{(a)+(b)}	48.0	41.5	28.7	15.9	7.8	34.1

Total	Work	Look for a job	17.5	17.3	15.2	9.4	4.6	15.0
		Not look for a job	21.9	30.3	35.4	34.9	31.9	29.7
		Total (employment rate) (a)	39.4	47.6	50.6	44.3	36.5	44.8
	Not Work	Look for a job (b)	13.8	9.1	6.5	5.2	3.1	9.0
		Not look for a job (c)	46.8	43.3	42.9	50.5	60.3	46.3
		Total	60.6	52.4	49.4	55.7	63.5	55.2
	Total	Look for a job	31.3	26.4	21.7	14.5	7.7	24.0
		Not look for a job	68.7	73.6	78.3	85.5	92.3	76.0
		Total (d)	100.0	100.0	100.0	100.0	100.0	100.0
	LFPR	{{(a)+(b)} / (d)}	53.2	56.7	57.1	49.5	39.7	53.7
UR	(b)/{(a)+(b)}	26.0	16.1	11.3	10.4	7.9	16.7	

Note: Those who worked more than one hour in the week prior to the interview are considered as workers. LFPR=Labour Force Participation Rate. UR=Unemployment Rate
Source: Government of Iraq (2012a)

Share of workers by industry

Additional data from the survey shows the share of workers by sex, type of payment and type of industry. A large majority (89.7%) of workers are in non-agriculture sectors, composed of 71.5% with wage payment and 18.2% without wage payment such as helping a family business. The agriculture sector only represents a small percentage of employment (10.3%), one percent with wage payment and 9.3% without wage payment. A large majority of the employed labour force are males, representing 85% of the total. Many are employed as wage-workers in non-agriculture sectors. Females, on the other hand, are underrepresented, providing only 14.3% of the labour force, mainly in the waged non-agriculture sector (8.7%) and the non-wage agriculture sector (3.8%).

Table 3: Distribution of agricultural vs non-agricultural workers (%)					
	Wage		Non-Wage		Total
	Agriculture	Non-Agriculture	Agriculture	Non-Agriculture	
Male	0.8	62.8	5.5	16.6	85.7
Female	0.2	8.7	3.8	1.6	14.3
Total	1.0	71.5	9.3	18.2	100.0

Source: Government of Iraq (2012a)

Government Budget Allocation and Expenditure

Iraq's total government budget in 2016 was an estimated 81.7 trillion Iraqi dinar (IQD), or 70 million USD at 2015 exchange rates. The budget is up from around 10 trillion IQD from 2010 but significantly lower than the five-year peak of 119.3 trillion IQD in 2012. The discrepancy between the budget allocation and the actual expenditure fluctuates significantly, from 44 billion IQD in 2010 to 25.2 trillion IQD in 2011. The data on budget and expenditure seems to suggest that savings from the current budget was spent for the investment items. Actual spending has exceeded the allocated budget since 2013, mostly due to higher than planned spending on investment. As of 2016, Iraq's actual spending surpassed its planned budget by 24.2 trillion IQD.

Table 4: Government budget and expenditure, Iraq centre (in Billion Iraqi Dinar)

Year		2010	2011	2012	2013	2014	2015	2016
Current budget	Budget	70,126	103,925	119,733	113,729	105,423	94,048	81,701
	Actual	54,581	60,926	75,789	78,747	76,742	78,248	80,149
	Diff.	15,545	43,000	43,945	34,982	28,682	15,800	1,551
Investment budget	Budget	52,000	64,000	84,000	11,100	13,000	n.a.	n.a.
	Actual	15,553	17,832	29,351	40,381	35,450	41,214	25,746
	Diff.	36,447	46,169	54,649	70,619	94,550	n.a.	n.a.
Total	Budget	70,178	103,989	119,817	113,840	105,554	94,048	81,701
	Actual	70,134	78,758	105,140	119,128	112,192	119,462	105,896
	Diff.	44,000	25,231	14,678	-5,287	-6,638	-25,414	-24,195

Note: The data was obtained directly from the government.
Source: Ministry of Finance, Iraq Centre (2016)

1.3 Research Questions and Methodology

1.3.1 Research Questions

Iraq has recently experienced a “dual” crisis from the insecurity due to the emergence of ISIL and the Syrian conflict, alongside the economic shocks from a recent plunge in global oil prices. The environment surrounding the Iraqi education sector has therefore changed drastically from when the education situation analysis was carried out in 2003 and 2011 in preparation for the national education strategy. Unfortunately, the economic and security situation in Iraq is not expected to improve significantly in the near future, and more social disturbances are expected as a result of the on-going war against ISIL. As a result of these combined stresses, the Iraqi education sector has reached a point where the basic provision of quality education to Iraqi children is now at risk. Capital government expenditure on education has been drastically reduced, despite the increasing needs due to demographic pressures and population growth. As of 2015-2016 in Iraq Centre, the number of primary schools with double or triple shifts has reached 4,361 schools (35.3% of the total), with an additional 1,665 secondary schools (30.6% of the total) running multiple shifts (see Table 8). Furthermore, in KRI, salaries of teachers in public schools have been cut up to 75%, and teachers report they are not regularly paid.

In this context, this report aims to update education situation, quantify the economic benefits of education, and identify key priority themes in the education sector. In particular, this report quantifies the unit cost of public education, the benefits of education as observed in labour market, and the missed economic benefit of education due to dropout at the primary or the lower secondary education for both boys and girls. It is widely accepted that a worker with a higher level of education is more income secure and can earn a higher salary than a worker with a lower level of education. Hence, the dropout from school is not only a human right issue, which is enshrined in the Universal Declaration of Human Rights and the United Nations Convention on the

Rights of the Child to education, but a long-term economic issue for that individual as well as for the overall Iraqi society. In addition, repetition and dropout rates are considered as a source of inefficiency of the public education system, because more resources are needed to provide education in case of repetition (e.g., space, textbooks, teachers), and children who drop out from schools fail to gain the intellectual, social, cultural and ethical knowledge and skills that schooling should provide and resources spent for him/her do not materialize a full “return”.

Using the estimated economic benefits approach, education programs and policies can be evaluated to assess whether an investment to the education sector would yield “value for money.” Yet, because education is a human right, this type of economic analysis should not be used to infer that investments in education which do not yield value for money should be rejected. Economic analyses are merely one tool to assist policy makers and stakeholders to make informed decisions and prioritize various education policies and investment decisions.

Finally, this report aims to identify key policy recommendations to maximize benefits from government investments in the education sector. For example, comparing enrolment data from the last three years by governorate illustrates recent movements of IDPs, and helps quantify the impact of IDPs on the education sector. Although this report does not cover the full spectrum of policy areas related to the education sector, it addresses five out of seven strategic areas identified in Iraq’s national education strategy (Reblic of Iraq, 2012): 1) institutional frameworks; 2) education infrastructure; 3) available opportunities: access and retention including education for children with disabilities and girls; 4) the quality of education; and 5) funding and spending on education. The key research questions of this report are summarized below.

- **Costs and Benefits of Education:**

- What are the returns to investment in primary and lower secondary education in Iraq and KRI? Would workers with a higher level of education have a higher employment rate and/or earn higher salaries?
- What are the forgone economic costs when a child drops out from primary or the secondary education?
- How much is the annual per-student public expenditure at different stages of education?
- Is repetition of grades a significant source of internal inefficiency?

- **Current Status of Education:**

- What is the trend of enrolment across governorates in recent years?
- Did the recent conflicts, as well as financial crisis, affect the OOSC situation?
- Are there significant differences in the OOSC rate among internally displaced persons (IDPs) and those who are not internally displaced?

- **Policy Recommendations:**

- Based on the findings, what are the key areas for Iraq to prioritize?
- What should Iraq do in order to maximize returns from investments to the education sector?

1.3.2 Methodology and Outline of the Paper

This report utilizes data available from the Iraqi Ministries of Education, Finance, and Planning, such as data sets from Education Management Information System (EMIS), and public budgets and expenditures. Data from existing documents from the Iraq government, international organizations and academic papers were reviewed along with household surveys, especially the Iraq 2012 Household Socio-Economic Survey. The detailed methodology of the analyses in Chapter 3 is provided in the Annex. A series of key informant interviews were conducted with senior Iraqi officials from the Ministries of Education, Finance, and Planning, in both Baghdad and KRI, along with interviews with technical staff from key stakeholders including the Japanese Embassy, the World Bank, the International Labor Organization and UNESCO during August and September 2016. The report was then finalized through a consultative process with the Ministries of Education.

Chapter 2 describes key trends in education statistics during the last three years which map out the impacts of the recent conflicts on school children. This analysis helps stakeholders identify the geographical areas in need and gauge the possible impacts of future social turbulences. It also evaluates the overall resources for the education sector in order to understand the potential benefits of such investments. Chapter 3 provides

a theoretical background on the benefits of education, including both monetary returns and non-monetary returns. It also provides a series of analyses using the IHSE 2012 survey data where monetary returns due to additional years of education and other economic returns due to education investments are estimated. In addition, the forgone wages that would have been earned by a child who dropped out from different levels of education are estimated. This sum represents the opportunity costs of dropout, and the total forgone income for the nation can also be estimated to show the magnitude of economic loss due to dropout. Finally, Chapter 4 summarizes key findings, discusses policy options and provides policy recommendations to maximize the benefits of further investments in the education sector.

Chapter 2: Trend Analysis of Education and Financial Statistics

2.1 Trend of Key Education Statistics by Governorates

2.1.1 Data Reporting by Governorate

The number of governorates reporting data on education is similar across education levels, but varies by academic year as some governorates did not report education statistics due to deteriorating security conditions. In the public education sector, the number of reporting governorates decreased in 2014-2015, and then recovered to some extent in 2015-2016 (Table 5). All missing data on enrolment, teachers and schools comes from four governorates: Ninewa, Salah al-Din, Kirkuk and Anbar. These four governorates represent areas where the Iraqi government lost control of territory to ISIL. Data collection, especially data on dropout and repetition, remains weak. None of the repetitions in 2015-2016 have been recorded.

Table 5: Summary of reported type of data by governorate and by level of education, public sector (% of total)

Level	Pre-School			Primary		
Type of Data	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016
Enrolment	100.0	77.8	88.9	100.0	77.8	88.9
Dropout	100.0	77.8	88.9	100.0	77.8	72.2
Repetition	0.0	0.0	0.0	77.8	77.8	0.0
No. of Teachers	100.0	77.8	88.9	100.0	77.8	88.9
No. of Schools	100.0	77.8	88.9	100.0	77.8	88.9
Level	Lower Secondary			Upper Secondary		
Type of Data	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016
Enrolment	100.0	77.8	88.9	100.0	77.8	88.9
Dropout	100.0	77.8	72.2	100.0	77.8	72.2
Repetition	77.8	77.8	0.0	77.8	77.8	0.0
No. of Teachers	100.0	77.8	88.9	100.0	77.8	88.9
No. of Schools	100.0	77.8	88.9	100.0	77.8	88.9

Note: KRI and Iraq have different education systems. Here, basic education in KRI is considered equivalent to primary and lower secondary combined, and thus the same values are applied to both levels. Data was directly obtained from the Iraqi and KRI governments. Source: MOE, Iraq Centre (2016); MOE, KRI (2016)

Compared to the public sector, data collection in the private education sector is even weaker, with scant and inconsistent data collected on dropout and repetition across all years (Table 6). However, similar to the public sector, the number of reporting governorates in the private education sector decreased in 2014-2015 and then slightly recovered in 2015-2016. Most of the missing data for enrolment, schools and repetition come from the same four governorates with ISIL presence. In certain years, a number of districts provided data for boys' enrolment only. Serious missing data issues exist for dropout and repetition, where none of the districts reported these figures for most of the time period. This poses a limitation to the analysis of education outputs, and specific attention must be given to data reporting in the future.

Table 6: Summary of reporting governorates by level of education, private sector (% of total)

Level	Pre-School			Primary		
	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016
Enrolment	94.4	77.8	83.3	100.0	77.8	88.9
Dropout	0.0	50.0	0.0	0.0	0.0	44.4
Repetition	0.0	0.0	0.0	0.0	66.7	0.0
No. of Teachers	94.4	77.8	83.3	100.0	77.8	88.9
No. of Schools	94.4	77.8	83.3	100.0	77.8	88.9
Level	Lower Secondary			Upper Secondary		
	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016
Enrolment	100.0 ¹	77.8	88.9 ²	100.0 ³	77.8	88.9
Dropout	0.0	0.0	0.0	0.0	0.0	0.0
Repetition	0.0	0.0	0.0	0.0	0.0	0.0
No. of Teachers	100.0	77.8	88.9	100.0	77.8	88.9
No. of Schools	100.0	77.8	88.9	100.0	77.8	88.9

Note: Two districts (Salah al-Din and Anbar) do not report statistics for girls. All the data was collected from the Iraqi and KRI governments directly. Source: MOE, Iraq Centre (2016); and MOE, KRI (2016)

2.1.2 Trends in the Situation of Schools

In terms of the number of schools, primary schools account for the largest number of schools and public schools easily out-number private schools in both Iraq Centre and KRI (Table 7). However, an upward trend in privatization is observed in both regions as the number of public schools dropped or grew at a slower rate than the number of private schools.

In Iraq Centre, the total number of schools generally increased across all education levels in both private and public sectors, with the exception of public primary schools, for which the number decreased slightly by -0.2% between 2013-2014 and 2015-2016. However at all education levels, the number of private schools grew at a much higher rate than public schools. The growth rate of private schools in pre-school, primary school, lower secondary and upper secondary schools between 2013-2014 and 2015-2016 are 26.5%, 46.9%, 36.6% and 33.7%, respectively.

In KRI, the changes in the number of schools across different levels of education are inconsistent. The numbers of public pre-school, upper secondary public and private schools increased, but the number of other types of schools has decreased. In contrast with Iraq Centre, the number of private schools decreased in the pre-school and primary education levels, although the decreases are small in absolute numbers at six schools and two schools, respectively. Similar to Iraq Centre, the increase in the number of schools in the upper secondary level is stronger in the private sector than the public sector, although the growth gap is not as significant as that which is observed in Iraq Centre.

Table 7: Number of schools by level of education

IRAQ CENTRE								
	Pre-School		Primary		Lower Secondary		Upper Secondary	
	Public	Private	Public	Private	Public	Private	Public	Private
2013-2014	713	328	15,329	447	4,313	239	2,083	190
2014-2015	535	269	10,291	459	3,025	244	1,450	194
2015-2016	649	329	12,353	589	3,630	306	1,807	238
Change (%) ^e	4.7	26.5	-0.2	46.9	1.4	36.6	6.5	33.7
KRI								
	Pre-School		Basic		Upper Secondary			
	Public	Private	Public	Private	Public	Private	Public	Private
2013-2014	351	105	4,623	65	906	26		
2014-2015	345	116	4,318	65	915	37		
2015-2016	385	99	4,558	63	970	29		
Change (%) ^e	9.7	-5.7	-1.4	-3.1	7.1	11.5		

*To provide a comparable analysis, the values of two non-reporting governorates (Ninewa and Anbar) in 2015-2016 are excluded from the calculation of the rate of change. Note: Data was obtained directly from the MOE, Iraq Centre. Source: MOE, Iraq Centre (2016); and MOE, KRI (2016)

The proportion of public schools with multiple shifts in Iraq Centre and KRI in 2015-2016 is quite high. In both Iraq Centre and KRI, the share now exceeds 30% in primary and secondary school levels. Yet the rate of public schools with more than one shift as a proportion of the total number of schools did not change significantly across all education levels in Iraq Centre and KRI (Table 8). In Iraq Centre, around 4% of pre-schools run in more than one shift, much lower than the rate in higher education levels. About 35.3% of public primary schools, 30.7% of public lower secondary school, and 30.6% of public upper secondary schools in Iraq ran in double or triple shifts in 2015-2016. KRI has a similar structure, with around 10% of pre-schools running double shifts, while more than 30% of primary and upper secondary schools are double-shifted. Overall, three out of 10 schools in Iraq run with a multiple shift.

Table 8: Number and share of public schools with more than one shift by level of education

IRAQ CENTRE								
	Pre-School		Primary		Lower Secondary		Upper Secondary	
	No.	% of Total	No.	% of Total	No.	% of Total	No.	% of Total
2013-2014	29	4.1%	5,184	33.8%	1,252	29.0%	601	28.9%
2014-2015	24	4.5%	3,695	35.9%	947	31.3%	450	31.0%
2015-2016	27	4.2%	4,361	35.3%	1,113	30.7%	552	30.6%

KRI						
	Pre-School		Basic		Upper Secondary	
	No.	% of Total	No.	% of Total	No.	% of Total
2013-2014	45	12.8%	1,578	34.1%	317	35.0%
2014-2015	33	9.6%	1,354	31.4%	293	32.0%
2015-2016	41	10.6%	1,477	32.4%	346	35.7%

Note: Data was obtained directly from the MOE, Iraq Centre.
Source: MOE, Iraq Centre (2016); and MOE, KRI (2016)

This high level of multiple shifting affects learning outcomes. There are significant differences in the success rate of the primary education certificate exam by the type of schools and whether they run multiple shifts or not (Table 9). The overall pass rate in Iraq in 2011-2012 was 91%, with the private school rate reaching 97%. In contrast, the passing rate of public schools offering a double shift, i.e. evening study, is only 72%. This gap in the pass rate illustrates that multiple shifts negatively affects learning outcomes among students. As this data is available only for the year of 2011-2012, monitoring the exam results data and the gap in education success should be continued for further analysis as an important action point given the circumstances.

Table 9: Results of exams according to type of study, Iraq Centre, Primary, 2011-2012

Type of study	No of registered students	No of passing students	Success Rate
Morning study/ Normal Class	576,716	499,699	87
Private schools	4,164	4,508	108
Evening Study	1,070	742	69
External students	5,223	4,153	80
Adolescent students	3,504	1,706	49
Accelerated Learning Program students	24,113	14,681	61
Total	614,789	525,489	91

Note 1: Data was obtained directly from the Ministry of Education, Iraq. Note 2: number of passing students in Private schools is higher than the registered students due to the fact that they have moved to the private schools after conducting the annual statistics. Note 3: The success rate for external student depends on the number of participants.
Source: MOE, Iraq Centre (2016)

In terms of school infrastructure and maintenance, a large number of schools are suffering from poor maintenance, with more than 40% of schools identified as in need of rehabilitation according to the MOE's survey in 2016 (Table 10). Primary schools represent the majority of such schools, as they represent 4,503 schools, or nearly three quarters (72%) of all the schools in need of rehabilitation. Furthermore, the number of unqualified schools, which do not meet national school construction standards, poses a problem especially at primary level, where 15.3% of schools are unqualified. Altogether, one out of every two public schools in Iraq Centre either requires rehabilitation or is unqualified.

Table 10: Needs for school rehabilitation, Iraq Centre year (Public) in 2016

Column	(a)	(b)	(c)	Percentage	
Education Level	Total schools	Schools which need rehabilitation	Unqualified schools	(b)/(a)	(c)/(a)
Pre-school	640	303	66	47.3	10.3
Primary	10,660	4,503	1,631	42.2	15.3
Secondary	3,034	1,280	252	42.2	8.3
Vocational	220	118	22	53.6	10.0
Institutes	61	26	1	42.6	1.6
Total	14,615	6,230	1,972	42.6	13.5

Note: Data was obtained directly from the MOE, Iraq Centre
Source: MOE, Iraq Centre (2016)

2.1.3 Trends in Enrolment

The number of governorates reporting enrolment, dropout, repetition and teaching staff numbers vary by year due to changing security conditions. In 2013-2014, all governorates reported data except for Ninewa and Anbar governorates, potentially due to ongoing difficulties in obtaining data. Therefore the data from these two governorates are excluded from the trend analysis of enrolment numbers between 2013-2014 and 2015-2016.

In 2015-2016, 9.2 million students were enrolled in public and private schools across Iraq Centre and KRI, each of which represent 7.6 million and 1.6 million students respectively (Table 11). Large enrolment sizes (above one million) are observed in primary education (five million) and lower secondary education levels (1.6 million) in Iraq Centre, and basic education level (1.6 million of KRI). Overall, total enrolment grew by 9.6% in Iraq Centre and at a slower rate of 2% in KRI. The more rapid increase in enrolment in Iraq Centre is partly due to the influx of internally displaced persons (IDPs), which highlights the challenges in providing sufficient education to regions receiving IDPs.

