



The Heyneman–Loxley effect revisited in the Middle East and North Africa: Analysis using TIMSS 2007 database



Donia Smaali Bouhlila*

Université de Tunis El Manar, Faculté des Sciences Economiques et de Gestion de Tunis, Laboratoire Prospective et Stratégies de Développement Durable (PS2D), Tunisia

ARTICLE INFO

Article history:

Received 4 December 2012

Received in revised form 27 January 2015

Accepted 8 February 2015

Keywords:

TIMSS

MENA region

Family background

School resources

Jackknife survey regression

Quantile regression

ABSTRACT

Since the controversial finding of the [Coleman Report \(1966\)](#), which was that school resources had little effect on educational outcomes comparing to family background, huge literature has emerged in order to verify the above finding in countries other than the United States. The [Heyneman–Loxley work \(1983\)](#) presented for the first time clear evidence that variation in school resource quality could matter more than variation in family inputs in low and middle income countries. Following this literature, and using TIMSS 2007 data, we attempt in this study to revisit the Heyneman–Loxley hypothesis and the related debate regarding the overall importance of schools in explaining variations in student achievement across Middle East and North African countries. Survey Jackknife regression technique and quantile regressions have been used for the purpose of this study. Our results are in line with those of [Baker et al. \(2002\)](#) showing that the Heyneman–Loxley effect had declined over time.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

In 1983, Heyneman and Loxley challenged the universality of the [Coleman report \(1966\)](#). Family background of the student does no longer have a major impact on students' performance in low-income countries; it is rather the school resources that matter more. Besides, the effects of school resources and family background are a function of national income level. This debate has vividly portrayed the economic education literature from 1989 till now. The results concerning this relative importance of schools versus family background were mixed. In the present study, we tried to revisit the Heyneman–Loxley effect in the Middle East and North African countries (here after MENA) as these countries were seldom included in the previous studies mainly because of data scarcity.

We used TIMSS 2007 database of students at the eighth grade in mathematics and science. Fifteen MENA countries are included in our sample. Two different methodologies have been used to assess this effect: the survey Jackknife regression technique and the quantile regression. Apart from the newness regarding the modeling strategies, school incentive and accountability measures,

deemed to be important, are included as part of the school-level characteristics.

This paper is structured as follows: the next section gives a brief overview of secondary education in the region. Section 3 exposes the review of literature. Section 4 discusses the methodology. Section 5 highlights the different results. Finally, Section 6 provides a discussion and concludes.

2. Overview of secondary education in the MENA region

This section provides an overview of the state of secondary education in MENA region.¹ The purpose is to provide some basic data and analysis of secondary education in this region known as heterogeneous in terms of GDP per capita, so that we will have a foundation for the rest of the paper.

2.1. Secondary education coverage and quality

MENA countries have expanded coverage at the secondary level significantly in the past 30 years. Nonetheless, there is a deficit in secondary education enrollment in the region which contrasts

* Correspondence to: Tel.: +216 98 45 93 34.
E-mail address: sma.ali@fsjegj.rnu.tn

¹ See also [Bouhlila \(2011\)](#) for a broad overview of the quality of education in the MENA region and for the plausible causes responsible for the low performance in international evaluations.

Table 1
Secondary education statistics, 2007.

	Gross enrollment ratio in secondary education (%) ^a	Net enrollment ratio in secondary education (%) ^a	Gross enrollment ratio in primary education (%) ^a	Literacy rate, adult total (% of people ages 15 and above) ^a	Duration of compulsory education (years) ^b
Algeria	–	–	107	73 (2006)	9
Bahrain	92 (2008)	85 (2008)	–	87 (2001)	9
Egypt	88 (2004)	–	108	66 (2006)	9
Iran	78	–	106	82 (2006)	8
Jordan	93	86	103	92	10
Kuwait	100	87	106	94	9
Lebanon	76	69	101	90	9
Morocco	55	–	107	55 (2008)	9
Oman	87	–	85	87 (2008)	–
Qatar	91	–	–	93	12
Saudi Arabia	93	–	92	83 (2004)	6
Syria	72	–	118	81 (2004)	9
Tunisia	90	–	107	77	11
U.A.E.	–	–	106	90	9
West Bank and Gaza	91	87	87	94	10

^a Source: World development indicators: <http://data.worldbank.org/indicator>.

