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Childhood Poverty in Peru: An Annotated Literature Review



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Summary

Although poverty rates have reduced during the last 15 years, Peru is still one of the countries in Latin America with the highest level of income inequality. Nearly one out of two Peruvians lives in poverty – three out of five in the case of children¹ – and one out of five is extremely poor. Income inequalities and, more generally, inequalities in human development between urban and rural areas, between Spanish and non-Spanish speakers and across climatic zones are remarkable; most of the extreme poor live in rural areas in the highlands and in the rural jungle and have Quechua, Aymara and other languages, rather than Spanish, as native tongues. They have fewer opportunities to progress through life and, as one might expect, this matters a great deal in explaining differences in child development indicators.

Within this context, the objective of this review is to describe the performance of key child development indicators in Peru between 1993 and 2005 and to link these results with findings from the recent literature on childhood poverty. The focus is on quantitative studies. Three dimensions of child development are reviewed: health and nutrition, schooling and child work. These topics are essential to understanding the persistence of poverty and childhood poverty in Peru and, as such, remain at the core of the debate on poverty alleviation.

The main findings of this literature review can be summarised as follows:

Childhood poverty trends

National trends show an important reduction in child mortality and an increase in school enrolment since the mid 1990s. However, chronic rates of under-nutrition prevail in rural areas. Educational achievement remains very low, with children from poorer households reporting high rates of overage² and school abandonment. In addition, it is estimated that one out of four children is involved in some kind of labour activity. Despite considerable progress in access to services for the poor, disparities between urban and rural areas and across regions remain high in virtually all of these indicators and, in some cases, inequalities have increased during the period of analysis.

Health and nutrition

Child mortality reduced steadily during the period of study, but chronic under-nutrition, after an initial improvement, hardly changed – one out of four children under 5 years old is chronically undernourished by WHO standards. Mortality and stunting are higher in rural areas and, particularly, among indigenous³ children. In spite of an expansion in health infrastructure across the country, not only did disparities remain, but inequalities actually worsened.

Chronic under-nutrition in Peru is thought to be linked to inadequate complementary feeding practices. Several authors find that mother's education and family income are important factors when explaining variations in child nutrition; the impact of household infrastructure and health services is not necessarily direct, but seems to interact with community and household factors; there are no signs of gender discrimination concerning food allocation between boys and girls; and public programmes have proven to be ineffective in dealing with

¹ In this case, I refer to the group aged 3–16 years.

² I follow Escobal et al. (2003: 10) defining 'overage' as the proportion of students that are two or more years older than expected for their school year.

³ I use the term 'indigenous' to refer to non-Spanish native speakers (e.g. Quechua and Aymara speakers, as well as speakers of indigenous Amazon languages).

chronic malnutrition so far. The impact of two recently established, large-scale, public programmes (*Creceer* in 2007 and *Juntos* in 2005) on malnutrition has yet to be evaluated.

In addition, there are also cultural factors that are important in explaining differences in child health and nutrition outcomes. Again, these factors are more likely to affect indigenous people living in rural areas.

Education

Primary school is almost universal and net enrolment rates in secondary education improved significantly during the period of study – though enrolment in secondary school in rural areas is still low, especially for adolescent girls. However, beyond access, progress has been small. Overage and dropout rates remain high and this translates to low completion rates. The quality of education is also at the core of the debate, as students' achievement in national evaluations is far from satisfactory. All these problems are particularly worrisome in, although not exclusive to, public, rural schools.

The factors associated with these results are numerous. On the one hand, school characteristics (e.g. access to basic services, classroom arrangements) are highly variable between urban and rural areas⁴ and between private and public schools.^{5, 6} Secondary schools are scarce in rural areas and the extension of bilingual education in primary school is relatively small and does not seem to be improving educational outcomes. But besides school characteristics, household factors are also important. Over-age students come from relatively poor households (both in terms of income and assets) with less educated, typically indigenous mothers. They also show a poorer nutritional status, perform worse in national evaluations and are more likely to abandon school compared to on-age⁷ students.

While overage and school abandonment are related phenomena, overage is not the only reason why children abandon school. In the highlands, those who abandon school are not necessarily bad students; there is evidence (in this case, qualitative) that some parents (mainly, but not exclusively, those less educated) send their children to school to learn basic skills and after which they become more involved in household economic activities, with differentiated roles for boys and girls. Some children also leave their households in order to work in the city.

In addition, it is thought that the low-quality of schools in remote rural areas (e.g. teacher absenteeism) might also help to explain why some parents prefer their children to work rather than to attend secondary education. Overall, opportunity costs of secondary education are quite high for the rural poorest.

Child work⁸

Approximately one out of four Peruvians aged 6–17 years (about 2 million) is involved in some kind of labour activity. Most of them work in labour-intensive, non-paid family activities. Child work is a phenomenon that has been harder to explore from a quantitative perspective. Therefore, to discuss this topic I also rely on evidence provided by qualitative studies.

⁴ In a typical school in the rural Andes students from different grades share the same classroom. Although this is not intrinsically bad, it seems to be having a negative impact on performance (controlling for other factors).

⁵ It is well documented that students from public schools perform less well in national evaluations (controlling for other factors).

⁶ Wealthier families often send their children to private schools – or to schools in the district capital in the case of rural areas – which are typically of higher quality than public schools, and this leads to a socio-economic stratification of the school system.

⁷ 'On-age' refers to students who are the right age for their school year.

⁸ Hereafter I use the term 'child work' to refer to the work of the population aged 6–14 years.

The type of economic activity carried out by children and the way it affects their time allocation differs by age and geographical location. In rural areas in the highlands and in the jungle, child work is an intrinsic part of children's daily routine, which is also highly valued by parents and not necessarily contrary to school attendance; both activities are generally combined. However, as children age, work becomes more intense, gender roles more obvious and incentives to abandon school increase.

In urban areas, the main two activities in which children are involved are domestic service and retail (e.g. street vending). The former is performed almost exclusively by girls (most of them indigenous), whereas the latter is carried out mainly by boys.

It seems that, at least in rural areas (where dropout rates are at their highest), child work itself cannot explain school abandonment. Rather, this decision seems to be the consequence of many factors interacting (e.g. parental education, school quality). What the qualitative branch of the literature shows is that some activities are relatively more harmful to progress through school than others, particularly those that require children to work outside the home (e.g. domestic service).

The literature reviewed here provides a detailed picture of the challenges faced by Peruvian children. Yet, some aspects of child development have yet to be explored and this is in part due to a lack of data. Most of the current studies based their results on the analysis of cross-sectional data. Insofar as adequate strategies are used, this does not represent a methodological problem (one still can obtain robust estimations). However, many aspects related to child development are dynamic in nature and, as such, can only be studied using longitudinal data. This includes the study of the potential impact of chronic under-nutrition, which develops early in life, on later educational and labour outcomes; the determinants of pre-school enrolment and its effects on school achievement; and the study of the transition from primary to secondary school, the period when most school abandonment is observed. These subjects should be part of the current research agenda as they would feed on the implementation of policies to alleviate childhood poverty.