Table 11: Enrolment by level of education, education sector and sex in Iraq Centre and KRI in 2015-2016 (in thousands)

Iraq Centre	Pre-School			Primary			Lower Secondary			Upper Secondary		
	Boy	Girl	Total	Boy	Girl	Total	Boy	Girl	Total	Boy	Girl	Total
Public	77.9	77.2	155.1	2,576.7	2,292.4	4,869.1	923.3	658.9	1,582.2	424.3	352.1	776.3
Private	13.2	11.4	24.6	80.2	41.1	121.3	29.9	11.2	41.1	18.1	14.7	32.8
Total	91.1	88.6	179.6	2,656.9	2,333.5	4,990.4	953.2	670.1	1,623.3	442.4	366.7	809.1

KRI	Pre-School			Basic			Upper Secondary		
	Boy	Girl	Total	Boy	Girl	Total	Boy	Girl	Total
Public	29.2	29.6	58.9	635.2	566.2	1,201.4	141.0	150.4	291.4
Private	3.7	3.4	7.1	11.2	8.5	19.7	2.8	2.5	5.3
Total	33.0	33.0	66.0	646.4	574.7	1,221.1	143.7	152.9	296.6

Total	Pre-School			Basic			Upper Secondary		
	Boy	Girl	Total	Boy	Girl	Total	Boy	Girl	Total
Public	107.2	106.8	213.9	4,135.2	3,517.5	7,652.7	565.2	502.5	1,067.7
Private	16.9	14.8	31.7	121.2	60.8	182.1	20.9	17.2	38.1
Total	124.0	121.6	245.6	4,256.4	3,578.3	7,834.7	586.1	519.7	1,105.8

Region Total		Boy	Girl	Total	% Change from 2013-2014
Iraq Centre	Public	4,002.2	3,380.5	7,382.6	8.9
	Private	141.3	78.4	219.7	39.4
	Total	4,143.5	3,458.9	7,602.4	9.6
KRI	Public	805.4	746.2	1,551.6	2.2
	Private	17.7	14.4	32.1	-5.8
	Total	823.0	760.7	1,583.7	2.0
Iraq Total	Public	4,807.5	4,126.7	8,934.3	7.7
	Private	159.0	92.8	251.8	31.4
	Total	4,966.5	4,219.5	9,186.1	8.2

*Sum of primary and lower secondary education of Iraq Centre and basic education of KRI
Note: Data was obtained directly from the Iraq Centre and KRI governments.
Source: MOE, Iraq Centre (2016); and MOE, KRI (2016)

In Iraq Centre, a comparison of the enrolment numbers reveals a large variation in enrolment growth across education levels (Table 12). Increases in enrolment are larger for higher levels of education: 5.6% at pre-school level, 7.6% at primary level, 12.6% at lower secondary level, and 17.8% at upper secondary level. A similar trend is observed in KRI, where enrolment grew by 0.6% at pre-school level and 0.7% at basic level, yet at a much higher 8.1% in the upper secondary level. Therefore, this more rapid growth in enrolment in higher levels of education should be matched by corresponding growth in education resources focused on this level.

Almost all governorates increased their total enrolment from 2013-2014 to 2015-2016, with the exception of Kirkuk, where enrolment dropped from about 336,900 students to about 294,000 students, a decrease of 12.7%. In fact, Kirkuk's enrolment dropped across all education levels except for pre-school. Significant growth occurred in Kerbela (15.7%), Baghdad (13.8%) and Najaf (12.2%). These three provinces are close to Anbar, a governorate experiencing heavy rebel activity. Therefore, enrolment changes may not be only due to demographic changes among the local population but also due to an influx of people fleeing from Anbar and other less stable governorates.

Table 12: Enrolment numbers by level of education and governorate, total (thousands) from 2013-2014 to 2015-2016

Governorate	Pre-School						Primary						Lower Secondary						Upper Secondary						Total		
	2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016		2014-2015	2015-2016	
	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	
Ninewa	20.2	-	-	-	-	-	580.6	286.4	213.2	6.8	60.0	334.8	364.2	371.8	387.8	102.6	107.9	114.6	119.6	119.6	72.6	45.4	56.7	61.8	814.8	430.7	472.0
Salah al-Din	7.8	-	7.8	-	13.1	13.1	286.4	213.2	6.8	60.0	334.8	364.2	371.8	387.8	102.6	107.9	114.6	119.6	119.6	72.6	45.4	56.7	61.8	430.7	430.7	472.0	294.0
Kirkuk	12.5	-	-	-	-	-	213.2	261.1	237.2	265.6	80.8	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	36.2	36.2	36.0	336.9	336.9	294.0	294.0
Diyala	7.0	6.2	6.8	6.8	6.8	6.8	261.1	237.2	265.6	80.8	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	82.7	43.2	43.2	43.2	392.1	392.1	414.1	414.1
Baghdad	61.8	60.0	63.5	60.0	63.5	63.5	1,311.9	1,369.4	1,473.4	433.9	477.6	515.6	433.9	477.6	515.6	204.0	222.5	237.6	237.6	204.0	222.5	237.6	204.0	2,011.6	2,011.6	2,290.1	2,290.1
Anbar	12.2	-	-	-	-	-	334.8	364.2	371.8	387.8	102.6	107.9	114.6	119.6	119.6	119.6	119.6	119.6	119.6	119.6	56.1	56.1	56.1	505.7	505.7	-	-
Babil	8.3	8.4	9.2	8.4	9.2	9.2	364.2	371.8	387.8	102.6	107.9	114.6	119.6	119.6	119.6	119.6	119.6	119.6	119.6	119.6	68.4	68.4	68.4	537.1	537.1	585.0	585.0
Kerbela	8.0	7.6	7.8	7.6	7.8	7.8	226.0	241.0	260.5	64.7	70.0	74.9	64.7	70.0	74.9	33.1	37.1	40.6	40.6	33.1	37.1	40.6	331.7	331.7	355.7	355.7	383.7
Najaf	9.3	11.1	11.2	11.1	11.2	11.2	264.5	281.5	296.4	87.1	92.0	94.6	87.1	92.0	94.6	41.2	45.3	49.0	49.0	41.2	45.3	49.0	402.1	402.1	429.9	429.9	451.1
Qadisiya	10.0	10.2	10.5	10.2	10.5	10.5	227.0	234.9	242.4	74.0	78.7	84.1	74.0	78.7	84.1	34.2	38.9	43.3	43.3	34.2	38.9	43.3	345.3	345.3	362.7	362.7	380.3
Muthanna	3.8	3.6	4.1	3.6	4.1	4.1	143.5	150.4	154.5	44.3	44.2	44.2	44.3	44.2	44.2	44.2	44.2	44.2	44.2	44.2	22.5	25.8	25.8	211.5	211.5	229.4	229.4
Wassit	8.2	8.3	8.3	8.3	8.3	8.3	230.8	245.2	252.7	61.2	64.2	70.6	61.2	64.2	70.6	32.9	32.9	33.7	33.7	32.9	32.9	33.7	330.2	330.2	350.5	350.5	365.2
Thi-Qar	6.1	6.0	6.9	6.0	6.9	6.9	374.7	389.6	395.1	111.5	119.3	126.6	111.5	119.3	126.6	55.2	62.6	66.4	66.4	55.2	62.6	66.4	547.5	547.5	577.6	577.6	595.1
Missan	7.9	8.0	8.1	8.0	8.1	8.1	201.8	207.7	210.9	48.4	49.9	50.4	48.4	49.9	50.4	23.5	24.6	25.6	25.6	23.5	24.6	25.6	281.7	281.7	290.3	290.3	295.1
Basrah	19.4	20.0	22.4	20.0	22.4	22.4	531.8	548.3	567.8	161.9	171.6	180.8	161.9	171.6	180.8	64.2	67.0	76.3	76.3	64.2	67.0	76.3	777.3	777.3	807.0	807.0	847.4
Iraq Centre	202.5	149.3	179.6	149.3	179.6	179.6	5,552.2	4,277.1	4,990.4	1,685.7	1,364.7	1,623.3	1,685.7	1,364.7	1,623.3	815.6	658.6	809.1	809.1	815.6	658.6	809.1	8,256.0	8,256.0	6,449.7	6,449.7	7,602.4
(%) * Change	5.6%						7.6%						12.6%						17.8%						9.6%		
	2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016		2014-2015	2015-2016	
Governorate	26.1	31.1	23.5	31.1	23.5	23.5	423.8	436.3	438.5	84.7	87.6	95.2	84.7	87.6	95.2	534.6	555.0	557.2	557.2	534.6	555.0	557.2	460.0	456.9	454.0	454.0	
Erbil	11.4	9.8	13.0	9.8	13.0	13.0	370.7	330.3	358.9	77.8	116.8	82.1	77.8	116.8	82.1	460.0	456.9	454.0	454.0	460.0	456.9	454.0	558.3	558.3	572.5	572.5	
Dahuk	28.0	26.8	29.5	26.8	29.5	29.5	418.5	419.3	423.7	111.8	172.8	119.3	111.8	172.8	119.3	558.3	618.9	572.5	572.5	558.3	618.9	572.5	1,630.8	1,630.8	1,583.7	1,583.7	
Sulaimaniyah	65.6	67.7	66.0	67.7	66.0	66.0	1,213.0	1,185.8	1,221.1	274.3	377.2	296.6	274.3	377.2	296.6	1,552.9	1,630.8	1,583.7	1,583.7	1,552.9	1,630.8	1,583.7	1,630.8	1,630.8	1,583.7	1,583.7	
KRI	65.6	67.7	66.0	67.7	66.0	66.0	1,213.0	1,185.8	1,221.1	274.3	377.2	296.6	274.3	377.2	296.6	1,552.9	1,630.8	1,583.7	1,583.7	1,552.9	1,630.8	1,583.7	1,630.8	1,630.8	1,583.7	1,583.7	
(%) * Change	0.6%						0.7%						8.1%						2.0%						9.6%		

Excludes Ninewa and Anbar governorates
Note: Data was obtained directly from the Iraq Centre and KRI governments.
Source: MOE, Iraq Centre (2016), and MOE, KRI (2016)

With Iraq Centre and KRI combined, boys' enrolment reached five million in 2015-2016, compared to 4.6 million in 2013-2014 (Table 13). About 4.1 million students are now enrolled in Iraq Centre, an increase of 8.4%, while 0.8 million are enrolled in KRI, an increase of 0.8%. These numbers are driven by large enrolment in primary education (2.7 million) and lower secondary education (one million) in Iraq Centre, and in basic education (0.6 million) in KRI.

An additional trend in both Iraq Centre and KRI is higher enrolment growth at higher levels of education. Between 2013-2014 and 2015-2016, boys' enrolment in pre-school, primary, lower secondary and upper secondary across Iraq Centre grew by 5.4%, 6.7%, 10.1% and 16.2% respectively. Compared to Iraq Centre, KRI grew at a slower rate. However, the gap in enrolment is less pronounced in KRI, where pre-school and basic enrolment grew by 0.3% and 0.4% respectively while upper secondary enrolment grew at a higher rate by 2.7%. Enrolment generally increased at all education levels in most of the governorates between the two years, except in Kirkuk, where enrolment decreased by 17.9% from about 189,100 to about 155,300 students.

Table 13: Enrolment number by level of education and governorate, boys (thousands) from 2013-2014 to 2015-2016

Governorate	Pre-School			Primary			Lower Secondary			Upper Secondary			Total		
	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016
Ninewa	10.5	-	-	316.2	-	-	89.6	-	-	45.8	-	-	462.1	-	-
Salah al-Din	3.9	-	3.9	155.2	-	162.8	59.0	-	68.7	28.1	-	35.9	246.3	-	271.3
Kirkuk	6.2	-	6.7	114.4	-	94.1	47.7	-	36.2	20.9	-	18.4	189.1	-	155.3
Diyala	3.6	3.1	3.4	140.0	126.4	141.2	46.4	47.2	52.4	22.9	22.5	25.7	212.9	199.3	222.6
Baghdad	31.5	30.8	32.3	691.8	720.1	773.5	250.9	275.1	294.3	105.5	117.5	121.8	1,079.7	1,143.4	1,221.8
Anbar	6.0	-	-	180.5	-	-	64.8	-	-	35.2	-	-	286.5	-	-
Babil	4.1	4.3	4.6	196.1	198.7	206.9	66.0	69.0	71.3	32.2	35.2	39.2	298.4	307.2	322.0
Kerbela	4.2	3.9	4.1	121.0	128.2	138.0	37.3	39.4	41.6	17.9	20.4	21.5	180.2	191.8	205.2
Najaf	4.7	5.6	5.6	140.7	149.5	157.4	51.1	53.5	54.0	22.8	25.0	26.5	219.3	233.6	243.5
Qadissiya	5.0	5.1	5.3	122.1	126.6	130.0	44.5	46.7	48.6	18.8	21.1	23.6	190.4	199.5	207.5
Muthanna	2.0	1.9	2.1	79.2	82.2	84.2	28.4	27.7	27.8	11.8	13.5	15.5	121.4	125.3	129.7
Wassit	4.2	4.2	4.2	127.4	136.1	138.7	39.0	40.7	45.0	17.9	19.9	20.2	188.4	200.9	208.1
Thi-Qar	3.1	3.1	3.6	204.0	211.3	213.0	67.6	72.7	76.0	33.4	36.5	38.2	308.1	323.5	330.8
Missan	4.0	4.0	4.2	115.1	118.3	118.6	30.4	31.2	31.5	13.2	13.7	14.2	162.7	167.2	168.4
Basrah	9.9	10.2	11.0	282.7	291.3	298.5	97.1	102.5	105.9	35.4	37.0	41.7	425.1	441.0	457.1
Iraq Centre	102.9	76.1	91.1	2,986.3	2,288.5	2,656.9	1,019.9	805.7	953.2	461.7	362.2	442.4	4,570.8	3,532.6	4,143.5
(%) *Change	5.4%			6.7%			10.1%			16.2%			8.4%		
Governorate	Pre-School			Basic			Upper Secondary			Total					
	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016
Erbil	13.2	15.6	11.9	225.1	231.6	231.3	43.7	42.6	45.5	281.9	289.9	288.7	288.7	289.9	288.7
Dahuk	5.8	4.9	6.5	198.7	176.5	191.8	40.9	77.7	41.2	245.4	259.1	239.4	239.4	259.1	239.4
Sulaimaniyah	13.9	13.2	14.6	220.2	220.0	223.3	55.3	114.6	57.0	289.5	347.8	294.9	294.9	347.8	294.9
KRI	32.9	33.7	33.0	644.0	628.1	646.4	139.9	235.0	143.7	816.8	896.8	823.0	823.0	896.8	823.0
(%) *Change	0.3%			0.4%			2.7%			0.8%					

*Excludes Ninewa and Anbar governorates
Note: Data was obtained directly from the Iraq Centre and KRI governments.
Source: MOE, Iraq Centre (2016), and MOE, KRI (2016)

Table 15: Gender parity ratio by level of education and governorate from 2013-2014 to 2015-2016

Governorate	Pre-School		Primary		Lower Secondary		Upper Secondary		Total	
	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015
Ninewa	1.08	-	1.20	-	1.73	-	1.71	-	1.31	-
Salah al-Din	1.01	-	1.18	-	1.84	-	1.62	-	1.34	-
Kirkuk	0.98	-	1.16	-	1.75	-	1.36	-	1.28	-
Diyala	1.08	1.04	1.16	1.14	1.35	1.33	1.13	1.09	1.19	1.16
Baghdad	1.04	1.05	1.12	1.11	1.37	1.36	1.07	1.12	1.16	1.14
Anbar	0.95	-	1.17	-	1.71	-	1.68	-	1.31	-
Babil	1.00	1.03	1.17	1.15	1.57	1.51	1.31	1.33	1.25	1.23
Kerbela	1.09	1.04	1.15	1.14	1.36	1.28	1.18	1.22	1.19	1.17
Najaf	1.03	1.01	1.14	1.13	1.42	1.39	1.25	1.23	1.20	1.19
Qadissiya	0.99	1.00	1.16	1.17	1.51	1.46	1.22	1.19	1.23	1.22
Muthanna	1.07	1.12	1.23	1.20	1.79	1.68	1.47	1.49	1.35	1.31
Wassit	1.06	1.02	1.23	1.25	1.76	1.74	1.48	1.52	1.33	1.34
Thi-Qar	1.00	1.05	1.19	1.18	1.54	1.56	1.53	1.39	1.29	1.27
Missan	1.04	1.03	1.33	1.32	1.69	1.66	1.27	1.24	1.37	1.36
Basrah	1.04	1.05	1.14	1.13	1.50	1.48	1.23	1.23	1.21	1.20
Iraq Centre	1.03	1.04	1.16	1.15	1.53	1.44	1.30	1.22	1.24	1.21
(%) * Change	-0.4%	-0.4%	-2.2%	-2.2%	-7.1%	-7.1%	-7.6%	-7.6%	-3.4%	-3.4%
Governorate	Pre-School		Basic		Upper Secondary		Total			
2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2015-2016
Erbil	1.02	1.01	1.13	1.13	1.07	0.95	1.12	1.12	1.09	1.08
Dahuk	1.02	1.01	1.16	1.15	1.11	1.99	1.01	1.14	1.31	1.12
Sulaimaniyah	0.99	0.97	1.11	1.10	0.98	1.97	0.92	1.08	1.28	1.06
KRI	1.01	0.99	1.13	1.13	1.04	1.65	0.94	1.11	1.22	1.08
(%) * Change	-0.6%	-0.6%	-0.6%	-0.6%	-9.7%	-9.7%	-2.5%	-2.5%	-2.5%	-2.5%

*Excludes Ninewa and Anbar governorates
 Note: Data was obtained directly from the Iraq Centre and KRI governments.
 Source: MOE, Iraq Centre (2016), and MOE, KRI (2016)

With regards to enrolment, a regression analysis was conducted in order to find out the determinants of school attendance using a number of socio-economic indicators from IHSES 2012 data. Annex 2 shows the full specification.

First, at the individual level, age affects attendance differently by level of education, while being male is associated with a higher chance of attendance across all levels. Age has a positive effect on attendance at the primary level in Iraq Centre and on basic education in KRI, but a negative effect on attendance at secondary levels in Iraq Centre. This implies that children are more likely to attend primary school but less likely to attend secondary school within their respective school-going age brackets. The impact of age was not detected with respect to attendance to secondary school in KRI.

Second, participation in labour is unsurprisingly associated with a lower attendance rate at secondary levels in both Iraq Centre and KRI. Together with the negative effect of age on secondary school attendance, older children at secondary schools face higher chances of dropout in both regions. This finding is consistent with the findings of Barriers to Secondary School Attendance (IOM Iraq, 2013), where 46% of boys interviewed cite work as a reason for not attending secondary school.

Third, at the household level, a family's social background and place of residence affect school attendance. Household size has a significant negative effect on school attendance, where children in large families are more likely to be out of school. A family's wealth improves the chances of schooling, with a positive effect of per capita household expenditure on all education levels. Residence in certain governorates also affects attendance; those living in Missan and Salah al-Din, for example, are less likely to attend school at all levels.

In summary, Iraq experienced strong growth in enrolment from 2013-2014 to 2015-2016, especially for girls. However, girls are still at a disadvantage in accessing education across Iraq. A number of socio-economic factors, such as family wealth and children's choice to work instead of attending school, are also issues. On the other hand, the rising number of students poses new challenges in terms of providing sufficient education resources for the growing number of students. This implies that, unless Iraq increases its public education resources, its expanding enrolment will continue to strain existing education resources.

2.1.4 Enrolment of Internally Displaced Children

Based on available estimates for IDP children across Iraq and total enrolment across all education levels, overall out-of-school children (OOSC) rates for pre-school to upper secondary school are calculated (Table 16). Across Iraq Centre and KRI, a total of about 355,000 children remain out of school, accounting for 48.3% or nearly a half of IDP children. A large number of OOSC are located in Iraq Centre (about 330,000), where 67.9% of school-age children do not go to school. The OOSC rate among IDPs in Iraq Centre is significantly higher than the rate for KRI (10.6%). All the governorates in Iraq Centre have OOSC rates above 50%, and even accounting for governorate discrepancy, is large. The highest OOSC rates among IDPs are observed in Diyala (93.7%), Salah al-Din (91.5%) and Thi-Qar (86.8%), while the OOSC rate among IDPs in Muthanna is 52.7% (although this is still high). The OOSC rates of IDPs Iraq Centre highlight the serious need to provide equal access to education for internally displaced children.

Due to lack of information from previous years, it is unknown how much has changed in terms of enrolment at IDP children in camps and host communities (Table 17). However, as of 2015-2016, a total of 379,748 IDP children are now enrolled across the country. Large numbers of IDP students (242,777) are enrolled in primary education, forming nearly two-thirds of the total new enrolment cohort. Nearly 90% of IDP student enrolment is located in three governorates: Dahuk (118,415 students), Erbil (106,288 students) and Baghdad (73,682 students). Compared to formal schools, girls are relatively underrepresented in IDP new enrollees, as the GPR is higher for IDPs as compared to the normal population. This ratio is much larger at higher education levels, where IDP boys are more represented than girls by 1.5 times in secondary education and around two times in vocational schools and institutes.

Table 16: Enrolment number for IDP children and OOSC rates by governorate, 2015-2016

Governorates	Total IDP	IDP Children*	Total Enrolment	Total OOSC	OOSC Rate (%)
Iraq Centre	1,515,032	483,552	155,045	328,507	67.9
Salah al-Din	146,970	49,273	4,190	45,083	91.5
Kirkuk	382,314	120,328	40,921	79,407	66.0
Diyala	110,922	34,911	2,202	32,709	93.7
Baghdad	586,950	180,719	73,682	107,037	59.2
Babil	60,168	20,172	6,946	13,226	65.6
Kerbela	66,570	24,140	10,063	14,077	58.3
Najaf	78,756	25,865	8,865	17,000	65.7
Qadissiya	24,798	8,314	2,514	5,800	69.8
Muthanna	5,622	1,885	892	993	52.7
Wasit	25,134	8,598	2,240	6,358	73.9
Thi-Qar	8,972	3,069	404	2,665	86.8
Missan	6,642	2,363	966	1,397	59.1
Basrah	11,214	3,913	1,160	2,753	70.4
KRI	762,948	251,334	224,703	26,631	10.6
Erbil	353,478	111,253	106,288	4,965	4.5
Dahuk	409,470	140,082	118,415	21,667	15.5
Grand Total	2,277,980	734,887	379,748	355,139	48.3

Note: Estimates of IDP children are derived as "total number of IDPs reported by IOM Iraq" multiplied with "percentage of children in people in need of humanitarian assistance (aged between 0-18)*13/19 (the number of age cohort from pre-school to upper secondary schools). Sulaimaniyah does not report number of IDP enrolment and thus is excluded.