^b Source: <http://data.un.org/> (Year) of the collected data.

sharply their success in achieving universal primary education (Table 1). Another indicator witnessing the progress in the education sector is the adult literacy rate. Throughout the region, except in Morocco, the adult literacy rate shows important improvement averaging around 80%. This relatively high rate of literacy reflects the commitment of governments to have literate and educated populations. Besides, most countries in the MENA region offer from 6 to 12 years compulsory education (Table 1). Even though, most quantity indicators have shown signs of improvement, the quality of education did not follow the same pattern.

The education quality is an urgent problem in both middle and high income countries of the region. Student achievement as measured by scores in TIMSS 2007 tests reveals that MENA countries score systematically below the average scale score which is 500 points. In addition, zero to 3% of the tested students reach the advanced benchmark level corresponding to 625 points; whereas the share of the tested students ranges from 45% in the top performing countries at this level² (TIMSS, 2007a,b). Furthermore, more than half of the tested students do not reach the low benchmark level (except in Dubai, Iran, Lebanon, Jordan and Tunisia) which means that more than half of the students did not acquire the basic cognitive skills.

From an income perspective, students in Gulf-countries³ perform below what would be expected. The other countries struggle to perform better given their resources (Figs. 1 and 2).

2.2. Education spending

Education in the MENA region is largely provided by the governments. It is not only publicly provided but also free. MENA countries spend on average approximately one-fifth of total public expenditures on education. Countries like Morocco, Oman, Saudi Arabia, Tunisia and United Arab Emirates allocate more than 20% of their budget to education (World Bank, 2008a). To explain students' low performance, many center not on the low level of per pupil investments but on the inefficiency of managing resources already allocated (Golladay et al., 1998; Heyneman,

1997, 2004; Shafik, 1994). A simple illustration in Table 2 sheds light on the inefficiencies of public expenditure per student.

As can be seen from Table 2, Jordan allocates \$US 0.904 per student and 35% of its participating students achieved a score of 475 points. On the contrary, Saudi Arabia spends \$US 7.184 per student and only 3% of its students achieved the same score. For Jordan, having 1% of students achieving this benchmark would require a total spending of \$US 2.2 per student. Whereas in Saudi Arabia, it would require \$US 239.48. In Tunisia, the expenditure necessary to have an additional 1% achieve this benchmark would be \$US 8.78, the same as that in Japan.

3. Literature review

The review of literature will focus first on the debate about the Heyneman–Loxley effect. After that, the issue of the importance of school incentive and accountability measures will be addressed.

3.1. The Heyneman–Loxley effect⁴

The impact of family background or socioeconomic variables (SES) and school factors on students' performance has been a hotly disputed topic in the literature since the release of the Coleman report (1966). The report which was based on data describing US schools revealed that SES variables were more important than school resources in determining students' educational achievement. Heyneman and Loxley (1983) challenged the previous findings with a study that examined the effects of family background and school resources across a sample of low-income countries, middle-income countries and high-income countries. They found that the school variables explain to a greater extent the academic performance of students in low income countries than in high income countries. Indeed, the premises of the minor role of SES on academic performance relative to school resources, jointly with the diminishing association between GDP per capita and the SES influences; were discussed earlier in Heyneman (1976b,1980) and Heyneman and Loxley (1982).

More precisely, Heyneman and Loxley (1983) found that SES is more powerful in high-income countries but not in low-income countries. SES explains 35% of the total variance in these countries whereas in low-income countries it accounts for only 18% of the variance. Besides, a positive and significant correlation is found between the proportion of variance explained by SES variables and

² TIMSS describes the distribution of educational quality by identifying four benchmark levels: advanced, high, intermediate and low which correspond to 625, 550, 475 and 400 respectively.

³ In this study, Gulf-States are: Bahrain, Oman, Kuwait, Saudi Arabia and Dubai as a benchmarking participant.

⁴ For an exhaustive review of the Heyneman–Loxley effect, see Heyneman (2015).

Download English Version:

<https://daneshyari.com/en/article/356045>

Download Persian Version:

<https://daneshyari.com/article/356045>

[Daneshyari.com](https://daneshyari.com)