1. Introduction

The objective of this review is twofold. First, to describe the performance of key child development indicators in Peru during the period 1993–2005. Second, to present key findings from the recent literature that help us understand these results.

For this purpose, I have selected three dimensions of child development: health and nutrition, schooling and child work. I have limited the scope of this review in this way for three reasons. First, these three topics are continuously regarded as key to understanding poverty persistence in Peru and, hence, remain at the core of the debate about poverty alleviation (see Government of Peru 2005; MCLCP 2007).⁹ Second, several studies on health, nutrition and schooling have recently appeared taking advantage of the availability of nationally representative data. Third, other important issues such as gender, ethnicity and the impact of public programmes are discussed where they have an impact on each of these three dimensions.

There are other aspects related to child development that deserve attention from the social science literature which are not included in this review. For instance: violence – both family and political, migration and street children (among others). A complete profile of child

⁹ See also Millennium Development Goals at: www.un.org.pe/Publico/OnuMundo/odm2004.aspx.

development in Peru should include a discussion of these dimensions. Nevertheless, quantitative evidence in these areas is still very limited – but some aspects of migration are considered in the schooling and child work sections.

Some kind of literature selection mechanism was required in order to make this review manageable. I have followed three criteria. First, within the topics selected, I have chosen those aspects that are at the core of the academic and public policy agenda in Peru. Admittedly, this selection is discretionary. Nevertheless, I have partially based it on previous works on child development in Peru, such as Cortez (2004) and Vásquez (2002, 2004, 2005). I have also used bibliographical reviews by *Centro de Investigación Económica y Social* – Escobal and Iguíñiz (2000) and Iguíñiz and Barrantes (2005) – as guidelines.

Aligned with this first criterion with few exceptions I have only considered evidence from studies published since 1994 onwards; and, particularly those published during the last ten years. This temporal threshold is not random, but reflects both a turning point in data availability – due to the publication of the 1993 National Census – and a shift in the priorities of the academic agenda as a consequence of the structural changes that took place in Peru during the first half of the 1990s (see chapter 3).

As a second criterion, I have focused on studies that present quantitative evidence at the national, urban and/or rural level.¹⁰ That is, for manageability, I have not reviewed qualitative studies extensively. However, I do include evidence and explanations provided by qualitative studies, especially in cases where they help to shed some light on the understanding of intra-household processes that are hard to capture in household surveys.

Finally, within quantitative studies I give priority to those that use standard statistical techniques to evaluate the impact of a given variable (say, mother's education) controlling for other factors (income, age, geographical location). Moreover, I emphasised those studies that use specific techniques to reduce or eliminate the possibility of bias in estimations. This is important because, typically, unobserved factors affect the robustness of estimations and interfere in our comprehension of the impact of variables being studied.

Studies are not always totally comparable due to differences in methodology, data sources, time period and variables included in the estimation. Differences in methodology are important because each study uses specific techniques that are useful to highlight the impact of some, but not all variables. When relevant, I make explicit these differences, relegating technical details to footnotes. In particular, it is important to highlight that most of the studies that form part of this review have based their analysis on non-experimental data. A limitation of this type of data is that, typically, it can only be used to infer correlation, not causality, except in very specific cases (e.g. when longitudinal data is available or when valid instrumental variables are used to account for endogeneity problems).^{11, 12}

¹⁰ According to the 1993 Census, villages (*centros poblados*) with a population above 2,000 habitants were considered as urban areas. This criterion changed with the 1999 Pre-Census, according to which villages with more than 400 households are urban areas. From 2001 onwards, this criterion was incorporated into the National Household Survey.

¹¹ To explain why it is difficult to talk about causality when non-experimental data is used, consider the following example. Suppose one is interested in studying the impact of mother's income on child nutrition. Suppose that, after controlling for other observable factors, a linear regression shows that mother's income explains differences in child nutrition. However, it might still be the case that factor(s) unobserved by the researcher (e.g. mother's innate ability) might be correlated to both mother's income and child nutrition (i.e., it might be that it is mother's ability and not income that explain differences in child nutrition). In that case, our estimation of the impact of income on nutrition would be biased. In an experiment, we would have randomly selected two groups of mothers and given some cash to one of these groups. Note that in this example one still has an intuitive sense of the direction of the impact, but in other cases even the direction of causality can be questioned. For instance, school abandonment and child work.

Based on these criteria, the structure of the review has been defined as follows. Section 2 briefly defines some of the terms that are used throughout this document and describes data sources (i.e., household surveys) that were used by most of the reviewed studies. Section 3 describes general trends of poverty for the period 1993–2005, highlighting some idiosyncratic characteristics of poverty in Peru that are important in order to understand and contextualise results from the literature. Section 4 presents main trends of child development based on a set of indicators in the areas of health, nutrition, schooling and child work and links these results with theories, explanations and evidence proposed in the literature. Section 5 concludes.

2. Methodological issues

Definitions

Unless otherwise expressed, I use the term indigenous to refer to non-Spanish native speakers (e.g. Quechua and Aymara as well as indigenous Amazon languages).¹³

I also use the term poverty (or, alternatively, poor and non-poor) extensively in this review. I implicitly follow the definition of monetary, consumption-based poverty, established by the *Instituto Nacional de Estadística* (INEI) (National Bureau of Statistics). According to INEI, a person living in a household whose expenditure per capita is not enough to acquire a basket of basic goods is considered as poor (i.e., below the poverty line). Analogously, a person unable to satisfy a minimum amount of caloric intake (as defined by a daily caloric norm) is considered as extremely poor. The caloric norm varies across geographical areas (2,133–2,232 calories a day per capita on average).¹⁴ The poverty line is a monetary threshold that separates the poor from non-poor. It is calculated based on the caloric norm, among other factors (see INEI 2002a: 25–42; INEI 2007: 6). In monetary terms, the (overall) poverty line is between US\$2–3 a day (depending on the geographical area) and the analogous extreme poverty line is between US\$1–1.5 a day.¹⁵

Data sources

More recent national censuses were implemented in 1993 and 2005. The latter became available only recently and has not yet been used in child development-related research. Most of the studies that I cover here used household surveys as primary sources, with sampling frameworks based either on the 1993 Census or on the 1999 Pre-Census.

The three main national surveys that cover the 1990s are: the Living Standards Measurement Survey (LSMS);¹⁶ the National Household Survey (ENAHO);¹⁷ and the

¹² In the previous example (child nutrition and mother's income), mother's income would be called an endogenous variable, because it is correlated with unobserved factors. In order to establish causality, two possibilities arise: (i) use of longitudinal data – assuming that innate ability is constant over time, then the bias caused by innate ability should disappear; (ii) finding a variable that can be assumed to explain variations in mother's income and is uncorrelated with innate ability – i.e., finding an instrumental variable for mother's income.

¹³ This is an operative definition. For alternative definitions see World Bank (2005: 53).