Source: MOE, Iraq Centre (2016), MOE, KRI (2016) and IOM Iraq (2016)

Table 17: Enrolment number of IDP children by Governorate, 2015-2016

Governorates	KG		Primary/Basic		Secondary		Vocational		Institutes		Grand Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Iraq Centre	450	406	51,104	47,440	31,543	23,140	440	121	203	198	83,740	71,305
Salah al-Din	-	-	692	2,088	768	642	-	-	-	-	1,460	2,730
Kirkuk	-	-	11,533	11,405	11,243	6,366	202	26	47	99	23,025	17,896
Diyala	-	-	758	737	353	344	4	6	-	-	1,115	1,087
Baghdad	308	289	24,438	21,825	14,222	12,084	195	84	139	98	39,302	34,380
Babil	49	47	2,584	2,535	841	861	18	2	9	-	3,501	3,445
Kerbela	38	23	3,945	3,324	1,706	1,020	7	-	-	-	5,696	4,367
Najaf	39	28	3,813	2,936	1,142	900	1	-	6	-	5,001	3,864
Qadissiya	-	-	981	800	400	328	2	2	1	-	1,384	1,130
Muthanna	5	11	373	302	99	99	3	-	-	-	480	412
Wasit	-	-	1,026	779	288	147	-	-	-	-	1,314	926
Thi-Qar	-	-	126	167	66	45	-	-	-	-	192	212
Missan	-	-	451	182	240	93	-	-	-	-	691	275
Basrah	11	8	384	360	175	211	8	1	1	1	579	581
KRI	-	-	79,635	64,598	49,574	29,667	405	231	425	168	130,039	94,664
Erbil	-	-	35,031	29,543	24,764	15,891	375	161	395	128	60,565	45,723
Dahuk	-	-	44,604	35,055	24,810	13,776	30	70	30	40	69,474	48,941
Total	450	406	130,739	112,038	81,117	52,807	845	352	628	366	213,779	165,969
Level Total	856	856	242,777	133,924	1,197	994	379,748					
Gender Parity Ratio	1.11		1.17	1.54	2.40	1.72	1.29					

Note: Data was obtained directly from the MOEs in Iraq Centre and KRI. Source: MOE, Iraq Centre (2016) and MOE, KRI (2016)

2.1.5 Trends in Dropout and Repetition Rates

The available data shows that the numbers of dropouts and dropout rates increased at almost all education levels in both Iraq Centre and KRI (Table 18) between 2013-2014 and 2015-2016, with the only exception being in the upper secondary level in KRI.

As of 2015-2016 in Iraq Centre, 2.3% of primary students dropped out of school. The dropout rate peaked at the lower secondary level (4.1%) and dropped back at upper secondary level (2.2%). Girls in Iraq Centre generally have a higher dropout rate than boys, and this is especially true at the lower secondary level where 4.7% of girls drop out as compared to 3.6% for boys. This represents the largest gender gap in dropout rates across all education levels.

There is no significant difference in dropout rates between Iraq Centre and KRI; data for the latter is not available for 2015-2016. However, the change in the gender gap for dropout rates in Iraq Centre and KRI is different. In Iraq Center, girls systematically have a higher dropout rate, while girls in KRI have a lower dropout rate than boys. The causes behind girls' higher dropout rates in Iraq Centre should be investigated further, with a focus on the lower secondary level, and necessary measures should be taken.

Table 18: Number of dropouts and dropout rates in selected levels of education, 2013-2014 to 2015-2016

Region	Level of Education	Sex	Dropout			Dropout Rate		
			2013-2014	2014-2015	2015-2016	2013-2014	2014-2015	2015-2016
Iraq Centre	Primary	Boy	46,948	35,132	52,653	1.6%	1.6%	2.0%
		Girl	54,095	37,223	57,515	2.1%	1.9%	2.5%
		Total	101,043	72,355	110,168	1.8%	1.7%	2.3%
	Lower Secondary	Boy	23,620	20,803	33,201	2.4%	2.7%	3.6%
		Girl	21,002	22,228	31,203	3.2%	4.0%	4.7%
		Total	44,622	43,031	64,404	2.7%	3.2%	4.1%
	Upper Secondary	Boy	6,408	5,462	8,819	1.4%	1.6%	2.1%
		Girl	6,724	5,793	7,902	2.0%	2.0%	2.2%
		Total	13,132	11,255	16,721	1.7%	1.8%	2.2%
	Total	Boy	76,976	61,397	94,673	1.8%	1.8%	2.4%
Girl		81,821	65,244	96,620	2.3%	2.3%	2.9%	
Total		158,797	126,641	191,293	2.0%	2.1%	2.6%	
KRI	Basic	Boy	10,631	12,667	-	1.7%	2.1%	-
		Girl	6,729	7,053	-	1.2%	1.3%	-
		Total	17,360	19,720	-	1.5%	1.7%	-
	Upper Secondary	Boy	4,862	4,149	-	3.6%	1.8%	-
		Girl	2,515	2,177	-	1.9%	1.6%	-
		Total	7,377	6,326	-	2.7%	1.7%	-
	Total	Boy	15,493	16,816	-	2.0%	2.0%	-
		Girl	9,244	9,230	-	1.3%	1.3%	-
		Total	24,737	26,046	-	1.7%	1.7%	-

Grand Total	Basic*	Boy	81,199	68,602	85,854	1.8%	1.9%	2.5%
		Girl	81,826	66,504	88,718	2.2%	2.2%	3.0%
		Total	163,025	135,106	174,572	2.0%	2.0%	2.7%
	Upper Secondary	Boy	11,270	9,611	8,819	1.9%	1.7%	2.1%
		Girl	9,239	7,970	7,902	1.9%	1.9%	2.2%
		Total	20,509	17,581	16,721	1.9%	1.8%	2.2%
	Total	Boy	92,469	78,213	94,673	1.8%	1.9%	2.4%
		Girl	91,065	74,474	96,620	2.2%	2.1%	2.9%
		Total	183,534	152,687	191,293	2.0%	2.0%	2.6%

Note: Data was directly obtained from the MOEs in Iraq Centre and KRI.
Source: MOE, Iraq Centre (2016); and MOE, KRI (2016)

Data shows that the number of students who repeat the same grade is an increasing trend in Iraq Centre between 2013-2014 and 2014-2015 (data for 2015-2016 is not available for both Iraq Centre and KRI), while the number is reducing significantly in KRI (Table 19).

As of 2014-2015 in Iraq Centre, 14.6% of primary students, 27% of lower secondary students and 22.1% of upper secondary students repeated grades. At the same time 10.1% of basic education students and 17.9% of upper secondary students in KRI repeat grades, lower than the rates observed in Iraq Centre.

It should be noted that girls generally tend to repeat less than boys at all levels of education in both Iraq Centre and KRI despite their higher dropout rates. This might suggest that girls perform better than boys in academic achievement if they are given an opportunity to remain in school.

Table 19: Number of repetitions and repetition rates in selected levels of education, 2013-2014 and 2014-2015

Region	Level of Education	Sex	Repetitions		Repetition Rate	
			2013-2014	2014-2015	2013-2014	2014-2015
Iraq Centre	Primary	Boy	316,851	369,771	10.8%	16.6%
		Girl	198,554	239,457	7.8%	12.2%
		Total	515,405	609,228	9.4%	14.6%
	Lower Secondary	Boy	205,200	248,818	20.6%	31.8%
		Girl	87,413	110,060	13.3%	20.0%
		Total	292,613	358,878	17.7%	27.0%
	Upper Secondary	Boy	72,033	91,975	16.1%	26.5%
		Girl	32,984	47,292	9.6%	16.7%
		Total	105,017	139,267	13.3%	22.1%
	Total	Boy	594,084	710,564	13.6%	21.2%
		Girl	318,951	396,809	9.0%	14.2%
		Total	913,035	1,107,373	11.5%	18.0%

KRI	Basic	Boy	100,260	79,738	15.8%	13.0%
		Girl	50,652	37,321	9.0%	6.8%
		Total	150,912	117,059	12.6%	10.1%
	Upper Secondary	Boy	40,474	36,927	29.7%	16.0%
		Girl	32,979	29,660	24.9%	21.2%
		Total	73,453	66,587	27.4%	17.9%
Total	Boy	140,734	116,665	18.3%	13.8%	
	Girl	83,631	66,981	12.1%	9.7%	
	Total	224,365	183,646	15.4%	12.0%	
Grand Total	Basic	Boy	622,311	698,327	13.7%	19.3%
		Girl	336,619	386,838	9.0%	12.7%
		Total	958,930	1,085,165	11.5%	16.3%
	Upper Secondary	Boy	112,507	128,902	19.3%	22.3%
		Girl	65,963	76,952	13.9%	18.2%
		Total	178,470	205,854	16.9%	20.5%
	Total	Boy	734,818	827,229	14.3%	19.7%
		Girl	402,582	463,790	9.5%	13.3%
		Total	1,137,400	1,291,019	12.1%	16.8%

Note: Data was directly obtained from the MOEs in Iraq Centre and KRI.
Source: MOE, Iraq Centre (2016); and MOE, KRI (2016)

2.1.6 Trends in Numbers of Teachers

As of 2015-2016, there were 394,883 teachers across all education sectors in Iraq Centre and 115,803 in KRI (Table 20), many of whom are primary school teachers. However, primary school is the slowest growing sector in terms of teacher numbers, especially in Iraq Centre, where the number of teachers decreased by 0.1%. At the same time, total enrolment in primary schools increased by 7.6%, putting a strain on currently available teachers. Similar issues were observed in Iraq Centre's upper and lower secondary schools, where the total enrolment size grew faster than the total number of teachers. Compared to Iraq Centre, KRI has a better supply of teachers with strong growth in the pre-school and lower secondary schools sectors.

Despite the growth in total number of teachers, the number and share of qualified teachers, for which data is only available from Iraq Centre public schools, has also decreased at all education levels except pre-school. The biggest drop was in primary school, where the number of qualified teachers dropped by 4%. Pre-school is the exception, where the number of qualified teachers increased by 8.5%. It should be noted that although the pre-school share of qualified teachers increased, it remains the lowest at 66% among all the education levels. The share of qualified teachers in upper secondary schools decreased from 79% to 77% by 2015-2016, despite the growing size of the sector.

The growth gap between enrolment and total number of teachers has negatively impacted the Pupil-Teacher Ratio (PTR), which reflects the increasing number of students per teacher in Iraq Centre. However, the reverse is true in KRI (Table 21). In Iraq Centre, except for pre-school, the number of students per teachers increased at all education levels. However, the PTR is the highest in pre-school level, as there are around 24.2 students for every teacher. The PTRs at the primary, lower secondary and upper secondary levels of education in Iraq Centre in 2015-2016 are 16, 17.4 and 17.3, respectively.

Due to its overall expansion in the number of teachers, KRI experienced a decrease in the PTR at all educational levels, with the largest drops at pre-school level. As of 2015-2016, the PTRs for pre-school, basic education and upper secondary education in KRI are 11.4, 13.8 and 13.7, respectively. These figures are significantly lower than those in Iraq Centre.

Table 20: Number of teachers and qualified teachers by level of education, 2013-2014 to 2015-2016

Number of Teachers					
	Lev. of Edu.	2013-2014	2014-2015	2015-2016	% Change*
Iraq Centre	Pre-School	7,971	6,373	7,409	7.6
	Primary	287,025	222,877	247,450	-0.1
	Lower Secondary	105,543	86,355	93,288	2.1
	Upper Secondary	51,390	41,140	46,736	6.5
	Total	451,929	356,745	394,883	1.3
KRI	Pre-School	4,157	5,202	5,799	39.5
	Basic	86,385	86,644	88,301	2.2
	Upper Secondary	19,693	20,289	21,703	10.2
	Total	110,235	112,135	115,803	5.1
Number of Qualified Teachers					
	Lev. of Edu.	2013-2014	2014-2015	2015-2016	% Change*
Iraq Centre	Pre-School	3,339	2,977	3,624	8.5
	Primary	192,093	165,564	184,370	-4.0
	Lower Secondary	70,936	59,775	69,373	-2.2
	Upper Secondary	33,423	26,473	34,230	2.4
	Total	299,791	254,789	291,597	-2.7
Share of Qualified Teachers (%)					
	Lev. of Edu.	2013-2014	2014-2015	2015-2016	% Change*
Iraq Centre	Pre-School	62	62	66	5.4
	Primary	79	77	77	-3
	Lower Secondary	80	72	77	-3
	Upper Secondary	80	67	78	-2.4
	Total	79	74	77	-2.8

*The percentage point change between 2013-2014 and 2015-2016. Teacher data of Ninewa and Anbar governorates are removed from the 2013-2014, as these governorates didn't report in 2015-2016.

Note: Data was obtained directly from the MOE, Iraq Centre.
Source: MOE, Iraq Centre (2016); and MOE, KRI (2016)

Table 21: Pupil-teacher ratio by governorate from 2013-2014 to 2015-2016

Iraq Centre	Pre-School						Primary						Lower Secondary						Upper Secondary									
	2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016		2013-2014		2014-2015		2015-2016					
	Governorate		Governorate		Governorate		Governorate		Governorate		Governorate		Governorate		Governorate		Governorate		Governorate		Governorate		Governorate					
Iraq Centre	Ninewa	29.4	-	-	21.5	30.4	17.2	14.2	19.5	18.4	27.6	-	-	21.0	19.3	14.6	21.3	16.0	17.0	17.4	-	-	24.1	-	-			
	Salah al-Din	21.5	-	-	30.4	17.2	14.2	19.5	18.4	27.6	-	-	21.0	19.3	14.6	21.3	16.0	17.0	17.4	-	-	24.1	-	-	24.0			
	Kirkuk	36.4	-	-	30.4	17.2	14.2	19.5	18.4	27.6	-	-	21.0	19.3	14.6	21.3	16.0	17.0	17.4	-	-	24.1	-	-	20.3			
	Diyala	17.9	16.7	21.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4		
	Baghdad	22.4	21.4	21.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	22.4	
	Anbar	30.8	-	-	21.5	30.4	17.2	14.2	19.5	18.4	27.6	-	-	21.0	19.3	14.6	21.3	16.0	17.0	17.4	-	-	24.1	-	-	17.6		
	Babil	19.5	19.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	
	Kerbela	24.7	22.5	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8	
	Najaf	28.6	32.2	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	30.8	
	Qadissiya	27.5	25.6	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3	26.3
	Muthanna	28.5	24.2	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
	Wassit	30.8	30.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7	26.7
	Thi-Qar	21.2	20.7	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6
	Missan	30.1	28.1	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
	Basrah	30.4	28.8	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4
	Total	25.4	23.4	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2	24.2
	KRI																											
KRI	Governorate	Pre-School		Basic		Upper Secondary		Pre-School		Basic		Upper Secondary		Pre-School		Basic		Upper Secondary		Pre-School		Basic		Upper Secondary				
		2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015	2013-2014	2014-2015			
		15.0	12.4	18.7	15.8	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	
		15.0	12.4	18.7	15.8	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	14.8	17.6	

Note: Data was obtained directly from the Iraq Centre and KRI governments.
Source: MOE, Iraq Centre (2016), MOE, KRI (2016)

2.2 Trends in Education Finance

2.2.1 Overall Picture

As of 2015-2016, a total of 6.8 trillion IQD was spent by the MOE out of an eight trillion IQD budget allocation. Iraq Centre represented the bulk of the education spending, where 6.8 trillion IQD was utilized on education. This comprises about 5.7% of Iraq's total government budget of 119.5 trillion IQD (Table 22). The total planned budget for education was 7.6 trillion IQD in Iraq Centre, meaning that 90.2% of the planned budget was spent. A majority of spending (98.1%) went to recurrent costs, such as employee compensation. In contrast, very little was used for capital expenditures, which accounted for just 129.7 billion IQD or only 1.9% of Iraq's total education budget. The budget for KRI is rather small with just 26.7 billion IQD spent on education, less than 1% of total MOE spending. On a per student basis, a total of one million IQD was spent for each student across Iraq (see Table 27). There is a significant spending gap between Iraq Centre and KRI, with Iraq Centre spending 1.3 million IQD per student – several times higher than KRI's spending of 47,125 IQD per student.

Table 22: Education budgets (million IQD) in 2015-2016

	Type of Budget	Budget		Actual	Expenditure as % of Total Government Budget
		Budget	Actual		
MOE, Iraq Centre	Recurrent	7,360,053	6,689,609	5.6	
	Capital	197,820	129,690	0.1	
	Total	7,557,873	6,819,299	5.7	
MOE, KRI	Recurrent	464,450	26,748	n.a.	
	Capital	-	-	n.a.	
	Total	464,450	26,748	n.a.	
Total MOE	Recurrent	7,824,503	6,716,357	n.a.	
	Capital	197,820	129,690	n.a.	
	Total	8,022,323	6,846,047	n.a.	

Note: The budget for KRI is not available. Per student expenditure includes from pre-school to secondary school.
Source: MOE, Iraq Centre (2016); and MOE, KRI (2016)

2.2.2 Iraq Centre

A total of 6.8 trillion IQD was spent for education in Iraq Centre in 2015-2016, a 44.2% increase from 4.7 trillion IQD in 2010-11 (Table 23). However, this is a drop from the spending peak at 2013-2014, when 7.9 trillion IQD was spent on education. The continuous decline in spending since 2013-2014 highlights the need for continued efforts to expand education investment.

This decline is especially concerning as the decreasing trend is strongest in the investment budget, which is already allocated a very small portion of Iraq central government's overall education budget. Recurrent spending declined between 2013-2014 and 2015-2016, dropping from 7.6 trillion IQD to 6.7 trillion IQD, a decrease of 12.4%. On the other hand, the investment budget has been consistently declining since 2012-2013, where 632.6 billion IQD was spent as investment. In 2015-2016, 129.7 billion IQD was spent on investment, around one-fifth (20.5%) of what was spent in 2012-2013. This low spending on investment, which was never more than 10% of total spending since 2010-11, is also characterized by low implementation rates. As of 2015-2016, 90.9% of the allocated recurrent budget was actually spent. On the contrary, less than two-thirds (65.6%) of the allocated investment budget was actually spent. Therefore, Iraq's education spending is heavily tilted towards recurrent expenditures, while little attention is given for the system's structural development and improvement.

Table 23: Budget of Ministry of Education, Iraq Centre from 2010-11 to 2015-2016 (million IOD)

Year	Recurrent budget			Investment budget			Total Ministry Budget		
	Allocated	Expensed	%	Allocated	Expensed	%	Allocated	Expensed	%
2010-2011	5,026,812	4,655,207	92.6	270,976	74,279	27.4	5,297,788	4,729,486	89.3
2011-2012	7,117,734	5,808,206	81.6	1,016,248	551,007	54.2	8,133,981	6,359,213	78.2
2012-2013	7,641,032	6,845,586	89.6	834,766	632,563	75.8	8,475,798	7,478,149	88.2
2013-2014	8,330,401	7,638,033	91.7	700,520	282,670	40.4	9,030,921	7,920,702	87.7
2014-2015	not approved	7,583,883	n.a.	not approved	130,876	n.a.	not approved	7,714,758	n.a.
2015-2016	7,360,053	6,689,609	90.9	197,820	129,690	65.6	7,557,873	6,819,299	90.2

Note: Data was obtained directly from the MOE, Iraq Centre.
Source: MOE, Iraq Centre (2016)

The allocated recurrent budget of Iraq Centre in 2015-2016 can be analyzed by disaggregating the budget by line item and governorate, while only figures of the MOE of Iraq Centre was available for the allocated investment budget (Table 24). In Table 24, "Central Ministry" refers to the budget used by the MOE. Other budget lines refer to budgets transferred from the MOE to other governmental institutions and local governments. The Central Ministry has the lowest implementation rate with just slightly more than half (54.2%) of its total budget actually spent. Other budget lines with low implementation rates were the General Inspector College (70.0%) and Baghdad College Secondary School (81.8%). Compared to these central institutions, the governorate budget lines (which reports only recurrent budgets) have high implementation rates above 95%, with the only notable exception being in Rassafa 1 (80.8%). Overspending was observed in Najaf (101.1%), Babil (103.8%), Rassafa 3 (103.9%), Karkh 1 (104.2%) and Karkh 2 (105.9%). Muthanna (100.4%) and Thi-Qar (100.7%) have actual spending close to their planned budgets.