¹⁴ Differences in the caloric norm are only due to differences in the demographic structure (age and gender of family members) across the 7 geographic areas. The 7 geographic areas are Lima City, urban coast (excluding Lima City), urban highlands, urban jungle, rural coast, rural highlands and rural jungle. See INEI (2002a: 26).

¹⁵ Differences between geographical areas are due not only to the caloric norm, but to differences in the cost per calorie between urban and rural areas. That is, independent of price differences, rural people consume cheaper calories. See INEI (2007: 28–9).

¹⁶ LSMS was carried out by Instituto Cuánto in 1986, 1991, 1997 and 2000.

¹⁷ ENAHO has been carried out by Instituto Nacional de Estadística (INEI) (National Bureau of Statistics) since 1997.

Demographic Health Survey (DHS).¹⁸ Only the last two of these were continued beyond 2000. All of these three surveys are representative of the country as a whole, for urban and rural areas and for the three climatic zones.¹⁹ In chronological order, Peru Young Lives Survey (YLS) is the fourth nationally representative survey. It is different to the other surveys in that it excludes the top five per cent of districts; for details see Escobal (2007).

The characteristics of each of these surveys are as follows:

- LSMS and ENAHO are similar in that both provide data on socio-economic aspects of the household and its members such as income, expenditure, labour activities for those members of the household above 14 years old,²⁰ and health and education indicators for everyone above 3 years old. In addition and, importantly, LSMS provides data on anthropometric indicators. LSMS has been discontinued, but many relevant studies on childhood poverty were built on this data. Both ENAHO and LSMS have the advantage of including a panel dimension.²¹
- As for DHS, it has been executed approximately every five years since 1986²² and comprises information on maternal and child health/nutrition-related aspects. Its target population is every woman between 15–49 years old and her children below 5 years old. While ENAHO is the primary source from which to calculate monetary poverty levels and enrolment rates, DHS is the main source for estimating under-nutrition and mortality rates in Peru. One drawback of ENAHO is that its methodology has changed over time, so that temporal comparisons are not always feasible.²³
- YLS gathers information for 2,000 households with the characteristic of having at least one child aged 6–18 months and 700 households with at least one child aged 8 years old. YLS has been constructed as a panel sample by definition. One advantage of YLS is that it bridges the gap between ENAHO and DHS, i.e., it comprises information on both socio-economic characteristics and child-related aspects, albeit with less detail.

Finally, *Encuesta Continua* 2006 is a fifth household survey, similar to ENAHO, whose results have yet to be released and which may be used in the future for child development-related research.

¹⁸ DHS is carried out by Instituto Nacional de Estadística (National Bureau of Statistics) with the cooperation of Measure/DHS+ Macro International Inc, USAID and UNICEF.

¹⁹ ENAHO and DHS are also representative at the regional level – Peru is divided into 25 regions (*departamentos*).

²⁰ In the case of LSMS, above 6 years old, which proved to be useful for child work statistics.

²¹ LSMS has a panel dimension for the period 1997–2000 and ENAHO for the period 2002–2006.

²² 1986, 1991, 1996, 2000 and continuous 2004–2008 in progress.

²³ In 2001, the ENAHO sampling framework was changed to be consistent with the Pre-Census 1999. Also, since 2003 it has periodically changed, becoming a continuous (i.e., monthly) household survey.

3. General trends of poverty: 1993–2005

Peru is a country where almost half of the population (45 per cent in 2006) is poor and 20 per cent is extremely poor, i.e., they cannot satisfy a minimum level of caloric intake. Due to the demographic structure, approximately three out of five children aged 3–16 years live in poverty.²⁴ Divided in three climatic zones – the Amazonian jungle (*selva*) in the east, the highlands (*sierra*) in the centre and the Pacific Coast (*costa*) in the west – there are important geographical disparities across regions and between urban and rural areas (see Table 1). The highest rates of poverty and extreme poverty are reported in the rural side of the country, especially in the highlands – inhabited by Quechua and Aymara speakers – and in the Amazon regions. The incidence of poverty is also higher among non-Spanish native speakers who account for 34 per cent of the total population (World Bank 2005: 53).

Table 1. *Peru: poverty indicators (2006)*

	Poverty	Extreme Poverty	Population (%)
Total	45	16	100
Area of residence			
Urban	31	5	72
Rural	69	37	28
Natural region			
Coast	29	3	52
Highlands	63	33	38
Jungle	57	22	10
Domain			
Urban Coast	30	3	-
Rural Coast	49	14	-
Urban Highlands	40	10	-
Rural Highlands	77	47	-
Urban Jungle	50	18	-
Rural Jungle	62	25	-
Lima Metropolitana	24	1	-

Source: INEI (2006)

Poverty levels cannot be directly compared for the 1994–2005 period as a whole due to methodological changes during that period.²⁵ Three sub-periods that allow for comparison are 1994–1997, 1999–2000 and 2001–2005. Studies reported by INEI and the World Bank show that poverty rates reduced between 1994–1997, increased again between 1997–2000 and reduced slowly from 2001 onwards (INEI 2002a, 2006; World Bank 1997, 2005). An

²⁴ This ratio is based on 2004 poverty figures. The exact poverty rates are 64% for the age group 3–11 years and 60% for those 12–16 years. This compares to an overall poverty rate of 52% in 2004. Note that 2004 and 2006 poverty figures are not directly comparable due to methodological changes.

²⁵ Mainly because of periodicity and sampling framework aspects. However, there have also been changes in the way the poverty line is calculated and updated. See Instituto Nacional de Estadística (2007) for details.

alternative measure of poverty that is time-consistent is based on the Unsatisfied Basic Needs (UBN) method (see Table 2). All of its components show a reduction between 1993–2005, a result consistent with an improvement in living standards during that period (INEI 2002a: 41; World Bank 2005: 64).

Table 2. *Peru: Unsatisfied basic needs*

Indicators*	Census 1993	Census 2005
(1) Inadequate housing quality	17%	11%
(2) Overcrowding	20%	12%
(3) Inadequate sanitary services	38%	21%
(4) Presence of school-age children not enrolled	16%	3%
At least one UBN	54%	34%

Source: INEI (Census 1993, 2005)

*The following definitions were used: (1) housing quality: inadequate in the case of soil floor or if the external walls are made of woven mat, *quincha* (clay), adobe (sun-dried brick), wood or other materials different from cement/concrete; (2) overcrowding: households with a ratio of three or more people per room; (3) inadequate sanitary services: households without a toilet or without a sewage connection or septic tank; (4) school-age children: refers to children aged 6–12 years.

The literature often correlates the reduction in poverty rates during the first part of the 1990s with market-oriented reforms and the increase in social expenditure per capita that took place during Fujimori's first government.²⁶ This period indeed marked a turning point in terms of social and macroeconomic policy. During the 1980s, Garcia plunged Peru into one of its worst crises in modern history.²⁷ By the end of this period (1990), inflation had reached historic levels and the public sector was bankrupt. Poverty rates increased promptly from 43 per cent in 1985/6 to 59 per cent in 1991 (Escobal et al. 2003: 1). On top of this, terrorism spread in rural areas, particularly in the highlands, and by the beginning of the 1990s it reached major cities.²⁸

Between 1991–1993, Fujimori implemented a set of structural reforms aimed at deregulating the economy. As part of the stabilisation and adjustment programme, several social programmes were implemented in order to help the most vulnerable population to bear the transition. Many of these programmes became permanent (Pascó-Font and Saavedra 2001). There was also an expansion in health and schooling infrastructure across the country. During this period, terrorism was also virtually defeated (CVR 2004).

Overall, the Peruvian economy expanded between 1993–1997, but this was then followed by an economic depression between 1997–1998, due to El Niño and the Asian financial crisis. From 2001 onwards, the economy recovered but the rate of reduction in poverty levels has been very small (World Bank 1997, 2005).

Notwithstanding poverty reduction, income inequality rose between 1994–1997 and 1997–2000, meaning that the gains of economic growth were not evenly distributed, with the rural poor gaining the least (World Bank 1997: 3–17; 2005: 18–26). Similarly, during the 1990s

²⁶ The increase in social expenditure refers to the expansion of health and school infrastructure as well as the implementation of food programmes. For the impact of social expenditure on poverty during the 1990s see Pascó-Font and Saavedra (2001). For the link between economic growth and poverty, see World Bank (1997, 2005).

²⁷ Basically, he tried to fully control the economy (e.g. virtual ban of imports, price control of and subsidies for basic goods and services, strict regulation of financial markets, labour market rigidities and so on).

²⁸ For further details about the impact of political violence see CVR (2004), the official report by The Truth and Reconciliation Commission about the impact of two decades of terrorism in Peru.

gains in access to public and social services (health, sanitation and electricity) did not show a pro-poor bias. Comparatively, Peru is still one of the Latin American countries with the highest income inequality as measured by the Gini coefficient (ibid). These inequalities are clearly associated with urban-rural, ethnic and geographical differences. Most of the extreme poor population is clustered in rural highlands and comprises non-Spanish speakers. This poverty profile will characterise most of the results shown in the following sections.

4. Empirical evidence on childhood poverty

Table 3 summarises the performance of key child development indicators for the period 1994–2003 at national level (urban-rural differences are shown in the following sub-sections). Overall, there were improvements in some areas and stagnation in others.

National trends show an important reduction in child mortality and an increase in school enrolment from the mid 1990s. These improvements reached both urban and rural areas, both poor and non-poor households. However, other acute measures of child development show little progress; concerning health and nutrition, advances in the reduction of chronic under-nutrition are far from significant; with regard to education, completion rates remain low (particularly for secondary education) and most students are above the norm age for their grade. Strongly related to educational outcomes, one out of four children and teenagers is involved in some kind of economic activity.

Table 3. *Peru: main child development indicators*

	1994–1996	2000–2003
Health and nutrition		
Child mortality rate	73	47
Stunting rate	26	25
Schooling		
Primary education		
Net enrolment rate	94	93
Secondary education		
Net enrolment rate	52	70
Completion rate (16–18 years old)	35	51
Completion rate (19–21 years old)	64	67
Child work	-	25

Source: INEI (1997), INEI (2001), Ministry of Education (2005a)

Geographical disparities between urban and rural areas and across regions remain high for virtually all of these indicators and, in some cases, inequalities increased during the period of analysis. The evidence related to these aspects is discussed in the following sub-sections.

4.1 Health and nutrition

Two important indicators for analysing child health and nutrition in Peru are mortality and chronic under-nutrition rates (the latter measured by height-for-age z-scores, HAZ), both of which are relatively high compared to international standards. It is noteworthy that anaemia

due to iron deficiency is also an important indicator in Peru – one out of two Peruvian children is anaemic (Cortez: 39–40). However, the focus is on the first two indicators as they have been more intensively studied in recent socio-economic literature.

Table 4. *Child health and nutrition in Peru: main indicators*

	1992	1996	2000
Child mortality rate			
Total	91	73	47
Urban	65	45	32
Rural	126	106	64
Under-nutrition rate			
Total	36,5	25,8	25,4
Urban	25,9	16,2	13,4
Rural	53,4	40,4	40,2

Source: INEI (1997), INEI (2001)

Both of these indicators reduced during the period 1990–2000 (results correspond to children under 5 years old). Child mortality reduced steadily from 91 (per 1000 born) in 1992 to 47 in 2000, whereas chronic under-nutrition (HAZ) reduced from 37 to 25 per cent between 1991–1996, but remained almost unchanged from 1996–2000 (see Table 4).²⁹ On a broad level, the improvement in these two indicators has generally been associated with an overall increase in social expenditure and the expansion in health infrastructure that took place during the 1990s (World Bank 1999a: vi). While improvements reached all regions and departments, the rate of change across them was highly variable.

As in 2000, rural mortality is still double that in urban areas. Similarly, chronic under-nutrition ranges from an average of 13 per cent in urban areas to 40 per cent in rural areas (e.g. 7 per cent in Lima City to 54 per cent in Huancavelica). Geographically, all regions with chronic under-nutrition above 40 per cent are clustered in the Andes. Geographical inequalities also reflect social exclusion. Mortality among indigenous children, who are the main inhabitants of the highlands, is 1.6 times higher than the national average and stunting is twice the national average for this group (Valdivia and Diaz 2007: 545).

Not only did disparities remain, but inequalities worsened (World Bank 1997; Valdivia 2002b; Valdivia and Diaz 2007). Stunting among children in the poorest decile was 11 times higher than that of the richest decile in 1992, but by 2000 the difference had increased to 15 times (Valdivia 2004: 490). This result is striking because inequalities in access to health services reduced during the same period (Valdivia and Diaz 2007: 544–45).

In recent literature, child mortality and stunting have been studied using data from DHS (1996, 2000). Both outcomes are clearly related to poverty, though the latter is not exclusive to poor families.³⁰ Among other aspects, mother's education, household income and household sanitation, access to drinking water, availability of health care services, and child care practices have been found to be important in explaining these outcomes. One important finding is that how these factors matter varies between urban and rural areas, as explained in the following sub-sections.

²⁹ For children under 5 years old. Source: Demographic and Health Survey, 2000. DHS 2004–08 results for national rates of mortality and nutrition are not yet available.

³⁰ Cortez (2001a: 46) shows that about 14 per cent of non-poor children are stunted (though, admittedly, it is possible for this 14 per cent to be very close to the poverty line anyway).

4.1.1 *Child mortality*³¹

The reduction in child mortality rates is part of a trend that started in Peru before the 1990s (INEI 2001: 111). Dammert (2001) and Valdivia (2002a) studied the variables associated with this reduction. Controlling for biological factors, these authors show that mortality is positively related to household infrastructure and access to health services and negatively related to mother's schooling, especially in rural areas.