Table 24: Budget of MOE, Iraq Centre by type of budget and budget line in 2015-2016 (million IOD)

	Recurrent Budget			Investment Budget			Ministry Total Budget		
	Allocation	Expend.	Implementation Rate	Allocation	Expend.	Implementation Rate	Allocation	Expend.	Implementation Rate
Central Ministry	253,175	114,727	45.3	197,820	129,690	65.6	450,995	244,417	54.2
Baghdad College Secondary School	2,315	1,895	81.8	n.a.	n.a.	n.a.	2,315	1,895	81.8
General Inspector Office	5,308	3,717	70.0	n.a.	n.a.	n.a.	5,308	3,717	70.0
Ninewa	491,139	0	0.0	n.a.	n.a.	n.a.	491,139	0	0.0
Basrah	558,743	574,489	102.8	n.a.	n.a.	n.a.	558,743	574,489	102.8
Kirkuk	274,712	270,048	98.3	n.a.	n.a.	n.a.	274,712	270,048	98.3
Salah al-Din	349,565	336,397	96.2	n.a.	n.a.	n.a.	349,565	336,397	96.2
Diyala	463,614	461,338	99.5	n.a.	n.a.	n.a.	463,614	461,338	99.5
Anbar	468,312	461,583	98.6	n.a.	n.a.	n.a.	468,312	461,583	98.6
Kerbela	300,354	298,333	99.3	n.a.	n.a.	n.a.	300,354	298,333	99.3
Najaf	323,023	326,544	101.1	n.a.	n.a.	n.a.	323,023	326,544	101.1
Babil	467,132	484,790	103.8	n.a.	n.a.	n.a.	467,132	484,790	103.8
Diwaniya	349,766	347,362	99.3	n.a.	n.a.	n.a.	349,766	347,362	99.3
Wassit	309,688	307,998	99.5	n.a.	n.a.	n.a.	309,688	307,998	99.5
Muthanna	155,699	154,525	99.2	n.a.	n.a.	n.a.	155,699	154,525	99.2
Missan	241,407	242,382	100.4	n.a.	n.a.	n.a.	241,407	242,382	100.4
Thi-Qar	509,247	512,722	100.7	n.a.	n.a.	n.a.	509,247	512,722	100.7
Rassafa 1	407,108	328,810	80.8	n.a.	n.a.	n.a.	407,108	328,810	80.8
Rassafa 2	351,537	346,161	98.5	n.a.	n.a.	n.a.	351,537	346,161	98.5
Rassafa 3	188,802	196,122	103.9	n.a.	n.a.	n.a.	188,802	196,122	103.9
Karkh 1	266,960	278,146	104.2	n.a.	n.a.	n.a.	266,960	278,146	104.2
Karkh 2	364,842	386,522	105.9	n.a.	n.a.	n.a.	364,842	386,522	105.9
Karkh 3	257,604	254,999	99.0	n.a.	n.a.	n.a.	257,604	254,999	99.0
Total	7,360,053	6,689,609	90.9	197,820	129,690	65.6	7,557,873	6,819,299	90.2

Note: Data was obtained directly from the MOE, Iraq Centre.
Source: MOE, Iraq Centre (2016)

A comparison of implementation rates between the Central MOE and the total budget of the MOE shows that implementation rates are historically lower in the Central Ministry budget than for the overall budget since 2009. In 2015, only 54.2% of the planned budget was spent by the Central Ministry, the lowest since 2010 and significantly lower as compared to 90.2% expenditure for the total MOE budget. In the same year, 65.6% of the MOE's investment budget and 45.3% of its recurrent budget was actually spent.

One interesting finding is that the expenditure rates of recurrent budgets and investment budgets are negatively correlated, meaning that an increase in the implementation rate of one is associated with a decrease in the rate of the other. This pattern can be observed since 2011, where 70.8% of recurrent budget and 54.2% of investment budget was actually spent; in the succeeding year, the implementation rate of the recurrent budget decreased to 58.8% while that of investment budget increased to 75.8%. This negative correlation may imply that the investment budget is financed by unused portions of the recurrent budget.

Table 25: Trend in the implementation rate of the MOE, Iraq Centre (%)

	Budget Type	2009	2010	2011	2012	2013	2015
Ministry of Education	Recurrent	72.0	45.8	70.8	58.8	75.4	45.3
	Investment	80.3	27.4	54.2	75.8	40.4	65.6
	Total	77.3	38.2	58.9	69.5	54.3	54.2
Grand Total of MOE Budget		82.7	90.3	78.2	87.6	87.8	90.2

Source: MOE, Iraq Centre (2016)

2.2.3 Kurdistan Region of Iraq (KRI)

The current economic crisis seriously affected education financing in KRI. Compared to Iraq Centre, KRI as a whole has a shrinking education budget that has consistently decreased since 2012-2013 and a notably lower implementation rate due to lack of funding. As of 2015-2016, a total of 26.7 billion IQD was actually spent on education out of a 464.5 billion IQD allocated budget, resulting in an implementation rate of just 5.8%. In comparison, in 2012-2013, a total of 345.4 billion IQD was spent on education out of a 659.7 billion IQD planned budget, yielding an implementation rate of 52.4%. This implies that actual spending and implementation rates in KRI have dropped to around one-tenth of their 2012-2013 values within three years. This budget shrink is visible across all of the region's governorates, which also show a continuous and substantial decline in expenditure and implementation rates since 2012-2013. However, the most impacted governorates are Hawler (Erbil) and Dahuk, where less than 5% of the allocated budget (3.7% and 3.5% respectively) led to actual spending. Considering the long-term impact this can have on expansion and quality of education, this current budget problem requires immediate attention.

Table 26: Budget of MOE, KRI from 2012-2013 to 2015-2016 (in million IQD)

Governorate		2012-2013	2013-2014	2014-2015	2015-2016
Hawler	Budget	219,693	228,587	167,798	157,270
	Expenditure	100,814	62,600	22,042	5,810
	Implementation rate (%)	45.9	27.4	13.1	3.7
Slemani	Budget	198,337	242,702	210,976	150,610
	Expenditure	98,254	47,252	25,629	9,601
	Implementation rate (%)	49.5	19.5	12.1	6.4
Dahuk	Budget	172,675	147,897	128,367	112,528
	Expenditure	105,451	42,912	14,236	8,019
	Implementation rate (%)	61.1	29.0	11.1	7.1

Table 26: Budget of MOE, KRI from 2012-2013 to 2015-2016 (in million IQD)

Governorate		2012-2013	2013-2014	2014-2015	2015-2016
Garmian	Budget	44,841	36,359	24,203	19,305
	Expenditure	31,413	8,646	5,584	2,457
	Implementation rate (%)	70.1	23.8	23.1	12.7
Raparin	Budget	24,187	33,736	30,888	24,737
	Expenditure	9,489	10,404	4,819	861
	Implementation rate (%)	39.2	30.8	15.6	3.5
Total	Budget	659,733	689,281	562,232	464,450
	Expenditure	345,421	171,814	72,310	26,748
	Implementation rate (%)	52.4	24.9	12.9	5.8

Source: MOE, KRI (2016)

2.2.4 Estimated Economic Loss Due to Repetition and Dropout

Economic costs due to dropouts and repetitions are estimated for the whole education system, as well as separately for Iraq Centre and KRI using 2014-2015 data, as the repetition data for the latter is unavailable for 2015-2016. The sum of repetition rates and dropout rates can be considered as a "wastage" indicator of internal inefficiency for the resources (e.g. teachers, teaching learning materials, class room spaces etc.) used for these students, where students failed to progress to next grade or dropped out from the school without gaining the full-spectrum of intellectual, social, cultural and ethical knowledge and skills that they are supposed to learn in public schools.

After calculating these rates using enrolment numbers, expenditures, and nationwide repetition rates and dropout rates, we found that in 2014-2015 a total of 1.5 trillion IQD was wasted across the education system due to dropout and repetition. By calculating this figure separately by region, we found that 1.6 trillion IQD was wasted in Iraq Centre. On the other hand, a significantly lower 9.9 billion IQD was wasted in KRI, due to its lower dropout and repetition rates and lower spending.

Table 27: Economic costs of dropout and repetition in 2014-2015

	MOE, Iraq Centre	MOE, KRI	MOE, Total	
Total No. of Students in Public School ('000)	6,146	1,534	7,680	
MOE budget (in million IQD)	n.a.	562,232	562,232	
MOE Actual Expenditure (in million IQD)	7,714,758	72,310	7,787,068	
Overall Dropout Rate (%)	2.1	1.7	2.0	
Overall Repetition Rate (%)	18.0	12.0	16.8	
Unit Cost for Public Education	Budget	-	n.a.	
	Actual	1,255,338	47,125	1,013,940
Economic costs due to dropout and repetition *	in IQD (million)	1,550,666	9,906	1,463,969

* based on actual expenditure

Note: the sum of economic costs in Iraq Centre and KRI should not mathematically match with the national figure.

Source: Author's Calculation

2.3 Major Findings

Data

- Non-reporting of data is a serious issue in hindering a robust analysis, especially for indicators of education inefficiency such as dropouts and repetitions. Data collection efforts can be expanded in governorates with a recent history of instability, such as Ninewa and Anbar. Available data for the private education sector is less comprehensive, limiting certain analyses to public schools. Under prolonged emergency situations, alternative methods of collecting data such as use of mobile phone platforms could be considered.
- Management of financial data also needs improvement. The investment budget is not disaggregated by governorate, which hindered the analysis of utilization rates of capital investment at the governorate level.

School Level Issues

- Despite starting from a relatively low base, the number of private schools has expanded rapidly, overtaking the growth in the number of public schools. Strong growth is more evident in Iraq Centre, where the number of private schools at pre-school, primary, lower secondary and upper secondary levels has increased by 26.5%, 46.9%, 36.6% and 33.7% respectively. The number of private schools in KRI shrunk at pre-school and basic levels but increased by 11.5% at upper secondary level, higher than 7.1% in the public education sector.
- Out of 14,615 public schools in Iraq Centre, 6,230 schools need rehabilitation while 1,972 schools are unqualified, representing 42.6% and 13.5% of the total respectively. In other words, one out of every two public schools either requires rehabilitation or is unqualified.
- Significant gaps in educational achievement are observed between different types of student groups. The 2011-2012 primary school exam results show that 92% of students in the morning shift pass the exams, while 97% of private school students pass. In contrast, only 72% students enrolled in evening shifts passed the exams. Such observed achievement gaps, rapid expansion of private schools, and a significant proportion of schools with more than one shift (35.3% of Iraq Centre primary schools and 32.4% of KRI basic education schools in 2015-2016) raise significant questions about the disparity in the quality of education received between different student groups. As the achievement data is available for only 2011-2012, further monitoring of exam results and gaps in education success are needed for more detailed and dynamic analyses in the future.

Enrolment

- As of 2015-2016, 9.2 million students are enrolled across all education levels in Iraq Centre and KRI, which represent 7.6 million and 1.6 million in total enrolment respectively. Enrolment in Iraq Centre grew more rapidly over the past two years at 9.6%, as compared to 2% for KRI. Fast enrolment growths were also observed in governorates such as Kerbela (15.7%), Baghdad (13.8%) and Najaf (12.2%), all of which are located near to volatile Anbar governorate. Enrolment growth in these governorates indicates an inflow of IDPs from less stable nearby regions.
- Faster enrolment growth is observed at higher education levels in both Iraq Centre and KRI. Enrolment in Iraq Centre grew by 5.6% at pre-school level, 7.6% at primary level, 12.6% at lower secondary level and 17.8% at upper secondary level. The growth gaps are more pronounced in KRI, where pre-school and primary school enrolment grew by just 0.6% and 0.7% respectively, while upper secondary enrolment grew by 8.1%. The growth figures imply that fast enrolment expansion at higher education levels should be matched by a corresponding expansion in education resources.
- Girls' enrolment grew at all levels and at faster rates than boys' enrolment. In Iraq Centre, girls' enrolment increased by 5.9% at pre-school level (5.4% for boys), 8.7% at primary level (6.7% for boys), 16.3% at lower secondary level (10.1% for boys), and 19.8% at upper secondary level (16.2% for boys). In KRI, girls' enrolment grew by 1% at pre-school level (0.3% for boys), 1% at primary level (0.4% for boys), and 13.7% at upper secondary level (2.7% for boys). This momentum in increasing education access for girls is a positive development and should be maintained.
- Girls' gains in enrolment decreased the gender parity gaps across all levels of education. In Iraq Centre, the overall gender gap decreased from 1.24 in 2013-2014 to 1.20 in 2015-2016. The GPR in KRI is lower than in Iraq Centre, yet still decreased from 1.11 in 2013-2014 to 1.08 in 2015-2016. However, relatively large gender gaps remain at secondary education in Iraq Centre, where there are 142 boys and 121 girls for every 100 girl at lower secondary level and upper secondary level respectively in 2015-2016, highlighting the needed efforts to bring more girls to higher levels of education.
- Regression analysis revealed significant effects of age, employment, sex and family background on

school attendance. Children are less likely to attend secondary school than primary schools. Statistical analysis shows that children at this age cohort tend to choose to work instead of going to school. Their low attendance in secondary school is also supported by available EMIS data; total net enrolment ratio in Iraq Centre public schools stood at 93.7% at primary level, while the ratio dropped to 51.7% at lower secondary level and even further to 27.7% at upper secondary level. Therefore, lowering opportunity costs and improving access to education at the secondary level should be of great concern to Iraqi education policy-makers.

- Despite the gains in enrolment, females are still at a disadvantage in gaining access to education. Children of large families may be left out of school, a risk which increases among lower-income families. The affordability of education should therefore be evaluated and addressed. School-age children in certain governorates, such as Missan and Salah al-Din, are also less likely to attend primary and secondary schools.
- A snapshot of enrolment in IDP children and host communities across Iraq reveals that there were 379,748 IDP students enrolled in Iraq. However, a large proportion of school-age IDP children are missing an opportunity to receive their education. A total of 355,139 children remain out of school, representing 48.3% of the total population of IDP school-age children. Extreme cases are observed in Salah al-Din and Diyala, where more than 90% of school-age children do not participate in the education system. These OOSC rates highlight the serious need to provide equal access to education for internally displaced children. IDP girls are even more underrepresented, as boys outnumber girls by 1.5 times at secondary level, 2.4 times at vocational schools and 1.7 times at institutes. The overall findings suggest a critical need to expand education opportunities for IDP children, especially IDP girls.

Dropouts and Repetitions

- Dropout and repetition rates are increasing in Iraq Centre. The increasing rates add concern to previous findings (UNESCO, 2003), which also pointed out the chronic inefficiency in Iraq's education system caused by high levels of repetition and dropouts.
- Dropout rates for the overall education system increased from 2% in 2013-2014 to 2.6% in 2015-2016. Dropout rates are higher in Iraq Centre (2.1%) than in KRI (1.7%) based on latest comparable year (2014-2015). The lower secondary level in Iraq Centre is notable because dropout rates are significantly higher (3.6% for boys and 4.7% for girls) than for other education levels. In Iraq Centre, girls systematically have higher dropout rates, while boys have higher dropout rates in KRI. The underlying factors behind girls' higher dropout rates in Iraq Centre should be investigated with the focus at the lower secondary level, and necessary measures should be taken.
- In general, repetition rates are quite high both in Iraq Centre and KRI. In addition, from 2013-2014 to 2014-2015, the overall repetition rate increased from 12.1% to 16.8%. Repetition rates increased in Iraq Centre (from 11.5% to 18%) but decreased in KRI (15.4% to 12%). In general, girls tend to repeat less than boys across all education levels in both Iraq Centre and KRI. Girls' lower repetition rates and higher dropout rates in Iraq Centre imply that girls perform better than boys in academic achievement if they are given an opportunity to remain in school.

Teachers

- As of 2015-2016, there are 394,883 teachers in Iraq Centre and 115,803 teachers in KRI across all education levels. The teacher growth rate in KRI (5.1%) is faster than in Iraq Centre (1.3%), where teacher growth is slower than the enrolment growth across all levels except in pre-school, pushing up the number of students for each teacher and straining teaching resources. The number and share of qualified teachers is also dropping in Iraq Centre; the share of qualified teachers dropped from 79% in 2013-2014 to 77% in 2015-2016.
- As a result of slow teacher growth and strong enrolment growth, PTRs in Iraq Centre increased between 2013-2014 and 2015-2016 (from 19.3 to 20.2 in primary level; 16.0 to 17.4 at lower secondary level; 15.9 to 17.3 at upper secondary level), while PTRs in KRI decreased (15.8 to 11.4 at pre-school level; 14.0 to 13.8 at basic level; 13.9 to 13.7 at upper secondary level).

Education Finance

- Total spending on education had decreased from 7.9 trillion IQD in 2013-2014 to 6.7 trillion IQD in 2015-2016. A large portion of the budget went to recurrent costs, while little was spent on the investment budget, which has been declining at an even faster rate. Implementation rates are historically lower for the investment budget than the recurrent budget.
- Since 2011 in the MOE for Iraq Centre, increases in the implementation rate of the recurrent budget are

associated with decreases in the implementation rate of the investment budget and vice versa, highlighting the Ministry's inability to sustain implementation efforts for both at the same time.

- Compared to Iraq Centre, KRI's implementation rates are significantly lower and are decreasing, with the overall implementation rate dropping from 52.4% in 2012-2013 to 5.8% in 2015-2016. Actual spending and implementation rates in KRI dropped to around one-tenth of their 2012-2013 values within three years.
- Iraq Centre spends 1.3 million IQD per student (about 1,116 USD) covering from pre-school to upper secondary education, higher than KRI's spending of 47,125 IQD per student (about 40 USD) on a per capita basis in 2014-2015.
- The economic cost of dropouts and repetition in 2014-2015 in Iraq was a total of 1.5 trillion IQD or 18.8% of the total education budget (actual).

Chapter 3 Returns to Investments in Education

3.1 Theoretical Background

The fundamental importance of education has long been recognized, and is supported by a vast array of academic theory and evidence across numerous disciplines, including modern micro- and macro-economics. For example, the human capital approach is based on the premise that variations in labour income are largely due to differences in labour quality, which is determined by the amount of human capital acquired by the workers through education (Cohn, 1990). The marginal productivity theory also argues that wages are determined according to a worker's marginal contribution to the revenues of the firm (Hamermesh, 1986). Hence, public education provides general training to the future work force, creating valuable knowledge and skills and reducing economic inequalities linked to structural factors such as class or geography. Since the 1990s, endogenous growth theory has shed light on the importance of education at the macro level by arguing that education not only contributes to the quality of workers but also fosters technological advancements, which is essential to macro-economic growth (Romer, 1987 and 1990).

Investments in education yield a wide range of monetary and non-monetary benefits, including higher wages for workers, increased ability of people to adjust to changes in job opportunities, social benefits from improved research, a stable society united by common civic values, and an improved ability to appreciate and recognize a wider range of cultural differences (Schultz, 1963). These benefits can be categorized into private benefits (e.g. a higher wage) accruing to individuals, and social benefits (e.g. social savings due to reduction of crime through education) realized as positive externalities caused by education.

Studies on returns to investment in education have been done to capture the private returns to investments in education in various countries in the world, including in both developing and developed countries. These studies often use household survey data sets to examine the relationship between education and hourly wage using the Mincerian regression model (Mincer, 1974). The series of papers published by Psacharopoulos (1973, 1981 and 1994) and Psacharopoulos and Patrinos (2002) found that the rates of return to investments in education, especially in primary education, exceed the returns obtained from investments in physical capital.

Studies also have shown there to be significant social returns to investments in education. Psacharopoulos (1994) found that the social returns to education investments would average 10.6% (higher education) and 15.5% (primary education) in the Europe, Middle East, and North Africa regions. Psacharopoulos and Patrinos (2004) estimated that the return on hourly wages generated by an additional year of schooling is around 10.7% for middle-income countries, to which Iraq belongs. Venniker (2000) compared various literatures on the gaps between social and private returns to education and found consistent and substantial differences between private and social returns to education. Furthermore, Moretti (2005) detected a significant social savings from the crime reduction associated with high school graduation, finding a single percent increase in the high school completion rate of all men aged 20 to 60 would save as much as 1.4 billion USD per year in the U.S. The discrepancy between the private and social returns to education is a classical economic justification for government intervention in basic education (e.g. free basic education).