Concerning peri-natal/neo-natal mortality, Dammert (ibid) notes that one of the ways through which access to health facilities reduces child mortality is by increasing the probability of having medical assistance during delivery.^{32, 33} Medical assistance increased from 55 to 58 per cent between 1992–2000 and, more importantly, the poorest/richest decile ratio reduced from 10 to 6. The number of women who received antenatal care by health professionals also increased, from 72 to 84 per cent, and the associated inequality ratio reduced from 11 to 2.³⁴ Yet it is worth noting that distance to health facilities is still an important reason why women in remote rural areas do not receive medical attention (INEI 2001: 125).

Though assistance at birth is constrained by the availability health infrastructure, it is ultimately an individual choice. In this respect, both Beltran (2002) and Dammert (2001) find that better educated mothers are more likely to receive antenatal care and professional assistance when giving birth. They suggest that part of the impact of education is the increased ability to process health knowledge. In addition, Beltran (2002) suggests that there is an income effect of education, though does not test this formally.

Closely related to education, cultural barriers also play a role in the use of health services. Beltran (2002) points out that mothers who are non-Spanish speakers are less likely to receive antenatal care due to resistance to medical methods. For instance, De Meer et al. (1993) show case study evidence from Aymara and Quechua peasant communities where mothers delivered their babies without medical supervision, even though health services were available at a reasonable distance. The reason for this behaviour is complex as shown by other case studies. On the one hand, even if the distance to facilities is reasonable, pregnant women often have to walk it.³⁵ On the other hand, vertical delivery (*parto vertical*) is common practice in rural areas and is one of the reasons why women often prefer to deliver their babies at home.³⁶ Finally, discrimination against indigenous women by health professionals has also been pointed out as part of the problem (see Huayhua 2006).

The implementation of *casas de espera* (a house near health facilities where pregnant women can stay before giving birth) and the (recent) addition of vertical delivery as a choice for pregnant women in public health facilities in the rural Andes might help to overcome the problem of maternal security in the coming years.³⁷ However, besides problems during delivery, infectious

³¹ I use the term 'child mortality' to refer to the probability of dying in the first five years of life. Note this differs from DHS terminology, according to which child mortality is the probability of dying between the ages of one and five, and under-five mortality is the probability of dying between birth and the fifth.

³² Formally, Dammert instrumentalised access to health services through assistance at birth.

³³ The impact of health infrastructure on mortality has not been addressed directly in the literature other than through place of delivery, mainly due to data constraints. But some of the results related to stunting shown in the next section may help to shed some light on this aspect.

³⁴ There have been further improvements in both indicators in 2004 (70 and 92 per cent, respectively).

³⁵ See www.unicef.org/peru/spanish/survival_development.html

³⁶ There are other cultural reasons as well. See www.unicef.org/peru/spanish/survival_development_3521.htm

³⁷ See www.unicef.org/peru/spanish/survival_development.html.

diseases – particularly respiratory infections and diarrhoea – and inadequate nutrition are reported as the main causes of child mortality in Peru (Dammert 2001: 22–3). Mortality from pneumonia and other respiratory infections is more likely to occur in the highlands, where child mortality reaches its highest rates (108 per 1000 born in Cusco and Huancavelica). Every year there is an increase in mortality due to pneumonia in the southern Andean region as this area is hit by severe cold periods (cold waves). Unfortunately, these aspects have not been addressed directly by the quantitative literature, so there is little to add in this respect.

4.1.2 *Child chronic under-nutrition*

Several studies have recently analysed the determinants of child malnutrition (measured by height-for-age) in a systematic way using econometric techniques, though each with a focus on different mechanisms (Alderman and Hentschel 2001; Cortez 2001a, 2002; Cortez and Calvo 1997; Escobal et al. 2005; Valdivia 2002b, 2004).³⁸ All of these studies use DHS 1996, DHS 2000 and ENNIV 2000 data. Escobal et al. base their analysis on Young Lives' data.

From this literature, the following patterns emerge: (1) there are differences in outcome for urban and rural areas; (2) child's age, income, and mother's education (through different channels) are important in explaining variations in child nutrition; (3) the impact of household infrastructure and health services is not necessarily direct, but seems to interact with community and household factors; and, (4) none of these studies has reported gender differences in food allocation within the household, but differences in the nutritional status of indigenous children.

Evidence on the importance of child's age is connected to the well-established fact that stunting in Peru is a problem that starts around the age of 4–6 months.³⁹ Creed-Kanashiro (2007: 6) points out that while breastfeeding is still not universal in Peru, the main problem is the complementary feeding that children receive between 6–24 months. Mothers often prefer to feed their children with soups and broths, which are not an optimal source of energy (Penny et al. 2005: 1871). This preference is not only constrained by food availability but also depends on cultural factors (see Ministry of Health 1997a, 1997b, 1997c, 1997d for a more descriptive explanation of mother-infant food habits).

Mother's nutrition and schooling are found to be relevant in explaining child nutrition in virtually all studies. Importantly, mother's primary education does not seem to make a difference; only mother's secondary and higher education appear to have an impact. How maternal education matters has been more difficult to evaluate. Escobal et al. (2005: 13) calculate that half of the impact of mother's education is direct and the remainder is due to wealth and family characteristics. Cortez (2001a, 2002) and Valdivia (2002b, 2004) agree that the link may be due to skills obtained by the mother at school, which allow her to better process health information. For instance, Cortez (2002: 62–71) shows that education has a positive impact on nutrition through antenatal care. Alderman and Hentschel (2001) find that women's education is important not only for their own children but for the nutrition of other children in the neighbourhood. Escobal et al. (2005: 14) find evidence in the same direction. The importance of nutrition behaviour in relation to infant feeding was also tested directly through a randomised nutrition education intervention in Northern Peru (Trujillo) (see Penny et al. 2005 and Robert et al. 2007).⁴⁰

³⁸ INEI (2001), Segura et al. (2002) and Valdivia and Mesinas (2002) provide descriptive studies of the same phenomenon.

³⁹ Chronic under-nutrition ranges from 4 per cent for infants below 6 months old to 20–30 per cent for children aged 1–5 years old. See INEI (2001: 175).

⁴⁰ The purpose of the intervention was to enhance the quality of nutrition education including counselling in six health facilities – compared to six control facilities. As a result, in this peri-urban area where access to food was not a limitation, children in the intervention were less likely to have stunted growth at 18 months. See Penny et al. (2005) for details about the intervention.

Compared to mother's education, the effect of household infrastructure and health care services on nutrition is somehow less clear. The former seems to be important at national level, but Cortez (2002: 64) finds that a household's sanitation and its access to drinking water are not important in rural areas, after controlling for other factors. He argues that this may merely reflect the lack of water and household sanitation infrastructure in the rural part of the country. An important suggestion by Escobal et al. (2005) is that infrastructure and education interact. For instance, the impact of piped water, sewerage systems and electricity on nutrition tends to be smaller in households with more educated mothers. On the other hand, Alderman and Hentschel (2001), who analyse different mechanisms through which investment in household infrastructure matters, find that households benefit from investment in water and sanitation by their neighbours, particularly in rural areas.

With respect to health care services, Valdivia (2004) estimates the impact of the expansion in health infrastructure on child nutrition during the 1990s, as measured by the number of health facilities and doctors per district.⁴¹ ⁴² His main finding is that the expansion had a positive effect in urban areas, but not in rural areas (controlling for income and education, among other factors). The author offers two explanations. First, public health facilities in poorer districts tend to be located in the capital of the district, thereby benefiting more children living in urban areas. Second, mothers who are non-Spanish speakers might have problems effectively using professional health care services, either because of communication problems or discrimination. None of the available surveys can test these hypotheses. However, Amnesty International (2006) has recently reported cases where women's access to free health services was delayed due to the way they were dressed. In addition, Amnesty International suggests that the non-holding of ID by poor women might also affect their access to free services.⁴³

Finally, Valdivia (2004) finds that indigenous children report a lower nutritional status and that these results remain when controlling for urban-rural location. Furthermore, there is no evidence of gender discrimination in the allocation of food.

4.1.3 *The impact of public policy programmes*

Several public programmes developed in Peru can have an impact on child health and nutrition outcomes. Here I review the evidence of some of them (health insurance and food programmes) and enumerate the characteristics of two relatively new, long-term programmes that will require further investigation in the near future: Juntos, a conditional cash-transfer programme (established in 2005); and Crecer (established in September 2007), aimed at reducing child nutrition (and illiteracy among adults) by attacking several dimensions of poverty.

Concerning child health, Seguro Escolar Gratuito (School Health Insurance) and Seguro Materno Infantil (Maternal-Child Health Insurance) were two programmes (currently joined into one, Seguro Integral de Salud) that provided free services for children enrolled in public schools and children under 5 years old and their mothers, respectively.⁴⁴ Jaramillo and Parodi (2004) find that both interventions succeeded in increasing the probability of using

⁴¹ Data on distance to health facility was not available.

⁴² The selection of districts favoured with an increase in the number of public health facilities was not random, so it was necessary to control for district characteristics.

⁴³ It is estimated that 1.5 million people above 18 years old (9 per cent of the total population) do not hold ID in Peru. See RENIEC (2005: 51) and www.es.amnesty.org/uploads/media/AMR4600406.pdf.

⁴⁴ The former was implemented in 1997 and the latter was introduced progressively between 1998 and 2002, both aimed at increasing poor people's access to health services.

public health facilities. However, the programmes were not 'progressive', i.e., it was not the poorest decile which benefited the most.

With regard to child nutrition, there is currently a political and academic debate in Peru about the efficacy and efficiency of food nutrition programmes, pointing to design problems, programmes' multiplicity and superposition (as they were created by different government agencies) to explain their inefficiency (see Alcázar 2007 and Vásquez 2002 for a more general description of these problems). Numerous public food programmes are executed by the Government aimed at improving nutrition levels of poor children. Notably, Vaso de Leche is the largest food programme in Peru, but there are many others (see Cortez 2001 for a survey of these programmes). Yet according to different studies, all of which use strategies to account for endogeneity issues, some of the main public food programmes do not have a nutritional impact on children (Alcázar et al. 2003; Cortez 2001a, 2002; Gajate and Inurritegui 2002; Ruggeri Laderchi 2001; Stifel and Alderman 2006; Valdivia 2005).

One problem that has been documented is leakage, i.e., beneficiaries that are not part of the target population (Alcázar 2007). However, in the case of Vaso de Leche, Stifel and Alderman (2006) and Valdivia (2005) find that this programme does reach the poor, albeit inefficiently. Two possibilities have been suggested to explain the seeming inefficacy of Vaso de Leche in improving the nutritional status of poor children. One points directly to the low nutritional added value of the programme, whose transfer represents less than US\$2 per capita monthly (Alcázar 2007: 202–03). Another possible problem is intra-household arrangements; families might be reducing their own food expenditure in such a way that total milk consumption per child is not altered.

There are examples of non-public programmes with smaller numbers of beneficiaries that have demonstrated improvements in health indicators including stunting (e.g. UNICEF Buen Inicio and programmes developed by CARE and ADRA ONG).⁴⁵ In addition, two important large-scale public programmes have recently been established which in certain ways try to overcome problems shown in previous public initiatives: Juntos and Crecer. Juntos is a conditional cash-transfer programme that was introduced in 2005. The target population is poor households with unsatisfied basic needs. The transfer (US\$30 per month) is given to the mother who in turn commits to send her children to school, to make use of public facilities and available food programmes, as well as to follow some specific child care practices, among other things (see Jones et al. 2007 for a qualitative evaluation of this programme). Crecer is a programme that was established in September 2007, aimed at reducing chronic under-nutrition rates among children and illiteracy rates among adults. It plans to reach 1 million children in vulnerable regions across the country.

In trying to overcome previous mistakes, Crecer is designed to merge 82 currently active public programmes (including Juntos). It is also designed to attack several dimensions of poverty that affect child nutrition, including food availability and access to basic services, as well as nutrition behaviour and child care practices.⁴⁶ The quantitative impact of Crecer and Juntos has yet to be evaluated.

This section dealt mainly with the first five years of children's lives. In particular, it discussed the determinants of chronic under-nutrition. In turn, and complementarily, the following sections (Schooling and Child work) focus on the use of time by children aged 6–17 years.

⁴⁵ Unfortunately due to the small number of beneficiaries, their impact cannot be traced through household national surveys. Some public programmes are also too small to be captured in household surveys.

⁴⁶ See www.inei.gob.pe.

Unfortunately, there are no studies connecting both periods, e.g. linking nutritional status during early periods with later educational and labour outcomes.⁴⁷ Yet the literature regarding education and child work is important in its own right, as it provides a framework for understanding the dynamic of child development in the context of poor households. This includes, importantly, the transition from primary to secondary school, which is a key period when explaining low levels of educational achievement, including school abandonment.

4.2 Schooling

By the mid 1990s, primary school was almost universal, consolidating a trend that started in the 1980s. The notable increase in access to education is the highest accomplishment of the Peruvian educational system in the last 15 years. Yet the educational system still faces many challenges as suggested in recent literature. Arregui (2000), Cueto and Pollitt (2002a), and Benavides (2003), among others, provide a general overview of these challenges.⁴⁸ Some of the problems highlighted by these authors are: (a) access to primary education is high, but in rural areas, only one out of two children attends secondary school; (b) overage and dropout rates in public schools and in rural areas remain high and this translates into low completion rates;⁴⁹ (c) in the highlands and in the jungle, children are more likely to start school late, to repeat years and to leave altogether. They are also more likely to perform worse in national and international evaluations.

The factors associated with these results are diverse. On the one hand, school characteristics (infrastructure, access to basic services, classroom arrangements) are highly variable between urban and rural areas and between private and public schools. The quality of education is also very likely to differ according to these criteria. Since wealthier families are more likely to pay more for education and, thus, to send their children to better schools,⁵⁰ the education system itself might become a mechanism that amplifies differences between poor and non-poor children.