Table 28: Returns to investment in education by per-capita income group

Country (annual income)	Mean per capita income (USD)	Years of Schooling	Return to additional year of schooling (%)
Low income (\$755 or less)	375	7.6	10.9
Middle income (to \$9,265)	3,025	8.2	10.7
High income (\$9,266 or more)	23,463	9.4	7.4
World	9,160	8.3	9.7

Source: Psacharopoulos & Patrinos (2004)

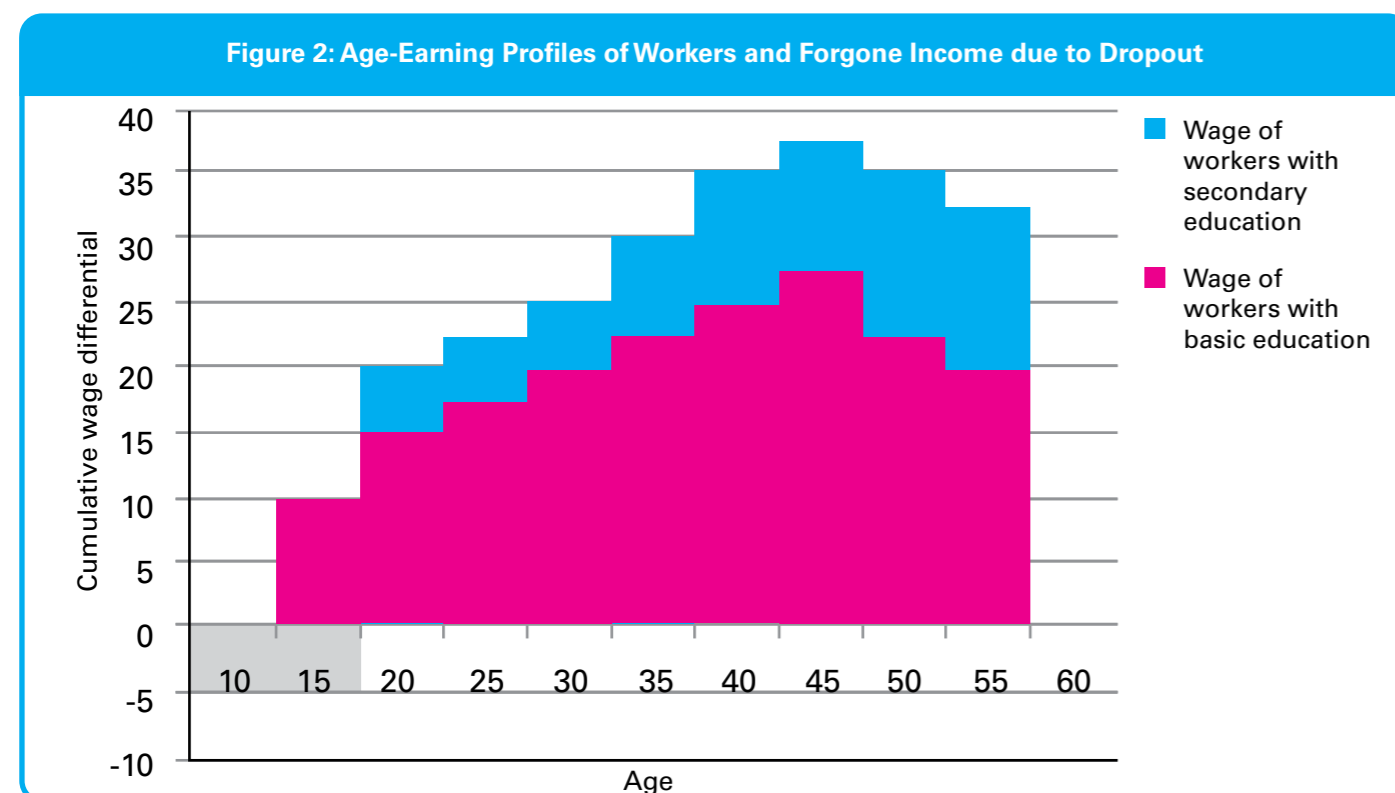
3.2 Empirical Evidence in Iraq

3.2.1 Benefits of Education

One of the most widely adopted methodologies for estimating the monetary benefit of education is the human capital approach. Although returns to education investments are estimated in various economies around the world, the returns to education investments in Iraq have not been fully analyzed due to various reasons, including the social and economic instability, confusion caused by numerous wars since 1990, and the relatively small size of the private sector. It is a common practice by governments in the Middle Eastern and North Africa (MENA) region to provide free basic, secondary and even tertiary education linked to public jobs as a strategy to reduce inequalities based on social class (Salehi-Isfahani, 2012). It could be premature to evaluate the true value of education in the post-war era of Iraq because the economic structure has been going through a number of transitions and reforms. It is, nonetheless, important to understand how different levels of education certificates are valued by the current Iraqi labour market, including both private and public employers, as this helps education and labour policy makers to identify education and labour issues in order to make informed decisions.

Using the 2012 IHSES, this section presents the analyses on the returns in investing in education as well as the economic costs of dropouts in G-12 education, which covers primary to upper secondary schools for both boys and girls in Iraq and KRI. The detailed methodology is presented in Annex 1. Particularly, this study analyzes 1) employment rates across male and female workers with different levels of education experience in Iraq Centre and KRI; 2) the relationship between hourly wages and additional years of schooling using Mincerian regression models; and 3) the wage differentials of workers with different levels of education certificates to estimate the economic costs of dropout. Due to the segregated labour markets in Iraq and KRI, the returns are estimated separately.

The basic concept of the wage differential is based on the notion that workers with a higher education certificate should earn a higher wage over an individual's life cycle. Figure 2 represents the concept of age-earning curves with different levels of education certificates. The difference in the lifelong earning (the blue area) represents the income difference for workers with a secondary education certificate as compared to a primary education certificate. The difference, as a matter of fact, can be interpreted as the forgone income of a child who dropped out from a secondary school.



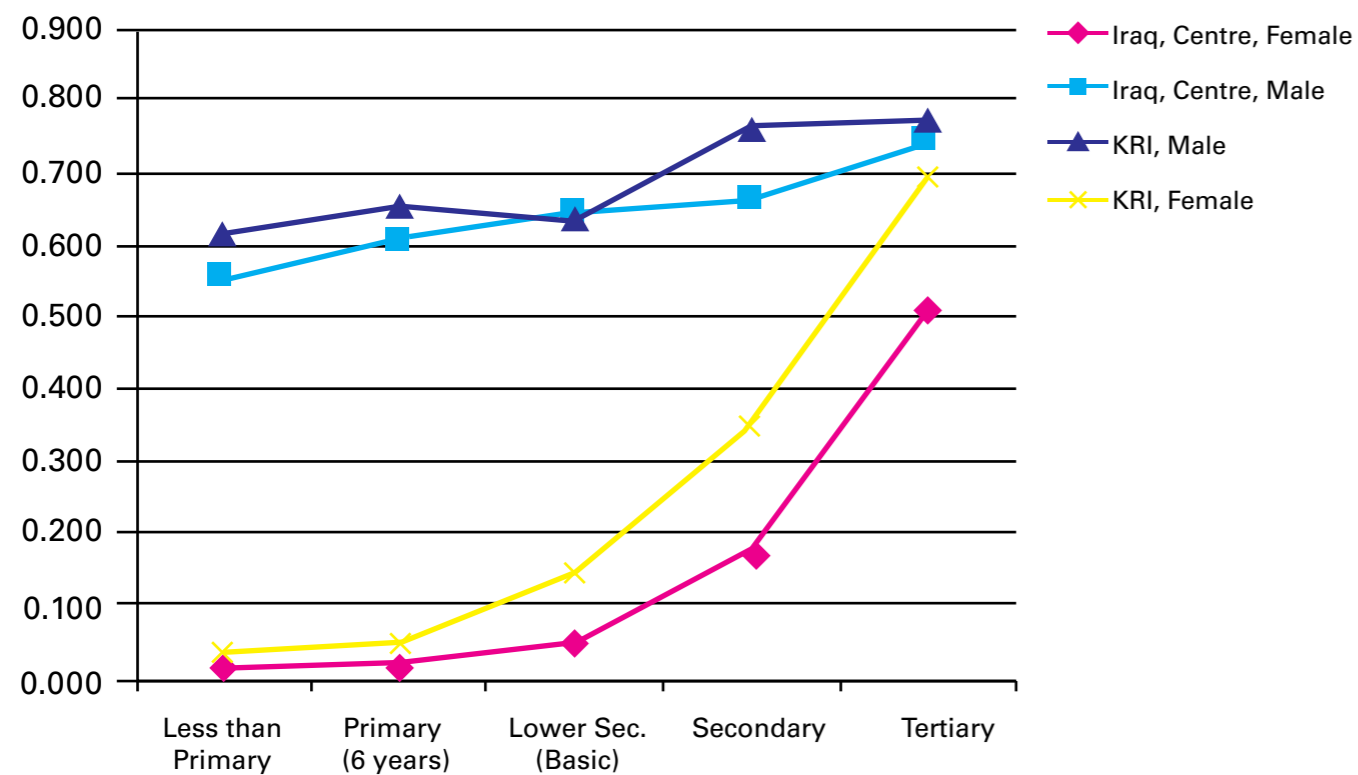
Although the Mincerian regression analysis is a predominant method to estimate returns to education investments, a limitation is that only wage-workers (whether one is in the formal or informal economy) are included. Thus the scope of the benefits of education is limited to private returns among wage-earners. This report, however, provided not only Mincerian regression analysis but also analysis on other economic returns to education such as employment rates which include both wage- and non-wage earners in the Iraqi labour market in order to examine the benefits of education for the whole of Iraqi citizens. The returns to education investments estimated through Mincerian regressions are conservative estimates of the total benefits to society, as the non-monetary social returns are not taken into account in this approach. This implies that educational investments should be favourably considered if the benefits estimated by this exercise and costs of education interventions are at the same level.

3.2.2 Employment Rate by Level of Education

IHSES 2012 data on employment shows the different rates of employment by gender and by level of education among those aged 15 to 60 years old (Figure 3). In both Iraq and KRI, the male employment rates, defined as the share of male workers among working-aged males, are higher than the female employment rates across all education levels. The gender gap in employment status is the largest among those with less than a primary education, where 55.3% of males in Iraq Centre and 61.3% of males in KRI are employed, several times higher than the female employment rates of 1.2% (around 48 times) and 3% (around 20 times) respectively. The gaps are narrower for higher levels of education, and by the tertiary level the employment rate in Iraq Centre is 74.1% for males and 50.8% for females. The employment gender gap for the tertiary level is even narrower in KRI, where the employment rate is 77.3% for males and 69% for females, a difference of just eight percentage points. The male employment rate is generally higher in KRI than in Iraq Centre; nevertheless, the employment rate goes up as the level of education increases. For males with less than a primary education, employment rates are 55.3% for Iraq Centre and 61.3% for KRI. The employment rate at the basic/lower secondary education in KRI is 63.7%, compared to 64.2% for Iraq Centre. The employment rate at the upper secondary level increases to 77.3% of males in KRI and 74.2% of males in Iraq Centre.

Likewise, the female employment rate increases according to higher levels of educational achievement for both Iraq Centre and KRI. At lower levels of education, the absolute difference in the female employment rates between Iraq Centre and KRI is small, as 3% of females in KRI are employed versus 1.2% in Iraq Centre. The gap significantly increases at the basic/lower secondary level, where 14.1% of females in KRI are employed versus 4.6% in Iraq Centre. At the tertiary level, 77.3% of females in KRI and 69% of females in Iraq Centre are employed, a large jump from the rates at basic/lower secondary level. This sharp increase contrasts to males where employment rates by level of education have a smoother trend, and underscores broader global evidence on the benefits of education on women's rights, empowerment, and equality at the household and society levels. This provides a strong motive for providing continuous education for girls in order to realize their full potential and participate in society and the labour market.

Figure 3: Employment rates among working age populations in Iraq centre and KRI



Note: Workers are defined as all those aged 15 to 60 years old who are not attending school.
Source: Government of Iraq (2012a)

3.2.3 Returns to Investment in Schooling: Mincerian Regression Analysis

Using a Mincerian earnings regression analysis, the additional wage returns realized from investing in additional years of schooling for both males and females across private and public sectors in Iraq Centre and KRI can be measured. The detailed results of regression analyses are attached as Annex 3. The regression results show that the return to an additional year of schooling is positive and significant regardless of gender, public/private sector or location (Iraq Centre/KRI), indicating that education is a worthy investment for all.

For males, the return to education is significantly higher for the public sector than private sectors in both Iraq Centre and KRI. In Iraq Centre, males in the public sector receive a 5.1% higher hourly wage per year of schooling, 4.1 times higher than the return received by males in the private sector (1.2% per year of schooling). The return gap is smaller in KRI, where males in the public sector receive 3.7% higher hourly wages per year of schooling, 2.1 times that received by males in the private sector (1.7% per year of schooling).

Unlike for males, the return to education for females by sector of employment in Iraq Centre and KRI are not consistent. In Iraq Centre, females in the public sector enjoy a 7.6% higher hourly wage per year of schooling, 1.5 times higher than for females in the private sector (5.2%). In KRI, females in the private sector earn a 7.2% higher hourly wage, slightly above the 6.9% return realized by females in the public sector.

Comparing males and females, the return on completing additional years of education is higher for females than males in both Iraq Centre and KRI. In Iraq Centre, females earn a 2.4% higher return than males in the public sector, and a 4% higher return in the private sector. In KRI, females earn 3.2% higher returns for additional years of education than males in the public sector, and 5.5% higher wages in the private sector.

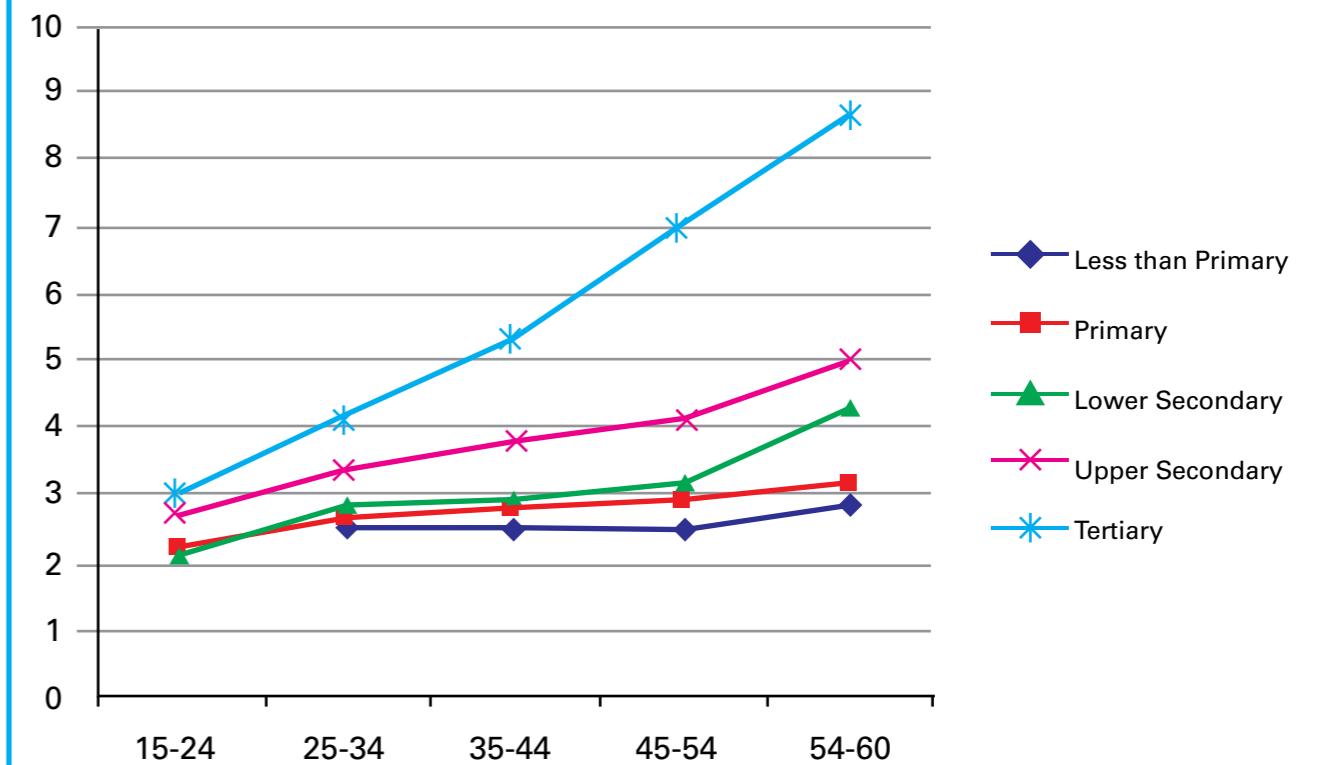
The returns to education are generally higher than the returns based on years of experience across the private and public sectors of Iraq Centre and KRI, implying that education is a strong contributor to wage growth and cannot be

easily replaced by experience alone, especially given the latter's convexity over time. In the public sector, both males and females have higher returns for educational attainment as compared to returns based on years of experience. Yet for males in the private sector, the return to experience is higher than the return for education, meaning that males in the private sector can compensate to some extent for lack of schooling through longer work experience. However, for females in the private sector, returns based on experience are not significant, implying a higher dependence on education for wage growth. The patterns are consistent between Iraq Centre and KRI. Therefore, females' high returns to education along with their dependence upon education rather than work experience to increase wages – especially in the private sector – highlights the potential for females to realize out-sized economic benefits from government investments in improving access to education. This provides strong evidence in support of current efforts to expand girls' enrolment across all education levels in Iraq Centre and KRI.

3.2.4 Estimated Life-Long Earning Profile by Level of Education

Using hourly median wage data, life-long earnings curves by level of education can be calculated for males and females. Based on Iraq's labour regulations, males aged 15 to 60 years old and females aged 15 to 55 years old were analyzed. For males, there is a visible divide between those who finished upper secondary and above versus those who did not, especially among older age groups (Figure 4). For those aged 15 to 24 years old, the wage gap is relatively small; males with less than primary education (lowest level) earn 2,024 IQD per hour while males with tertiary education or above earn 2,933 IQD per hour. From those aged 25 to 34 years old, males with tertiary education start earning significantly more than the rest at 4,167 IQD per hour, well above those with a lower secondary education or less, who earn less than 3,000 IQD per hour. Males with an upper secondary education also earn discernibly more than those at lower levels of education, at 3,348 IQD per hour, but lower than that of males with tertiary education. By the oldest age group of the workforce (those aged between 44 and 60 years old), males with tertiary education and upper secondary education earn 8,681 IQD per hour and 5,000 IQD per hour respectively, well above those with lower secondary education, who on average earn 4,286 IQD per hour. Across all age groups, wage gaps are clearly correlated to level of education, as people with higher education have higher wages than those with lower level of education.

Figure 4: Life-earnings curve, male (median hourly wage in 1,000 IQD)

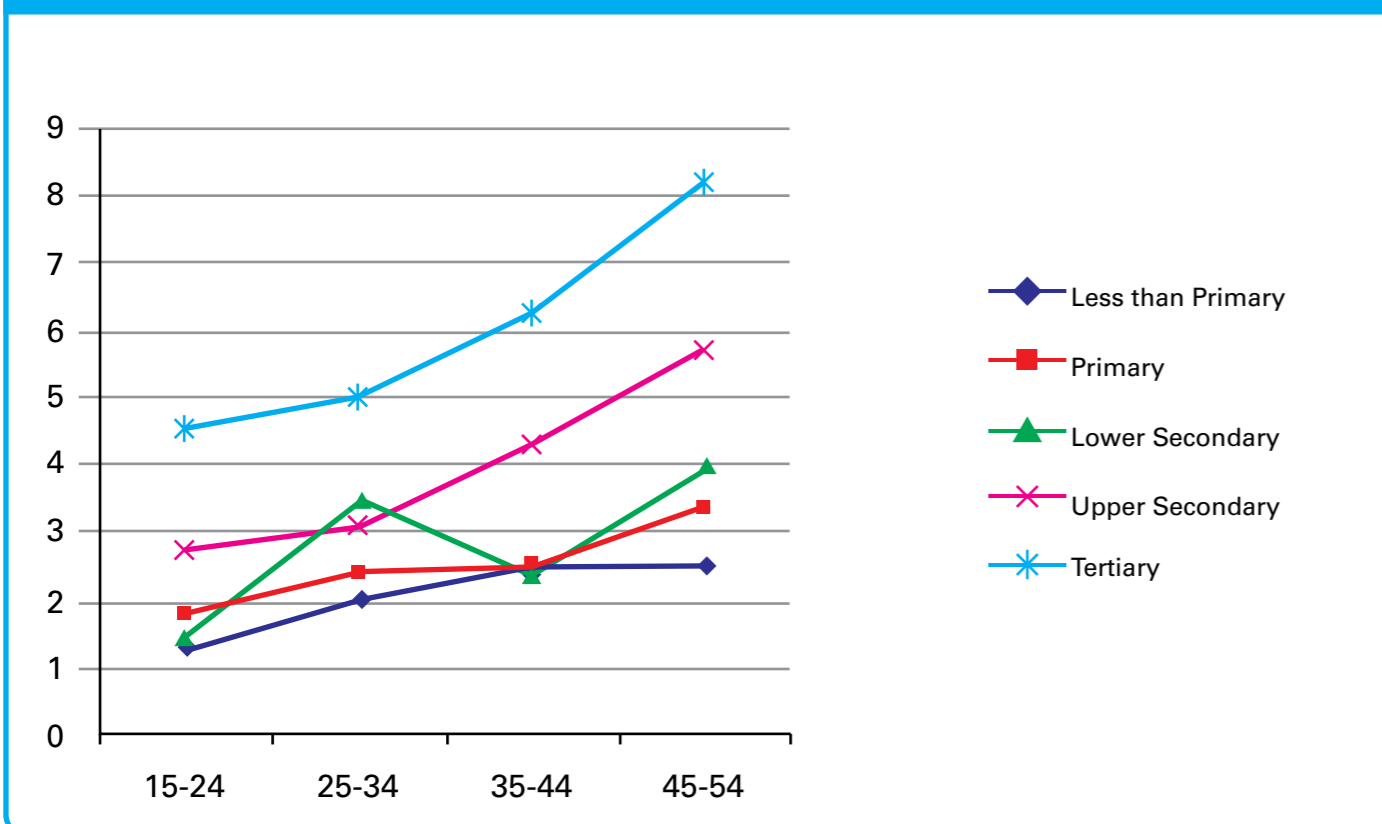


Source: Government of Iraq (2012a)

Similarly, an hourly wage gap is observable between women with an upper secondary education or above and those with a lower secondary education or below. Amongst those in the youngest age group of the workforce (those aged 15 to 24 years old), female workers with a tertiary education earn significantly more than the rest, at median wage of 4,583 IQD per hour, 1.7 times the second highest medium wage (2,750 IQD per hour), which is for those with an upper secondary education. A clear trend emerges starting with the 35 to 44 age group, where female workers with an upper secondary education or above earn significantly more than those with lower levels of education. By the oldest age group of work force (45 to 54 years old), the median wage for females with a tertiary education and upper secondary education are 8,125 IQD per hour and 5,741 IQD per hour respectively, while those with lower secondary education or less have median wages of 4,000 IQD per hour or lower.

If a similarity is to be drawn between life-earnings curves of males and females, access to secondary education or above is associated with clear wage advantages over people with lower levels of education throughout the life cycle. A less significant hourly wage gap is observed between those with lower secondary education or less.

Figure 5: Life-earnings curve, female (median hourly wage in 1,000 IQD)



Source: Government of Iraq (2012a)

3.2.5 Economic Cost of Dropout

In order to estimate the economic cost of drop-out rates, wages by level of education are annualized using interpolation and extrapolation techniques. In order to compare the sum of cash flows for the same time period, the annualized values are then divided by an appropriate discount rate, an assumed fixed rate that converts cash flows from one time period to the other. The resulting values are then summed to produce net present value (NPV) of expected wage for all the working years by level of education. The process can be illustrated by the following formula:

$$\text{et Present Value} = \sum_{i=0}^t \frac{C_i}{(1+r)^i}$$

Where C_i is the cash flow (i.e. the annualized wage) at time period i , and r is the discount rate. In this study, a discount rate of 7% is used as a main reference for interpretation of the results, while separate results using discount rates of 5% and 10% are provided to see the sensitivity of the results to the assumption of the main reference discount rate. It is assumed that workers with a lower secondary education certificate or below will work from the age of 15 until 60 years old. A worker with a higher education certificate is assumed to begin working at age 18, and workers with tertiary education start working at 22. Starting working ages are the same with female workers but their retirement age is set at 55 years old based on Iraq labour regulations. Due to the small sample size Iraq Centre and KRI are combined, only national figures are estimated in this analysis.

The NPVs of expected wages increased substantially by level of education for both males and females (Table 29). Males with less than primary education yield a NPV of 60.2 million IQD as their expected wage, which more than doubles to 126 million IQD if tertiary education is achieved. Females, on the other hand, earn lower than males at all levels of education but their expected wages are increased more substantially through education. A female without a primary education earns a NPV of 32.2 million IQD as expected wage, which jumped by 2.6 times after achieving tertiary education, higher than the jump in expected wage for males. A sensitivity analysis of the effect of the discount rate on estimated NPVs show that for males with tertiary education, a discount rate of 5% provides an upper NPV estimate of 171.8 million IQD, while using a 10% discount rate provides a lower estimate at 85.9 million IQD in lifetime wages. For females with tertiary education, the same discount rates provide NPV estimates of 109.3 million IQD and 60 million IQD in lifetime wages, respectively.

Table 29: Net present value of expected wage by sex and level of education (in 1,000 IQD)

Sex	Level of Education	Discount Rate					
		0.05		0.07		0.10	
		NPV of Wage	change % of additional level of education	NPV of Wage	change % of additional level of education	NPV of Wage	change % of additional level of education
Male	Less than Primary	81,978	n.a.	60,241	n.a.	42,011	n.a.
	Primary	93,828	14.5	69,056	14.6	48,192	14.7
	Lower Secondary	97,294	3.7	71,512	3.6	49,642	3.0
	Upper Secondary	121,866	25.3	88,466	23.7	60,323	21.5
	Tertiary	171,746	40.9	125,985	42.4	85,851	42.3
Female	Less than Primary	43,489	n.a.	32,183	n.a.	22,108	n.a.
	Primary	52,404	20.5	38,920	20.9	26,995	22.1
	Lower Secondary	57,228	9.2	41,552	6.8	27,955	3.6
	Upper Secondary	82,670	44.5	62,061	49.4	43,594	55.9
	Tertiary	109,343	32.3	83,770	35.0	60,048	37.7

Source: Government of Iraq (2012a)

The wage differentials by level of education show the significant jump in lifetime wage for each level of education, especially after achieving upper secondary education in both males and females (Table 30). Male and female workers without primary education can earn an extra 8.8 million IQD and 6.7 million IQD after receiving primary education, respectively. Likewise, male and female workers without lower secondary certificate would earn an extra of 2.5 million IQD if they were to reach the lower secondary certificate. Wage differentials at the upper secondary level jumped drastically from the earlier differentials. Males and females with an upper secondary education earn 17 million IQD and 20.5 million IQD more, respectively, in lifetime wage as compared to their

peers with only a lower secondary education. This jump in lifetime wages is the largest improvement observed at any level; indeed, this large differential underscores the need to provide equal access to education for women at the secondary level.

Table 30: Differences in NPV of life-earning wage (in 1,000 IQD)

	Comparison	Discount Rate		
		0.05	0.07	0.10
Male	Primary vs Less Primary	11,850	8,815	6,181
	Lower Sec. vs. Primary	3,466	2,457	1,449
	Upper Sec. vs. Lower Sec.	24,572	16,954	10,682
Female	Primary vs Less Primary	8,915	6,736	4,888
	Lower Sec. vs. Primary	4,824	2,632	960
	Upper Sec. vs. Lower Sec.	25,442	20,509	15,639

Source: Government of Iraq (2012a)

As shown earlier, access to education is a critical prerequisite for economic development, and discontinuing education will negatively impact economic achievement due to lower wages. This economic impact was quantified using 2014-2015 dropout data and wage differentials (Table 31). Before considering the LFPR and the assumed share of wage-workers among the educated, a total of 1.1 trillion IQD would be lost due to the unrealized potential wages foregone by school dropouts. The largest losses were observed among those who dropped out from primary education (384.1 billion IQD for males and 282.4 billion IQD for females) and upper secondary education (162.9 billion IQD for males and 163.5 billion IQD for females). After considering the share of wage-workers among the total population, 430.8 billion IQD would be lost due to dropouts. Males account for a majority of the losses (384.8 billion IQD or 89.3%) due to significantly lower participation rates for females. These results clearly show the extent of potential economic gains from keeping boys and girls in school.

Table 31: Total economic cost of dropout in 2014-2015

	Dropout at	No. of dropout	Wage Differentials ('000)	Total Economic Cost (million)	Share of Wage-Worker (%)	Economic Loss Due to Dropout (million IQD)
Male	Primary	43,577	8,815	384,128	63.6	244,306
	Lower Sec.	23,569	2,457	57,909		36,830
	Upper Sec.	9,611	16,954	162,945		103,633
	Total	76,757	--	604,982		384,769
Female	Primary	41,925	6,736	282,407	8.9	25,134
	Lower Sec.	26,930	2,632	70,880		6,308
	Upper Sec.	7,970	20,509	163,457		14,548
	Total	76,825	--	516,743		45,990
Total	--	153,582	--	1,121,726	--	430,759

Source: Author's calculation

3.3 Major Findings

Employment

- Employment rates increase as the level of education goes up for males and females in both Iraq Centre and KRI. For males, the employment rate smoothly increases with educational achievement, from 55.3% (Iraq Centre) and 61.3% (KRI) for those with less than primary education to 74.2% (Iraq Centre) and 77.3% (KRI) for those with tertiary education. Females experience a significant spike in employment rates after finishing basic/lower secondary education, from 4.6% (Iraq Centre) and 14.1% (KRI) for those with just a basic education to 69.0% (Iraq Centre) and 50.8% (KRI) for those with tertiary education. Given this and the earlier findings on high girls' dropout rate at lower secondary level, it is clear that continuing to expand girls' enrolment and programs to encourage girls to remain in school will yield sizable economic benefits for both these girls as individuals, and for Iraq as a whole.

Return to Education

- Returns calculated from Mincerian earnings regressions show that education has a positive and significant contribution towards earnings, regardless of gender, sector of employment or region. Economic returns from education are discernibly higher for females than males in both Iraq Centre and KRI; females in the public sector earn an additional 2.4 percentage points in return per year of schooling, while females in the private sector earn additional four percentage points. The gaps are even larger in KRI, where the public sector and the private sector rewards females with higher wages of 3.2 percentage points and 5.5 percentage points respectively based on educational achievement. The missed returns from not attending school are also not replaceable simply through work experience. This is strongly evidence among females in the private sector showing that work experience does not significantly increase wage, meaning that economic improvement for females is highly dependent upon receiving access to education.

Wages

- Data on median hourly wage reveal a substantial difference in life-long earning between workers with a higher level of education certificate and those with an education certificate at a lower level.
- The differences in life-long earning between those with and without upper secondary education or higher are large for both males and females, highlighting the significant differences that dropping out makes in economic livelihoods throughout the working years as well as the significant impact of completing secondary and tertiary education on life-long earning in Iraq.
- The economic cost of dropouts in primary, lower secondary and upper secondary are estimated to be 8.8 million IQD, 2.5 million IQD and 17.0 million IQD for male workers, respectively. For female workers, these values are 6.7 million IQD, 2.6 million IQD and 20.5 million IQD.
- Calculations of net present values of earnings show that males and females with tertiary education can expect 126 million IQD and 83.8 million IQD respectively, two times and 2.6 times an increase over the expected earnings of those with less than a primary education. The large differentials between those with upper secondary education and those with lower secondary education imply the need to provide equal access to education for women at the secondary level.
- A total of 1.1 trillion IQD is estimated to be lost from the Iraqi economy due to unrealized potential wages foregone by those who dropped out of the education system in 2014-2015. Taking into the LFPR and the share of wage-workers in the Iraq labour market into consideration, these losses still reach 430.8 billion IQD. This shows the extent of potential economic gains that could be realized from keeping boys and girls in school, as well as how much effort is needed in terms of improving the efficiency of Iraq's education system.

Chapter 4: Conclusions and Policy Recommendations to Maximize the Efficiency of the Education System

4.1 Major Findings

Data

- Data gaps due to non-reporting remain a significant issue, hindering efforts to analyze internal efficiencies and budgeting in the education sector. For example, 2015-2016 data is unavailable for governorates with volatile security conditions such as Ninewa and Anbar, and virtually no data on dropouts and repetitions is available for the private sector. Under prolonged emergency situations, alternative methods of collecting data such as the use of mobile phone platforms should be considered.
- Areas for potential improvement in data collection include exam test scores (only 2011-2012 data is available), quality of school data, the enrolment situation in IDP camps (only 2015-2016 data is available), and budget data (no governorate level investment budget data is available for Iraq Centre). There should be broad collaboration and a harmonized approach to data collection across the central government, private sector and KRI.

Access to Education and Quality

- A total of 9.2 million students are enrolled in Iraq as of 2015-2016, a 9.6% increase from the 2013-2014 level (see Table 32 for a summary of enrolment growth between 2013-2014 and 2015-2016 disaggregated by region, sex and level of education). In particular, there has been double-digit enrolment growth in higher levels of education. At the same time, school expansion and enrolment growth are not currently matched by growth in the number of teachers, especially at higher education levels. For instance, in Iraq Centre, enrolment size grew by 12.6% at the lower secondary level and 17.8% at the upper secondary level (a majority are in public schools), while growth in the number of teachers was a meagre 2.1% and 6.1%. Growth in the number of public schools during this period was 1.4% and 6.5%, respectively. Iraq needs to mobilize greater resources for education, particularly targeting higher education, in order to accommodate growing enrolment while also maintaining the quality of education.

Table 32: Enrolment growth by level of education and region between 2013-2014 and 2015-2016 (%)

	Sex	Pre-School	Primary	Lower Sec	Upper Sec	Total
Iraq Centre	Male	5.4	6.7	10.1	16.2	8.4
	Female	5.9	8.7	16.3	19.8	11.1
KRI	Male	0.3	0.4		2.7	0.8
	Female	1.0	1.0		13.7	3.3

Source: MOE, Iraq Centre (2016) and MOE, KRI (2016)

- Gender parity in access to education has improved, as girls' enrolment is growing more rapidly than boys across all levels in both Iraq Centre and KRI. The overall gender parity ratio (GPR) of Iraq Centre decreased from 1.24 in 2013-2014 to 1.20 in 2015-2016, and in KRI, GPR decreased from 1.11 in 2013-2014 to 1.08 in 2015-2016. Growth in girls' enrolment is a positive development, because evidence shows women's labour participation and wage earnings substantially increase with higher levels of education. However, girls are still under-represented compared to boys across all education levels in Iraq Centre, especially within higher education. The 2015-GPR is 1.42 for lower secondary and 1.21 for upper secondary levels.
- To facilitate future enrolment growth, certain socioeconomic factors that deter school attendance should be considered when forming policies to encourage enrolment. One key factor affecting enrolment is children's employment status, as school-age children choose to join the workforce instead of remaining in school. Larger family size also has a negative impact on school attendance, which affirms well-established linkages between education, family planning and gender equality. High income at the household level can increase school attendance, implying that the deleterious factors of child employment and large family size

are most acute among low-income families. Our regression analysis showed that being a girl increases the risk of failing to enter school, implying that the current efforts to get more children, especially low-income families and girls, enrolled in school must be maintained and expanded.

- While enrolment sizes are increasing across all levels, Iraq still faces problems with growing internal inefficiencies within its education system. The overall dropout rate increased from 2% in 2013-2014 to 2.6% in 2015-2016. Significant increases are observed in Iraq Centre, especially at the lower secondary level where the dropout rate is highest at 4.1%. Grade repetition is a more serious issue; in 2014-2015, 16.8% of all students across Iraq Centre and KRI repeated grades, with highest rates at the lower secondary (27%) and upper secondary (22.1%) levels in Iraq Centre. Combined with the overall dropout rate, this level or repetition means over one-fifth of Iraq's expenditure on its education system fails to yield the intended result in terms of student advancement to the next level of education. In monetary terms, this represented a total of 1.5 trillion IQD of government expenditure in 2014-2015. Given the broader context of social instability, future policy actions should focus on improving student achievement at each level of the system in order to reduce grade repetition, which will significantly improve internal efficiency.
- Despite the gains in access to education, girls still face significant challenges to remaining in school, as shown by girls' relatively higher dropout rates across all levels in Iraq Centre. Dropout rates are the highest at the lower secondary level at 4.7% for girls, compared to 3.6% for boys. Reducing the secondary level dropout rate is important due to the substantial increase in the probability of employment and wages that accrue from completing upper secondary education. In Iraq Centre, for example, 4.6% of females with lower secondary education are employed, compared to 17.3% among those who complete the upper secondary level. The wage gap also widens across the lifetime as wages increase steadily for females with secondary education yet remain stagnant for those without secondary education. The unrealized economic benefits of completing higher education, as well as girls' lower repetition rates, make a strong case for putting efforts towards encouraging girls to complete higher secondary school.
- A snapshot of enrolment among IDP children clearly indicates that more attention is needed to reach IDP children, and especially girls, with schooling. Nearly half (48.3%) of IDP children remain out of school. In many governorates in Iraq Centre, over two-thirds of children lack access to education, such as Salah al-Din (91.5%), Thi-Qar (86.8%) and Wassit (73.9%). Internally displaced girls are also more underrepresented than internally displaced boys in the formal education system; boys outnumber girls by 1.5 times at secondary level, 2.4 times at vocation schools and 1.7 times at institutes. There is a dire need to improve access to education in IDP camps and ensure that IDP girls are given the same opportunities as boys to enter school.
- At the current level of access to education, the unrealized economic benefits from missed earnings due to lack of education are stifling Iraq's development potential. In total, 430.8 billion IQD of potential earnings would be unrealized in 2014-2015 due to dropouts and the resulting inability to gain higher wages. A majority of unrealized earnings would come from working males, to the sum of 384.8 billion IQD. The foregone economic benefits for females are even more substantial, reaching a at maximum potential of 516.7 billion IQD that went unrealized due to women's inability to participate in the labour market at a similar rate with male workers.

Educational Resources and Quality

- There has been an expansion in the number private schools, which has now overtaken the growth rate for public schools at higher levels of education. Strong growth rates are more evident in Iraq Centre, where the number of private schools at pre-school, primary, lower secondary and upper secondary levels increased by 26.5%, 46.9%, 36.6% and 33.7% respectively. The number of private schools in KRI shrunk at pre-school (-5.7%) and basic levels (-3.1%) but increased at upper secondary level (11.5%).
- Compared to the private education sector, the school growth rate in the public education sector is sluggish while existing structures are struggling to handle growing enrolment levels. The number of public schools in Iraq Centre increased by 4.7% at the primary level, 1.4% at the lower secondary level, 6.5% at the upper secondary level, significantly slower than the respective growth in private schools. The public sector in KRI outperformed the private sector at the pre-school level (9.7%) and basic level (-1.4%), but underperformed at the upper secondary level (7.1%). Double shift schools, a tactic often used to handle large enrolment

sizes, now occurs in more than 30% of public schools across all levels above pre-school in Iraq Centre and KRI. This slow growth in the public sector combined with a large volume of double shift schools have dire implications for education quality, and will fuel further inequalities in educational achievement as gaps are already observable by type of school and type of shift attended. In 2011-2012 primary exam results showed that private school students have a high pass rates (97%) for their exams, while the pass rate for students in the regular morning shift drops to 92%, and then drops again to a mere 72% for students attending the evening shift at double-shifting schools. The quality of existing public school infrastructure is a concern in Iraq Centre, where 42.6% of public schools need rehabilitation while 13.5% of schools are unqualified.

- Despite the existing supply problems in Iraq’s existing school facilities, little resource has been spent on building new schools or improving existing schools. In Iraq Centre, only 197.8 billion IQD out of the 7.4 trillion IQD budget was slated for capital investment in 2015-2016, which represents a decline since 2012-2013. Of this amount, slightly less than two-thirds of the investment budget (129.7 billion IQD) was actually spent, roughly one-fifth of the 2012-2013 amount. The KRI budget has also declined from 659.7 billion IQD to 464.5 billion IQD, with zero budget for capital investment since 2013-2014. Even more troubling is that actual expenditure was only 26.7 billion IQD, representing just 5.8% of the planned budget and less than one tenth of the amount spent in 2012-2013. Considering the continuous under-investment in school infrastructure and the current repair and maintenance needs of existing facilities, a substantial increase in investment in physical infrastructure should be a priority policy action.

4.2 Policy Discussion on Gender Education, Strategies for Private Schools and Education Finance

Access to Education for Girls

Girls have historically been underrepresented in education systems across the Middle East. Yet even in comparison to its neighbours, Iraq still lags far behind in terms of access to education for girls. The latest publicly available data on Iraq from UNESCO Institute of Statistics (UIS) is from 2007, when girls constituted 46.3% of the country’s total primary enrolment. In 2007, this was the second lowest rate of participation of girls among countries with comparable data in the Muslim world after only Pakistan, where just 44.5% of primary students were girls (Table 33). Iraq’s share of girls enrolled in school has gradually increased since 2004, but still lags behind many regional countries.

Table 33: Percentage of girls enrolment in primary education, 2004-2013 (%)

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bahrain	48.9	48.7	48.8	..	48.8	48.8	48.8	49	48.8	49.2
Egypt	47.9	47.3	47.4	47.6	..	47.8	47.9	47.4	48.2	48.3
Iran	48	48.2	48.2	48.4	48.4	48.4	48.5	48.5	48.5	49.3
Iraq	44.3	..	..	44.4	..	..	..	..	..	46.3
Jordan	48.9	48.9	49.3	49.3	49	..	48.6	48.6	48.5	..
Kuwait	49	48.5	48.8	48.7	48.8	48.9	48.8	48.9	49.1	49.1
Lebanon	48.2	48.3	48.5	48.4	48.4	48.5	48.4	48.3	48.3	48.3
Oman	..	48.8	48.8	49	49.1	48.3	..	48.9	49.2	50.5
Pakistan	40.8	41.8	42.4	43.6	43.8	44.1	44	44.1	44.5	44.5
Qatar	48.5	48.7	48.8	48.7	49	48.9	48.8	48.7	49	49.2
Syria	47.6	47.8	47.8	47.8	47.9	47.9	47.9	48	48	48.1
Turkey	47.8	47.9	48.1	48.3	48.4	48.6	48.7	48.8	48.6	48.8
UAE	48.3	48.5	48.5	48.5	..	48.2	48.6	48.6	48.6	48.7
Yemen	40.5	41.6	..	..	43.6	..	44	43.9	44.3	44.7

Source: UNESCO Institute for Statistics (2016)

Achieving equality in access to education for girls is an important goal for Iraq. This is set forth as a national priority in Iraq’s commitment to Sustainable Development Goal 4 as a major focus of development. Global evidence over many decades makes clear that providing education for girls is “the most consistent driver of development goals”, especially if girls achieve secondary education (UNICEF 2013). For example, educating girls has clearly-established health impacts, with educated mothers more likely to marry later and have fewer but healthier children, and are less likely to die in childbirth (Levine, Lloyd, Greene, & Grown, 2008). Each extra year of a mother’s schooling reduces an infant’s chance of death by as much as 5 to 10 percent (UNICEF, 2014b), and educated mothers are 50% more likely to immunize their children compared to uneducated mothers (Gage, Sommerfelt, & Piani, 1997). Some findings suggest inter-generational effects, as educated mothers are less likely to be subject to or subject their daughters to female genital mutilation (Lewnes, 2005). Beyond reducing the rate of preventable maternal, newborn, and child deaths, educating girls also leads to numerous economic and social benefits. Girls’ education contributes to economic growth by generating higher returns to investment in education, increasing female participation in the labor market, and lowering dependency ratios due to smaller family sizes (Levine et al., 2008). In fact, education can increase girls’ income by 10 to 20 percent per year of schooling, which is a higher return to education than boys get (Psacharopoulos & Patrinos, 2002). Moreover, girls’ education has a positive effect on democracy and increases the participation of women in decision-making in a wide array of government and policy institutions (Barro, 1999; Basu & King, 2001; Malhorta, Pande, & Grown, 2003).