Household environment is also important. On average, over-age students come from more deprived environments than on-age students. Yet, there is not necessarily a direct relationship between overage and dropout rates. School abandonment has its own reasons, in many cases directly related to intra-household economic decisions. In rural areas it is clear that, even when parents often realise the importance of education, it is complicated for them to reconcile this with their own needs and the traditional role of children in household economic activities. Better educated parents are more likely to realise the advantages of education, but, in the context of a country in which primary education has only recently become universal, these parents are a minority.

⁴⁷ With the exception of Cueto and Chinen (2001). Based on their own survey, these authors show evidence of the impact of a public breakfast programme on nutrition and educational outcomes. They found that the programme did not have a positive impact either on nutritional status or on students' performance at evaluations; however, it did have a positive effect on school attendance and school abandonment (reducing it). They elaborate several explanations in order to explain these results.

⁴⁸ For an overview of the evolution of access to education in recent years, see Cortez (2004: 50–1), Benavides (2003: 8) and Ministry of Education (2004).

⁴⁹ Out of every 1000 children attending the first grade of primary school, only 540 will complete basic education and only 225 of those who graduate will do so in the expected time. This example is quoted by Cueto and Pollitt (2002a: 49) based on ENNIV 1997. See Guadalupe (2002: 93) for the same comparison between 1993 and 1999.

⁵⁰ I show later that students from private schools perform relatively better even after controlling for other individual, household, school and community factors.

In order to link educational outcomes with the results of the recent literature more explicitly, I divide the analysis into three sections: (a) access to education and school characteristics, (b) correlates of school achievement, and (c) progress through school.

4.2.1 *Access to education and school characteristics*

Basic education was declared compulsory in Peru in 1993 – previously only primary education was enforced (Arregui 2000: 7). This implies that every child should complete 12 years of education: one year of pre-school (for children aged 5 years), six of primary school (6–11 years old) and five of secondary school (12–16 years old). Basic education is free in public institutions,⁵¹ but the system allows and encourages the establishment of private schools (World Bank 1999b: 6). About 85 per cent of students attend public schools and 10 per cent go to private schools.⁵²

As in 2003, the net enrolment rate in primary school was 93 per cent (Table 5). The proportion of children attending primary school did not change significantly between 1994 and 2003, as it was already high.⁵³ The major change occurred in secondary school, where the net enrolment rate increased from 52 per cent in 1994 to 70 per cent in 2003. Gender differences concerning access are small in primary school, but differences which disadvantage girls remain in secondary school, particularly in rural areas (Guadalupe 2002: 89).

As noted by the World Bank (1999b) and Saavedra and Suárez (2002a: 12–15), the high level of access to primary education in Peru is surprising, because public expenditure per capita in education is relatively small compared to other developing countries with similar socio-economic characteristics. Saavedra and Suárez (2002a: 7) suggest that public expenditure in primary education is so low that many public schools would not be able to operate without parents' contributions.

Although most of the children attend (free) public schools, in practice, parents still contribute to education. The authors (*ibid*: 25) find that for every US\$200 invested per child in the public system, about one third comes from parental contributions. Part of this money is spent on books, writing materials, food, transportation, school uniform and other school materials. But parents also contribute directly to the school by buying classroom materials for the teacher, hiring teachers in specific areas (e.g. for English and computation lessons) and working for the school (e.g. maintenance activities) (*ibid*: 29–42). These activities are particularly important in the rural highlands (see Alarcón 2001: 54–5 for case study evidence). However, these contributions are not necessarily a substitute for public expenditure. Saavedra and Suárez (2002a) find that parents are more likely to spend on education in schools with better infrastructure, implying that household expenditure on education is complementary to, rather than a substitute for, public expenditure.^{54, 55}

⁵¹ Parents are asked to contribute annually but it is not compulsory.

⁵² The remaining 5 per cent attend schools managed by public entities different from central government, or schools managed by religious or cooperative groups, some of which may receive subsidies from the government (e.g. *Fe y Alegria*). See Cueto and Pollitt (2002a).

⁵³ For a description of the period 1985–2003, see Ministry of Education (2004: chapters 1–2). See also Guadalupe (2002: 34–38) for a description of the period 1968–2000.

⁵⁴ In order to get to this result they used a sub-sample of children attending public schools and controlled for family expenditure per capita and other variables. While the result is likely to be biased due to the non-random nature of the sample (sample selection bias), the authors correct for this problem using standard techniques and find no variations in the conclusions (see Saavedra and Suárez 2002a, Annex 7). Note that the possibility of sample selection bias arises because the authors analyse a

Table 5. *Schooling in Peru: enrolment*

Net enrolment rate	1994	1998	2003
Pre-school			
Total	57	46	53
Urban	59	51	62
Rural	55	40	43
Primary			
Total	94	91	93
Urban	95	91	94
Rural	92	90	90
Secondary			
Total	52	59	70
Urban	63	74	81
Rural	32	42	53

Source: Ministry of Education (2005a)

* For children aged 19–21 years.

Another important feature that is not obvious by looking at education enrolment statistics is that students attend schools with highly variable characteristics. Ministry of Education (2004) and, especially, Montero et al. (2001, 2002) describe the main characteristics of rural schools.⁵⁶ They show that two thirds of rural schools operate with fewer than three teachers, so typically students from different grades share the classroom – *multigrado* (multiple grades). Furthermore, half of these schools are *unidocentes*, i.e., have one teacher-principal in charge of all students (Ministry of Education 2004: 12; Montero et al. 2001: 150). Access to basic services is also quite limited in these institutions (41 per cent have access to water, 3 per cent to sewerage and 9 per cent to electricity) (ibid: 153).⁵⁷ Also distance (in time) to school becomes important, particularly in rural areas in the highlands and in the jungle (especially as far as secondary schools are concerned) (ibid: 64).

On the other hand, students living in urban areas attend schools with better access to services, most of which are *polidocentes completas* (i.e., each grade has its own classroom) (Ministry of Education 2004: 33–4). Among urban schools, private schools have the best access to services and in part for this reason are considered high quality.⁵⁸ In turn, public schools are cheaper but typically low quality. Relatively wealthier families prefer to send their children to private institutions (Cueto et al. 2005: 28–9). As a result, the Peruvian school system is said to be socio-economically stratified (Ministry of Education 2005b: 77).

Differences between private and public schools as well as differences in the amount of money spent on education by poor and non-poor households might help to explain differences in human capital accumulation that are not necessarily captured by net enrolment rates. Escobal et al. (2005) find that, in the presence of economic shocks affecting the household, parents prefer to cut spending on education rather than to remove children from school temporarily (which would be detected through overage). While relatively richer families

sub-sample of children sent to a public school (thus leaving aside children who do not go to school or who attend private schools and whose parents are likely to have different characteristics).

⁵⁵ See Benavides (2003: 14) for a brief discussion of the distributional implications of this result.

⁵⁶ Montero et al. (2001: 150) provide both nationally representative evidence and qualitative information collected by field work.