A number of socio-economic issues raise barriers to providing equal access to education for girls, such as economic conditions, cultural norms and vulnerability to violence. Given the overwhelming evidence of significant gender gaps in Iraq and the potential economic and social benefits that could be achieved, national policies should make reducing these gaps a top priority. For example, girls are sometimes unable to go to school because of financial constraints within their families, who generally favour boys to continue in education. This effect can also be found in other middle income countries such as Kenya, where higher school fees are associated with increase in dropout rates for girls but with little effect on boys (Lloyd, Mensch, & Clark, 2000). Girls in Afghanistan and Pakistan, on the other hand, are especially vulnerable to threats and violence against girls’ schools by certain rebel groups who reject efforts to expand education for girls (UNICEF, 2015).

Pros and Cons of Promoting Private Schools: The Case of Pakistan

Pakistan is a good example of how the expansion of the private education sector plays out in a developing country’s education system. Before the expansion of the public sector in 1972, private schools provided a substantial portion of basic education in Pakistan (Aziz, Humair, Jimenez, Rosenberg, & Sathar, 2014). A new education policy in 1972 renewed the role of public education, which led many private schools to be nationalized. However this was followed by a decline in public sector spending on education, which undermined the primary schools and limited local participation (Jimenez and Tan, 1987). In 1979, a new government lifted Pakistan’s ban on private education which caused the number of private schools to grow substantially as a result, a trend that has continued to this day (Aziz et al., 2014). By 2012-2013, there were 17,093 primary schools, 25,658 middle or lower secondary schools, and 17,696 high schools in the private sector, which altogether had 4.8 million children or 34% of all boys and 33% of all girls enrolled in the country. Despite private sector participation, Pakistan’s education system remains subject to numerous challenges, including but not limited to lack of access to education, poor quality of schools, lack of education facilities, unequal distribution of education resources, poor teaching quality, and teacher absenteeism (Ministry of Education Pakistan, 2014).

Poor performance in gender parity is also one of Pakistan’s many challenges in its education system (see Table 33). About 40.8% of Pakistan’s total primary enrolment are females, the second lowest when compared to Middle East countries after 40.5% in Yemen. Girls’ enrolment has since increased over the decade, although the country failed to catch up with most of the Middle East. By 2013, girls represent 44.5% of total primary enrolment, a 3.7-percentage-point increase from 2004. However, Pakistan still ranked lowest in girls’ representation when compared to Middle Eastern countries, even slightly lower than Yemen which now has enrolment of girls at 44.7%.

Not only did the expansion of the private sector fail to address the gender gap in access to education, the system’s dependence on public schools created additional problems. Using primary survey data of private and public schools in District Vihari of Pakistan, Awan and Zia (2015) explored the differences between public and private schools as well as how such the differences affected public preference for one over the other. The results showed that parents prefer private schools to public schools as private schools are more accessible location-wise, and are seen as having better trained teachers; however, higher fees mean that high-income

parents are more likely to send their kids to private schools as compared to low-income parents regardless of preference. This inequality in opportunity is often reflected in the educational achievement of students; public school students have lower knowledge scores and poorer performance in public exams when compared to private school students (Perveen, 2008; Khatti, Munshi, & Mirza, 2010; Das, Pandey, & Zajonc, 2006).

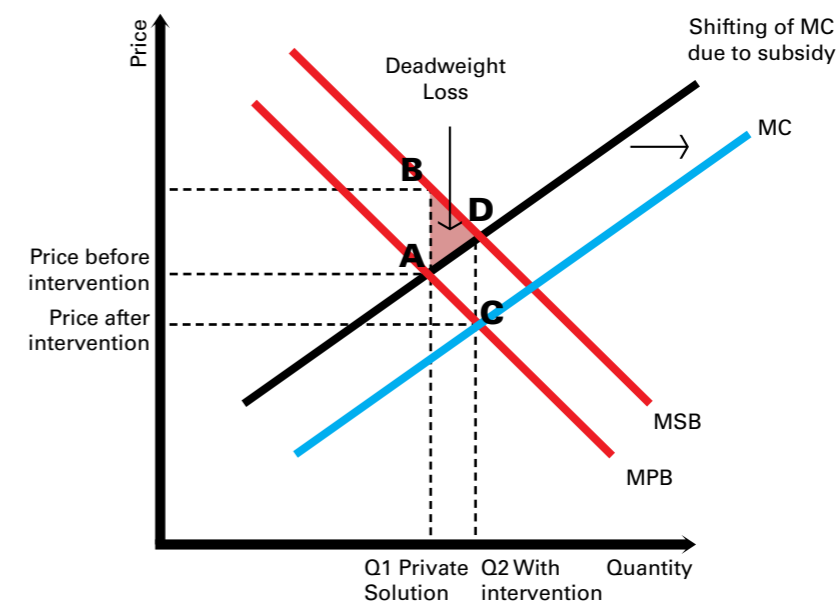
The need for government support in to improve performance and efficiency, instead of relying on private schools as a replacement for what the public sector is failing to provide, is clear given the role of private education in the Pakistan's socio-economic development. Andrabi, Das and Khwaja (2006) showed this by analyzing how the emergence of low-cost private schools in Pakistani villages is related to pre-existing schools and how the existence of such private schools provides employment for females. Using school census data and population census data, the study found that private primary schools are more likely to be located in pre-existing high schools and villages with a large number of educated women. The implications here are that the existence of low-cost private schools provides educated women with employment that would otherwise be rare due to cultural norms, and the relationship between the presence of pre-existing schools and the creation of new schools shows an inter-generational effect of education investments generating new education resources.

Positive Externalities and Social Benefit

Education policy in Iraq should be formulated in such a way as to ensure positive externalities (e.g., the health benefits due to educating girls) come from both the public and private sectors in order to reap the optimal social benefit. The classic workforce diagram of how the differences in private and social benefits lead to socially inefficient situations can be used to elaborate this point (Figure 6). In the diagram, the marginal social benefit (MSB) represents educational benefits in terms of both individual (e.g. higher wage) and social (e.g. higher immunization rate) returns. The marginal private benefit (MPB) represents educational benefits at the individual level (e.g. higher wage). These curves represent "demand" for education. With regards to the supply side for education, the marginal cost (MC) of education represents the marginal cost to providing education through schools. Under a free-market situation where there is no support or subsidies for schools, parents would opt for a solution at point A, where their MPB intersects with their MC, yielding years of schooling at Q1 level. However, the socially optimal amount of education is Q2 level, which is greater than Q1. This shows that a free market alone would yield lower educational benefits/outcomes for society as a whole. The amount of educational benefit that is lost due to a free market is represented as the area of deadweight loss.

In order to reduce this loss, the government has to intervene and provide support through education policy. Voucher systems, capitation subsidies to private schools, and other such policies would lower the MC and shift the MC curve to the right. This should allow parents to opt for solutions at point C, which results in the MSB and MPB being satisfied at the same quantity level, and reaches a socially optimal solution. This diagram illustrates a critical economic rationale for why governments need to intervene through public education.

Figure 6: Workhorse diagram: private, public benefit and social cost



Source: Government of Iraq (2012a)

Even though growth of private schools may increase overall enrolment size, the distribution of education access will be skewed, because higher school fees may deter low-income parents from sending their children to private schools. In order to examine the Iraq-specific relationship between household income and choice of school type, a regression analysis was conducted (Annex 4). It shows that log per capita household expenditure (lnpcep) is significantly and positively correlated with private school attendance, which is consistent across primary-age children, secondary-age children and the overall population. This implies that richer households prefer private schools, and confirms our concerns that the expansion of private schools may disproportionately benefit the wealthy.

To summarize this discussion, promotion of private education can (a) provide access to education to wider populations, (b) achieve higher learning outcome for certain students, and (c) provide employment to educated woman. Given the current situation in Iraq where about 35.3% of primary schools in Iraq Centre and 32.4% of primary schools in KRI run with at least double shifts, promoting private education is a relevant and effective education strategy. However, at the same time, it comes with trade-offs because it (a) has not been shown to reliably close the gender gap, (b) will increase access primarily for wealthier children, and (c) fails to reap the maximum benefits of investing in the education sector as a whole.

These discussions on girls' education, private school and returns to education make it clear that Iraq's education policy to promote private schools should be coupled with some kind of financial assistance to lower the cost of private schools, and/or low cost private schools should be promoted in order to close gender and wealth gaps in education simultaneously, and reap the maximum social benefits of education.

This approach requires more public funding for education, given that Iraq's public spending on education is at a regional low. As of 2015-2016, Iraq spends only 5.7% of government expenditure on education, which puts the country on the bottom rank of Middle East countries in any given year (Table 34). Iraq needs to increase the total amount it spends on education, and this increased spending should address education needs for school construction, access to education for girls and low-income families, as well as improving the quality of education.

Table 34: Government expenditure on education (% of total expenditure)

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Iran	12.7	12.7	14.6	15.3	15.8	13.5	13.9	12.7	11.4	15.5
Jordan	11.3	11.4	10.3	9.9	10.2	9.8	n.a.	10.3	---	---
Kuwait	8.2	7.8	7.6	---	7.5	n.a.	n.a.	7.3	---	---
Oman	9.4	9.3	---	---	n.a.	8.0	7.5	7.7	---	---
Saudi Arabia	---	---	---	14.3	n.a.	---	---	---	---	---
Syria	---	---	---	14.9	---	14.5	---	---	---	---

Source: UNESCO Institute for Statistics (2016)

Building Schools and Block Grants

One major problem in the Iraqi education system is the shortage of schools and the resulting struggle to accommodate rapidly growing enrolment. As a result, more than 30% of schools are running with more than one shift in order to cope with large enrolment sizes. The same problem was identified by an earlier survey in 2015 conducted by UNICEF and the Ministry of Education (UNICEF & MoE, Iraq, 2015). This survey found that with an average of 35 students per classroom, overcrowded classes are one of the major complaints from stakeholders. Some of the survey's recommendations include redistributing students between overcrowded and under-crowded schools, reducing primary grade retention rates, adding shifts in single-shift schools and building larger schools instead of building numerous small schools. The report recommends the government should build anywhere from 345 to 360 schools until 2020 in order to meet the growing demands from rising enrolment levels and to prevent overcrowding.

Although building new schools seems a straightforward option, the practical problems with budget allocation and efficiency complicate the issue. As of 2015, only 197.8 billion IQD out of the 7.6 trillion IQD budget for education in Iraq Centre was allotted for investment, of which only 129.7 billion IQD (65.6% of allotted budget) resulted in actual expenditures. In the same year in KRI, total expenditure was 26.7 billion IQD, just 5.8% of the allotted budget and less than one-tenth of the 2012-2013 value. A UNICEF financing study offers a number of reasons for these low levels of investment expenditure and low utilization rates, including a centralized financing system and coordination difficulties in access to funding (UNICEF, 2014c). If Iraq fails to address these issues, lack of investment expenditure reform alongside growing enrolment numbers will continue to exert negative pressures on the overall quality and efficiency of the public education system.

One possible solution to such coordination problems in investment financing is the use of block grants, where funding is given directly to schools to allocate the money as the school needs. A form of decentralization of financing, block grants allow schools to avoid the inefficiencies resulting from longer coordination with the central Ministry, and enable schools to use the money on non-wage expenditures in the best interest to the particular school. Possible benefits include higher efficiency, more equitable distribution of money among schools, increased flexibility for schools to prioritize their spending based on need, and increased participation of the local community in decision making (UNICEF, 2014c). This model has had success in other countries such as Uganda, where education block grants increased school attendance, reduced dropout rates, improved academic performance, and brought positive changes in infrastructure, although there was no effect on equity in access due to the limitation of funds (Bryant et al, 2011).

4.3 Policy Recommendations

This report sought to analyze the education situations in Iraq Centre and KRI separately, to the maximum extent possible. Noticeable and specific issues that education in Iraq Centre faces today include higher OOSC rates among IDP children and higher dropout rates among female children, while KRI faces tremendous challenges due to its current economic crisis in securing a sufficient amount of budget for the education sector. Despite these regionally specific challenges, the study also found a number of common challenges that both regions in Iraq face in providing quality education to all children, such as a high number of public schools running

with multiple shifts, and increasing demands for education within deteriorating fiscal constraints. The report identifies three major pillars of inefficiency in Iraq's education sector:

- 1) Sources of overall inefficiency.
- 2) Inefficiency due to limited access to education.
- 3) Internal inefficiency of education system; and provides seven policy recommendations to address these inefficiencies.

Improving Overall Efficiency and Effectiveness of Education Policy

1. **Information management systems for education statistics (EMIS) and public financial information need to be improved.** This recommendation also corresponds to Strategic Goal 1 of the National Education Strategy 2011-2020: to develop the administrative, legal and financial system, and improve the administration practices (Republic of Iraq, 2012). The current EMIS is limited to narrow areas of education statistics such as enrolment and number of teachers. Other important education statistics which measure quality of education and learning outcomes should be incorporated and made available in a timely manner. The fact that collection of comprehensive data from the central government and governorates takes tremendous time hinders the quality and timely analysis of the education sector. Similar weaknesses were also found in the financial management system. As low utilization rates of the investment budget was one of the major sources of inefficiency of the Iraq education system, financial activities related to capital investment should be made available at the central level. There is a general need for capacity and system development in data management in the context of Iraq's new decentralization environment.
2. **Coordination within the Ministry of Education in both Iraq Centre and KRI should be improved, and the coordination mechanism among education stakeholders to implement and monitor the progress of the National Education Strategy should resume.** This recommendation is in line with objective targets under the goal of the strategic area to develop the administrative system and improve the administration practices (Republic of Iraq, 2012). The Education Joint Committee, which developed the national education strategy, was not functioning in Iraq Centre as of 2016, and thus, there is no coordination mechanism among key education stakeholders. The MOE is supposed to convene periodic meetings to monitor the progress and discuss key issues of the National Education Strategy with UNICEF, UNESCO, the World Bank and other stakeholders, but this coordination mechanism has not been active. The National Strategy for the Iraq Centre and KRI covering the period between 2011 and 2020 was drafted but has not been fully implemented in a coordinated manner. The document needs to be supplemented with a monitoring framework with quantified targets, and clear division of labour among stakeholders. The situation is similar in KRI. A recent study published by Rand Corporation (Vernez et. al., 2016) also identified a weak coordination mechanism within the Ministry of Education in KRI, and proposed to minimize the number of people directly reporting to top managers. Interviews with ministry officials in Iraq Centre echoes that low utilization rates of capital expenditures in some isolated governorates are attributed to difficulties associated with long-distance communication i.e., ministry officials closely located to the central ministry have higher chance to discuss issues and procedures with senior officials in the ministry, which increases the chance of utilizing budget. Decentralization efforts in budget utilization (e.g. block grants) can be made in the currently centralized education financing system in order to improve overall utilization rate of investment budget. This will also allow schools and relevant communities to participate in spending decisions.

Reduction of Out of School Children

3. **Constructing schools, especially primary and lower secondary level or basic level in Iraq Centre and KRI, should be considered as a priority action.** This recommendation reinforces the importance of Strategic Area 2: Infrastructure of the National Education Strategy. More than 30% of schools at the primary and secondary levels are running with double or triple shifts both in Iraq Centre and KRI. About 42.6% of schools (pre-primary, primary, secondary and vocational) need rehabilitation in Iraq Centre and additional 13.5% of schools are not meeting to the government standards. The passing rate of the primary certification exam among students in the evening shift is only 72% whereas the national average for morning classes is 92%. Only 2% of the MOE budget in Iraq Centre was spent for capital investment in 2015-2016. In KRI, educational capital investment has not been made since 2012-2013. These indicate that school construction has not been prioritized in both regions in Iraq although lack of education supply has imposed serious negative impacts on students.

4. **Sustainable education finance should be established for both Iraq Centre and KRI.** The budget of MOE Iraq Centre has been decreasing since 2013-2014. In two years, it was reduced by 13.9%. The actual expenditure for education in KRI reduced from 345.4 billion IQD in 2013-2014 to 26.7 billion IQD in 2015-2016. Most of the expenditures are made to recurrent expenditure and little capital investment has been made in both. The per-student expenditure covering from pre-school to secondary schools in Iraq Centre and KRI in 2015-2016 actual basis are only 1.0 million IQD and 47,000 IQD in Iraq Centre and KRI, respectively. Interviews with officials from the Ministry of Education and education stakeholders revealed that continuous employment of teachers has become a serious issue as salaries of public servants have been drastically cut by 75%, and periodic payment of salaries has ceased. The education financial crisis seems to have started causing severe impacts on the performance of education sector. This issue should be recognized by the education stakeholders and addressed immediately. Funding of education is one of the strategic areas of the national education strategy, and the national Mid-Term Expenditure framework should be urgently revisited and updated for Iraq Centre and KRI. Education finance is Strategic Issue #5 of the National Education Strategy. However, the objectives and planned activities are not comprehensive and could be strengthened. Update or development of a new mid-term expenditure framework and establishing a mechanism to stabilize education finance could be added as a new objective/action point.
5. **Promotion of private education needs to be complemented with income transfer programs or programs to support children from lower socio-economic status to attend private schools.** Private schools are especially expanding in Iraq Centre with growth rates between 27% and 47% in all the education levels. International examples from Pakistan and Iraq-specific regression analysis, however, showed that promotion of private schools may not close the gender gap and rather widen the income gap in access to education. While the roles of private schools in providing education opportunities and supplying jobs to educated females are recognized, the promotion of private schools should come with measures to provide income supports for underprivileged boys and girls in Iraq.
6. **Provision of quality education to IDP Children should be accelerated.** Although the OOSC rates from pre-school to secondary education in governorates in KRI are moderately low, the OOSC rates among IDP children in all governorates exceeded 52% in Iraq Centre. The OOSC rate in Salah al-Din reached 91.5% with an estimated 45,000 out-of-school children. In Baghdad, the OOSC rate is 59.2% but it hosts the largest number of OOSC in Iraq (107,000). In total, over 355,000 IDP children are not attending school in Iraq. The gender parity among enrolled IDP children strongly favors boys especially in the secondary level where the GPI is 1.54. As descriptive analysis on employment rate and econometric analysis on the life-earning profile revealed that completing higher levels of education would increase the chance to have jobs in the future and increase the total wages to be earned. Thus, provision of education to IDP children should be recognized as an effective strategy to prevent children from falling into poverty, and urgent actions are required to reach out of school IDP children.

Improving Internal Efficiency

7. **An overall strategy to improve internal efficiency of the education system should be developed for both Iraq Centre and KRI, and implemented accordingly.** This report discovered that about 18.8% and 13.7% of MOE budgets in Iraq Centre and KRI, respectively, are wasted due to dropout and repetition annually. This is the largest source of inefficiency identified in this paper, and should be tackled as a priority in the current environment with serious budget constraints. The strategy should discuss a range of topics in the education sector including (a) review of the impacts of an automatic promotion policy, (b) more frequent learning assessments and closer follow up for low performing children, (c) extension of compulsory basic education to lower secondary education (Iraq Centre), (d) capacity and system developments to improve budget utilization rates in the context of decentralization, (e) revisiting teacher deployment and development policy, (f) meeting the increasing demands for education under the financial constraints while maintain quality of teacher workforce, (g) identification of specific reasons for repetition and dropout for both boys and girls, and (h) enhancing the linkage between education and the world of work e.g. introduction of updated skills and knowledge that meet to employers' demands. These recommended topics to be covered by the strategy to improve efficiency cover most of the objectives specified by Strategic Goal? Objective? Available Opportunity of the National Education Strategy, such as increase in enrolment of girl children and reduction of repetition and dropout rates.

4 This is one of the objectives under Strategic Issue #1 of the National Education Strategy 2011-20.

References

- Andrabi, T., Das, J., & Khwaja, A. I. (2006). Students today, teachers tomorrow? The rise of affordable private schools. Pomona College, Claremont, CA. Retrieved from: http://www.cgdev.org/doc/event%20docs/MADS/ADK_PriSchools_Feb06.pdf
- Awan, A. G., & Zia, A. (2015). Comparative Analysis of Public and Private Educational Institutions: A Case Study of District Vehari-Pakistan. *Journal of Education and Practice*, 6(16), 122-130.
- Aziz, M., Bloom, D. E., Humair, S., Jimenez, E., Rosenberg, L., & Sathar, Z. (2014). Education System Reform in Pakistan: Why, When and How? *Education and Skills 2.0: New Targets and Innovative Approaches*, 41.
- Barro, R. J. (1999). Determinants of Democracy. *Journal of Political Economy* 107 (6): S158-83.
- Basu, A., & King, E. M. (2001). Does Education Promote Growth and Democracy? Some Evidence from East Asia and Latin America. Washington, DC: World Bank, 44.
- Becker, G. S., & Chiswick, B. R. (1966). Education and the Distribution of Earnings. *The American Economic Review*, 56(1/2), 358-369.
- Bryant, M., Shann, M., Brooks, B., Bukuluki, P., Muhangi, D., & Lugala, J. (2011). Evaluating the effectiveness of educational block grants to orphans and vulnerable children. Massachusetts, USA.
- Cohn, E., & Geske, T. G. (1990). *The economics of education*. Oxford: Pergamon.
- Das, J., Pandey, P., & Zajonc, T. (2006). Learning levels and gaps in Pakistan. World Bank policy research working paper, (4067).
- Government of Iraq (2012). Iraq – Household Socio-Economic Survey 2012, Second Round [Data file]. Retrieved from http://microdata.worldbank.org/index.php/catalog/2334/get_microdata
- Khatti, M., Munshi, P., & Mirza, N. (2011). POTENTIAL OF PRIVATE SCHOOLS IN PROVIDING QUALITY EDUCATION IN DISTRICT BADIN. *The Sindh University Journal of Education-SUJE*, 40.
- Kurdistan Regional Government (2011). Regional Development Strategy for KRI 2012-2016. Erbil: Ministry of Planning, Kurdistan Regional Government. Retrieved from http://www.mop.gov.krd/resources/MoP%20Files/PDF%20Files/gd_ps/regional_development_strategy.pdf
- Gage, A. J., Sommerfelt, A. E., & Piani, A. L. (1997). Household structure and childhood immunization in Niger and Nigeria. *Demography*, 34(2), 295-309.
- Government of Iraq (2012a). Iraq – Household Socio-Economic Survey 2012 [Data file]. Retrieved from: <http://microdata.worldbank.org/index.php/catalog/2334>
- Government of Iraq (2012b). National Development Plan 2013-2017. Baghdad: Ministry of Planning, Republic of Iraq. Retrieved from <http://www.mop.gov.iq/mop/resources/IT/pdf/123.pdf>
- Hamermesh, D. S. (1986). The demand for labor in the long run. *Handbook of labor economics*, 1, 429-471.
- Heckman, J. J. (1979). Statistical models for discrete panel data. Department of Economics and Graduate School of Business, University of Chicago.
- IOM Iraq. (2013). Barriers to Secondary School Attendance. Baghdad: Baghdad Regional Hub Office for Central Iraq. Retrieved from <http://iomiraq.net/reports/barriers-secondary-school-attendance>
- IOM Iraq. (2016). Displacement Tracking Matrix (DTM)[Data set]. Retrieved from <http://iraqdtm.iom.int/IDPsML.aspx>

Jimenez, E., & Tan, J. P. (1987). Decentralised and private education: the case of Pakistan. *Comparative Education*, 23(2), 173-190.

Vernez, G., Culbertson, S., Constant, L., Karam, R., Rand Education (Institute), & Kurdistan (Iraq). (2016). Initiatives to improve quality of education in the Kurdistan Region-Iraq.

Levine, R., Lloyd, C., Greene, M., & Grown, C. (2008). *Girls Count: A global investment and action agenda*. http://www.cgdev.org/sites/default/files/15154_file_GC_2009_Final_web_0.pdf

Lewnes, A. (Ed.). (2005). *Changing a harmful social convention: female genital mutilation/cutting*. UNICEF Innocenti Research Centre. Retrieved from https://www.unicef-irc.org/publications/pdf/fgm_eng.pdf

Lloyd, C. B., Mensch, B. S., & Clark, W. H. (2000). The effects of primary school quality on school dropout among Kenyan girls and boys. *Comparative Education Review*, 44(2), 113-147.

Malhotra, A., Pande, R., & Grown, C. (2003). Impact of investments in female education on gender equality. *International Center for Research on Women*, 35.

Mincer, J. (1974). *Schooling, Experience, and Earnings*. New York, NY: National Bureau of Economic Research.

MOE, Iraq. (2016). *Education Management Information Systems (EMIS) Data, Iraq Centre* [Data file].

MOE, KRI. (2016). *Education Management Information Systems (EMIS) Data, Kurdistan Region* [Data file].

Ministry of Education Pakistan (2014). *Pakistan Education for All: Review Report 2015*. Retrieved from <http://unesdoc.unesco.org/images/0022/002297/229718E.pdf>

Ministry of Finance, Iraq Centre. (2016). *Government Budget and Expenditure* [Data file].

Moretti, E. (2005). *Social returns to human capital*. NBER Reporter, 13.

Perveen, S. (2008). *An Evaluative Study of Primary Education in the Light of Policies and Plans in Pakistan (Doctoral dissertation, PMAS-Arid Agriculture University, Rawalpindi)*.

Psacharopoulos, G. (1973). *Returns to Education: An International Comparison*. San Francisco, CA: Jossey-Bass Inc.

Psacharopoulos, G. (1981). *Returns to Education: An Updated International Comparison*. *Comparative Education*, 17(3), 321-341.

Psacharopoulos, G. (1994). *Returns to Investment in Education: A Global Update*. *World Development*, 22(9), 1325-1343. doi:10.1016/0305-750X(94)90007-8.

Psacharopoulos, G and Patrinos, P. (2002). *Returns to Investment in Education: A Further Update*. Policy Research Working Paper 2881, World Bank. <https://openknowledge.worldbank.org/handle/10986/19231>

Psacharopoulos, G., & Patrinos, H. A. (2004). *Returns to Investment in Education: A Further Update*. *Education Economics*, 12, 2, 111-134.

Ranjan, R. K., & Jain, P. C. (2009). The decline of the educational system in Iraq. *Journal of peace studies*, 16(1-2).

Republic of Iraq. (2012). *National Strategy for Education and Higher Education in Iraq*. Unpublished manuscript. Retrieved from http://su.edu.krd/userFiles/library/INES_EN_Oct_2012.pdf

Romer, P. M. (1987). Growth based on increasing returns due to specialization. *The American Economic Review*, 77(2), 56-62.

Romer, P. (1990). Endogenous Technological Change. *Journal of Political Economy*, 98 (5).

Salehi-Isfahani, D. (December 01, 2012). Education, jobs, and equity in the Middle East and North Africa. *Comparative Economic Studies*, 54, 4, 843-861.

Schultz, T. W. (1963). *The Economic Value of Education*. New York: Columbia University Press.

UN Office for the Coordination of Humanitarian Affairs (OCHA). (2015). *2016 Humanitarian Needs Overview: Iraq*. Retrieved from http://reliefweb.int/sites/reliefweb.int/files/resources/final_iraq_2016_hno.pdf

UNESCO. (2003). *Situation Analysis of Education in Iraq 2003*. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0013/001308/130838e.pdf>

UNESCO. (2011a). *UNESCO national education support strategy: Republic of Iraq, 2010 - 2014*. Amman: UNESCO Iraq office.

UNESCO Institute for Statistics. (2016). *UIS.Stat* [Data file]. Retrieved from <http://data.uis.unesco.org/Index.aspx>

UNICEF. (2010). *Girls Education in Iraq*. Baghdad :UNICEF.

UNICEF. (2013). *International Day of the Girl Child*. Retrieved from https://www.unicef.org/gender/files/IDGC_2013_Key_Messages-English.pdf

UNICEF. (2014a). *Iraq Country Report on Out-Of-School Children*. Baghdad: UNICEF.

UNICEF. (2014b). *Investing in Girls' Empowerment for MDG Acceleration*. Retrieved from [https://www.unicef.org/education/files/Messages_Formatted_for_Website_Upload_internal_final_\(2\).pdf](https://www.unicef.org/education/files/Messages_Formatted_for_Website_Upload_internal_final_(2).pdf)

UNICEF. (2014c). *School Financing Study for the Education Sector of Iraq*.

UNICEF. (2015). *Girls' education and gender equality*. Retrieved from https://www.unicef.org/education/bege_70640.html

UNICEF, & MoE, Iraq. (2015). *Survey of Schools in Iraq for School Mapping and Investment Planning*. Unpublished manuscript.

Venniker, R. (2000). *Social returns to education: a survey of recent literature on human capital externalities*. CPB Report, 1, 47-50.

World Bank. (2016a). *MENA Quarterly Economic Brief, Issue 6*. Retrieved from <http://www.worldbank.org/en/region/mena/publication/mena-quarterly-economic-brief>

World Bank. (2016b). *World Development Indicators* [Data set]. Retrieved from <http://data.worldbank.org/data-catalog/world-development-indicators>

Annex

ANNEX 1: DATA AND METHODOLOGY FOR EMPIRICAL ANALYSIS

The Iraq Household Socio-Economic Survey was conducted in 2006-07 as Iraq's first nationwide income and expenditure survey after the Gulf War. In 2012, the second round of the IHSES survey (IHSES 2012) was implemented covering more than 25,000 households nationally. This study uses IHSES 2012, which collected comprehensive aspects of household income and expenditure, including rations, housing, education, employment and health.

Major variables of IHSES 2012 used for this study include; q102 (sex), q103y (birth year), q106 (marital status), q503 (highest education certificate), q1403 (economic sector), q1410 (hours of work per week), and q1415/q1416/q1417 (cash and in-kind incomes).

The study analyzes key labour market indicators with regard to education and sex through descriptive analysis, and explores the wage differentials between workers with different educational backgrounds to estimate the economic loss as a form of forgone income. The wage differentials of workers without a primary education certificate and wage-workers with only primary education certificate, as well as the wage differentials of workers with only lower secondary education certificate and workers with a primary education certificate are estimated. The former represents the forgone income due to dropout from a primary school, and the latter represents the forgone income due to dropout from a lower secondary school. For this reason, the workers to be analyzed on the return of education will be wage-workers in any sectors including the agriculture sector or any workers in informal economy, who are hired and receive periodically wages. Regarding to self-employed workers, the analysis is limited to descriptive analyses on their employment rates and other labour market indicators in relation to education, as there is no data on individual income among self-employed workers.

Using median wage values of IHSES 2012 data, the average annual wage for both sexes are calculated. The streams of annual wages are expressed by their present value (PV) in 2012. Due to the small sample size especially female wage workers, the median wage of 10 years cohorts (15-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years) and annual income for each age group are estimated using a linear interpolation technique. In addition, due to the small sample, it is assumed that wages for workers aged between 15 and 19 increases by five percent annually. Other assumptions used in the calculation include:

- Workers with no education, primary education and lower secondary education start working from age of 15 (legal starting work age).
- Workers with upper secondary education start working from age of 18 (the first year after graduation from secondary school).
- Workers with tertiary education start working from age of 22 (the first year after graduation from tertiary education).
- Retirement ages of male and female workers are age of 60 and 55 years old, respectively (official retirement ages).
- The work experience of workers is approximated by their ages as the data set does not have information on the labour market experience, nor information on the duration workers were not able to work during wars.
- Annual leaves are 50 days for all workers (Iraqi labour law stipulate a minimum of 20 days annual leaves and 30 days of sick leave).

Once the wage differentials of income streams among workers with different education background are estimated, they are expressed as Net Present Value (NPV). The formula to calculate NPV is expressed as:

$$NPV_i = \sum_i^k \frac{C_n}{(1+r)^n}, i \in \{15, 18, 22\} \quad (1)$$

where C_n is the wage differential in period n , n indicates the years of work, r is a discount rate which represents uncertainties in future, i is age of starting work, and k is the retirement age. Thus, i takes values of 15, 18, and 22 for workers with up to lower secondary education, workers with upper secondary education, and workers with tertiary education, respectively. Based on the assumptions mentioned above, k takes 60 for male workers and 55 for female workers.

Using estimated NPVs of wage differentials, the national economic costs of dropout from primary and lower secondary education in 2011 are estimated by multiplying NPVs with the number of dropouts from primary and lower secondary schools. The wage differential analysis of this study only incorporates indirect costs of education as the form of forgone income, and does not include direct costs of education due to data limitation. Thus, the estimated returns to education through the wage differential analysis could slightly over-estimate the benefits of education. The discount rate of Iraq adopted by this study is set at 5% based on the average of Consumer Price Index of Iraq since 2008 when the macro-economy started to stabilize and recover from the Iraq war in 2003.

Second, Mincerian regression models, which use semi-log earnings function, are used to estimate the private rate of return in investing education (Mincer, 1974; Becker and Chiswick 1966). A specification of Mincerian regression used for this is expressed as:

$$\ln(w_i) = \alpha + \beta_1 S_i + \beta_2 E_i + \beta_3 E_i^2 + \beta_4 Married_i + u_i \quad (2)$$

where $\ln(w_i)$ is the natural log of hourly wage for the i^{th} individual; S_i is years of schooling; E_i is assumed working experience; E_i^2 is potential experience-squared; $Married_i$ is a dummy variable for marital status; and u_i is a random disturbance term reflecting unobserved abilities. As the data of starting age of work is not available, this study used the "age-15" as a proxy for labour market experience. Thus, β_1 represents the private rate of return to additional years of schooling i.e., a percentage change in hourly wage due to additional year of schooling, controlling other variables of individual characteristics that impact wages. The regression will be estimated for male and female separately for both Iraq Centre and KRI.

Third, an extended Mincerian regression was adopted to analyze investments in education by relaxing the implicit assumption of a linear return to education of the equation (2), because the returns to an additional year of school may differ according to different levels of schooling. Varying returns to investments in education can be estimated by extended earnings function that converts the continuous years of the schooling variable into a series of education dummy variables as follows:

$$\ln(w_i) = \alpha + \beta_1 D_i^p + \beta_2 D_i^{ls} + \beta_3 D_i^{us} + \beta_4 D_i^t + \beta_5 A_i + \beta_6 A_i^2 + \beta_7 Married_i + u_i \quad (3)$$

Where $D_i^p, D_i^{ls}, D_i^{us}$, and D_i^t represent dummy variables of primary, lower secondary, upper secondary and tertiary education. The coefficients of the dummy variables represent the percentage of hourly wage increase due to completion of each level of education. The average private rate of return to additional year of schooling at different levels of schooling are estimated by dividing these coefficients by the duration of each level of education using the following formulas:

$$R_p = \frac{\beta_1}{6}, R_{ls} = \frac{\beta_2}{3}, R_{us} = \frac{\beta_3}{3}, \text{ and } R_t = \frac{\beta_4}{4} \quad (4)$$

where R_p, R_{ls}, R_{us} , and R_t represent returns to additional year of schooling at primary, lower secondary, upper secondary and tertiary education.

As the wage-working sample is not fully representative of the working population (and those who received basic education), the estimates of these Mincerian regression models might be biased due to sample selectivity. Returns to education for females are expected to be biased upwards as education influences employment of females in a positive way and better-educated individuals generally earn higher salaries. Heckman models (1979) are applied to the Mincerian regression specification (2) and (3) in order to address potential sample selection bias. The results were basically similar to the results from the OLS regression.

ANNEX 2: DETERMINANTS OF ATTENDANCE, BY LEVEL OF EDUCATION

Model	(1)	(2)	(3)	(4)	(5)
Area	Iraq, Centre		KRI	Iraq, Centre	KRI
Age group by Lev. Education	Primary	Lower sec.	Basic	Secondary	Secondary
Dep. Var.	Attendance	Attendance	Attendance	Attendance	Attendance
Age	4.587*** (33.22)	-3.277* (-2.39)	2.813*** (20.51)	-5.038** (-2.95)	-6.201 (-1.79)
Age squared	-0.256*** (-31.25)	0.108* (2.06)	-0.140*** (-20.48)	0.149** (2.79)	0.187 (1.73)
Male	0.539*** (13.36)	1.682*** (30.82)	0.504*** (6.15)	1.469*** (28.09)	0.874*** (7.72)
Household size	-0.0463*** (-8.89)	-0.0404*** (-5.87)	-0.0251 (-1.60)	-0.0424*** (-5.80)	-0.0504* (-2.50)
Work	-1.173 (-1.47)	-2.627* (-2.48)	-2.059 (-1.32)	-2.923** (-2.84)	-2.339*** (-12.45)
Male*Work	-0.560 (-0.57)	-0.296 (-0.28)	-0.669 (-0.42)	0.0611 (0.06)	
Log(Household Exp. per capita)	0.984*** (19.64)	1.149*** (18.04)	0.571*** (5.99)	1.214*** (19.48)	0.442*** (3.53)
Mother's Education	0.0363*** (4.12)	0.0119 (0.82)	-0.0228 (-0.69)	0.0256 (1.53)	-0.00123 (-0.03)
NINEWA	0.527*** (3.86)	-0.268 (-1.60)		-0.320* (-2.02)	
KIRKUK	0.220 (1.39)	-0.883*** (-4.62)		-0.561** (-3.04)	
DIYALA	0.390** (2.58)	0.0416 (0.22)		-0.0820 (-0.46)	
ANBAR	0.0264 (0.19)	0.0777 (0.45)		-0.0281 (-0.18)	
BAGHDAD	0.289* (2.05)	-0.134 (-0.78)		-0.236 (-1.47)	
BABIL	0.371* (2.36)	-0.243 (-1.29)		0.0596 (0.33)	
WASSIT	-0.199	-0.440*		-0.369*	

	(-1.45)	(-2.53)	(-2.21)		
SALAH AL-DIN	-0.268* (-2.00)	-0.467** (-2.73)		-0.248 (-1.54)	
NAJAF	0.291 (1.69)				
QADISSIYA	0.372* (2.47)	0.354 (1.81)		0.357 (1.93)	
MUTHANNA	0.199 (1.38)	0.185 (1.00)		0.332 (1.84)	
THI-QAR	0.115 (0.81)	0.0684 (0.37)		0.210 (1.19)	
MISSAN	-0.592*** (-4.52)	-0.619*** (-3.64)		-0.461** (-2.80)	
BARSA	0.141 (1.01)	-0.242 (-1.38)		-0.225 (-1.35)	
Married		-2.825* (-2.30)		-1.789*** (-5.51)	
KARBELA		-0.324 (-1.56)		-0.289 (-1.42)	
SULAIMANIYAH		0.394*** (3.72)		0.196 (1.49)	
ERBIL		0.0421 (0.40)			
DAHUK				-0.114 (-0.80)	
Constant	-22.50*** (-35.28)	19.60* (2.20)	-13.71*** (-16.28)	36.44** (2.67)	50.18 (1.82)
N	22996	10150	8452	8615	2211

t statistics in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.001

ANNEX 3: MINCERIAN REGRESSION RESULTS

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Area	Iraq, Centre				KRI			
Sector	Public		Private		Public		Private	
	Male	Female	Male	Female	Male	Female	Male	Female
Depend. Var.	InWage	InWage	InWage	InWage	InWage	InWage	InWage	InWage
Experience	0.0319*** (11.16)	0.0501*** (8.55)	0.0147*** (4.66)	0.0254 (1.29)	0.0206*** (4.66)	0.0363*** (4.93)	0.0324*** (5.01)	0.0452 (1.55)
Experience, squared	-0.000381*** (-7.15)	-0.000654*** (-4.60)	-0.000179** (-2.92)	-0.000323 (-0.76)	-0.000279*** (-3.84)	-0.000431** (-2.68)	-0.000504*** (-4.52)	-0.000471 (-1.00)
Years of Education	0.0516*** (39.00)	0.0755*** (13.76)	0.0123*** (6.78)	0.0524*** (5.10)	0.0369*** (15.67)	0.0685*** (9.52)	0.0177*** (3.76)	0.0722* (2.55)
Married	0.106*** (5.13)	0.104*** (3.40)	0.0242 (1.33)	-0.0179 (-0.16)	0.160*** (4.85)	0.0903 (1.84)	0.0647 (1.46)	0.0888 (0.47)
Constant	0.322*** (8.87)	-0.0777 (-0.79)	0.466*** (13.31)	-0.114 (-0.54)	0.992*** (16.65)	0.440*** (3.50)	0.641*** (8.12)	-0.0445 (-0.10)
N	8781	1469	9144	269	3586	664	2115	90

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

ANNEX 4: REGRESSION RESULTS OF SCHOOL CHOICE

Sample	Primary School-Age children in Primary Schools	Secondary School-age children in Secondary Schools	Primary and Secondary School Age children in either Primary or Secondary Schools
Variable	Type of School (1=private, 0=public)		
Male	0.387 (1.84)	-0.0683 (-0.17)	0.288 (1.53)
Age	-0.355 (-1.00)	2.560 (0.20)	-0.678*** (-3.58)
Age-squared	0.0100 (0.54)	-0.0728 (-0.18)	0.0277** (3.25)
log-household expenditure per capita	2.635*** (11.44)	1.870*** (4.18)	2.473*** (11.92)

Household Size	-0.113* (-2.39)	-0.0601 (-0.74)	-0.0984* (-2.43)
DAHUK	-1.195 (-1.86)		-1.218 (-1.90)
NINEWA	-0.975 (-1.38)		-1.043 (-1.47)
SULEIMANIYA	-2.592*** (-3.61)	-1.042 (-0.84)	-2.224*** (-3.40)
KIRKUK	-2.134 (-1.92)		-2.139 (-1.92)
ERBIL	-1.259* (-2.01)	0.151 (0.13)	-0.947 (-1.61)
DIYALA	-0.571 (-0.84)		-0.703 (-1.02)
ANBAR	-1.994* (-2.56)	-0.856 (-0.60)	-1.749* (-2.43)
BAGHDAD	-0.729 (-1.22)	-0.0410 (-0.03)	-0.585 (-1.01)
BABIL	-2.162 (-1.91)		-2.237* (-1.98)
WASSIT	-2.580* (-2.27)	-0.488 (-0.34)	-1.988* (-2.25)
NAJAF	0.509 (0.89)		0.501 (0.88)
QADISSIYA	-1.217 (-1.09)		-1.377 (-1.23)
MUTHANNA	0.302 (0.44)	0.934 (0.65)	0.414 (0.63)
THI QAR	-0.954 (-1.09)	1.594 (1.36)	-0.0308 (-0.05)
MAYSAN	-0.784 (-0.92)		-0.815 (-1.01)
BARSAH	0.903 (1.71)	2.199* (2.08)	1.168* (2.24)
Constant	-15.99*** (-7.06)	-37.21 (-0.35)	-13.91*** (-8.55)
N	32857	3716	38826