⁵⁷ It refers to *multigrado* schools.

⁵⁸ In this case, *high-quality* refers not only to physical infrastructure but to the provision of a better educational service in general.

cut spending by transferring their sons from private to public schools, poorer families do this simply by buying fewer school materials (Escobal, Saavedra and Suárez 2005: 15).

Due to the characteristics of the school system, the process of acquiring basic education in Peru may amplify differences between poor and non-poor children, by giving the former fewer opportunities to accumulate human capital. One way to trace these differences is by comparing differences in school achievement outcomes between different groups of students.

4.2.2 *Correlates of school achievement*

The quality of public education has been of great concern, especially after the poor performance of Peruvian students in national and international evaluations.^{59, 60} On average, urban students from private schools obtain the highest marks and rural students from public schools the lowest marks, with students who are not native speakers of Spanish scoring the worst (Ministry of Education 2005b). But even in private schools, the result is far from satisfactory.

Factors associated with school performance have been analysed mainly from a quantitative perspective. Cueto (2007) provides an exhaustive reference list of all publications that have analysed factors associated with school achievement in Peru based on national evaluation results. He also performs a meta-analysis that summarises the main findings from this literature for Peru.⁶¹ Among the factors included in the meta-analysis, the socio-economic level of the school (measured as the average socio-economic level of all its students) is a robust factor associated with school achievement. It has always been found to have a positive effect on students' performance (Ministry of Education 2004: 77–81). In addition, Cueto et al. (2004: 54) show not only that average socio-economic level matters, but differences in the performance by groups of students classified according to socio-economic level amplify over time.⁶²

Rural schools do not seem to perform worse than urban schools after controlling for other factors. But private schools do perform better than public schools. Cueto (2007: 429) suggests that while differences between urban and rural schools are driven by differences in the relative poverty of the students, those between private and public schools may instead be explained by differences in the quality of the service provided by both types of institution. The quality of education has not been directly measured in national evaluations, but two recent longitudinal studies (Cueto et al. 2004, 2006) show that there is a clear link between use of time in the classroom, the type of exercises solved by students, and their performance.

With regard to students' characteristics, individual socio-economic level is also regularly found to be positively correlated with performance, albeit to a lesser degree than the impact

⁵⁹ See Cueto (2007) for recent analysis of the national and international performance evaluation of Peruvian school students during the last 15 years.

⁶⁰ Peruvian students' school achievement has been assessed in four national evaluations (NE 1996, 1998, 2001 and 2004) and two international studies (1997 and 2001). NE 2001 and NE 2004 assessed students' understanding in the areas of Mathematics and Communication by comparing it to levels recommended in official curricula. Ministry of Education (2005b) reports that only 10–15 per cent of Peruvian students have an adequate understanding in Communication, with the result varying according to the grade they attend. This proportion ranges between 3–10 per cent in Mathematics, with students from the 5th grade of secondary school (the last year of basic education) reporting the worst marks. A summary of these results is reported in Cueto (2007: 414–19).

⁶¹ See Cueto (2007: 424–431) for the complete meta-analysis; see p. 425–6 for a complete list of all the variables associated with school achievement incorporated in these studies.

⁶² Related to this, Agüero and Cueto (2004) show evidence of the existence of peer effects, i.e., that the performance of one student has an impact on the performance of her peers.

of school socio-economic level (Ministry of Education 2004: tables 37–8). Students' native tongue also matters. Typically, students whose native language is Spanish perform better than Quechua, Aymara or other language speakers. This aspect is relevant because the Peruvian educational system is mainly monolingual. There is a bilingual education programme (Educación Bilingüe Intercultural – EBI) operating in Peru, but according to Diaz, Arregui and Palacios (2001 in Cueto and Secada 2003: 2) no more than 10 per cent of students who speak indigenous languages are reached by this initiative. See Cueto and Secada (2003) for an evaluation of the EBI programme in Peru.

Two other important regularities found in Cueto's (2007) meta-analysis are that working students, as well as over-age students, obtain worse results when compared to corresponding classmates. Child work is a relevant aspect particularly in rural areas. In many cases, working children have limited time to do homework, especially those aged 12–17 years, as they acquire more responsibilities at this age (Montero et al. 2001: 45–54).

4.2.3 Progress through school

Between 1993 and 2002, the proportion of over-age students reduced from 30 to 19 per cent in primary school and from 29 to 25 per cent in secondary school (Table 6). An interpretation of this trend is not straightforward because, as noted by Guadalupe (2002: 44–6), a reduction in overage may mean that some over-age children left the school system either temporarily or permanently, thereby 'improving' the proportion of over-age pupils. In addition, the possibility of repeating the first grade of primary school was eliminated by law in 1995, which reduced overage in primary school.⁶³ For these reasons, I refrain from any comparison between the 1993 and 2002 overage proportions, but note that this is still regarded as a major weakness of the system at present (Benavides 2003: 8; Guadalupe 2002: 94). In part this is because overage is particularly worrisome among rural children, where it reaches more than 40 per cent in secondary school (Table 6). It is also higher among Quechua, Aymara and other native language-speaking students (Cortez 2001: 23–5).

Table 6. *Schooling in Peru: overage*

	1993	2002
Overage *		
Primary		
Total	30	19
Urban	20	12
Rural	45	30
Secondary		
Total	29	25
Urban	26	19
Rural	51	41

Source: Ministry of Education (2005a)

* Overage in this case means students that are two or more years older than expected for their year.

⁶³ In 1995, the Peruvian Government launched a programme called *Programa de Articulación*, aimed at harmonising the transition from pre-school to primary school. For details, see Guadalupe (2002: 60 and 62).

Overage is related to delayed enrolment, repetition and absenteeism.⁶⁴ In Peru, both delayed enrolment and repetition rates are high (Guadalupe 2002: 48). In fact, one of the reasons why first grade repetition was abolished is because it was the year with the highest rates of repetition and school abandonment. Alarcón (1995), Cortez (2001b) and Cueto et al. (2005) study overage as an outcome of any of these possibilities.⁶⁵ (See also Patrinos and Psacharopoulos 1997 who used ENNIV 1991). Cueto (2004) studies the same phenomenon focusing mainly on overage as a consequence of repetition which also has the advantage of using longitudinal data.

Alarcón (ibid) and Cortez (ibid) show that age-grade distortion is higher in rural areas even after controlling for other socio-economic factors.⁶⁶ In addition, Cortez (2001: 54–5) finds that overage is more likely to occur among girls, among children with chronic diseases and among children who work. It is less likely to occur in households with better educated parents (controlling for variables indirectly influenced by parents' education, such as family income).

Table 7. *Schooling in Peru: completion*

Completion rate	1994		1998		2003	
	Urban	Rural	Urban	Rural	Urban	Rural
Primary						
11-13 years old	75	30	69	42	83	59
14-16 years old	90	61	92	73	96	83
Secondary						
16-18 years old	48	9	50	21	64	24
19-21 years old	77	34	73	29	79	37

Source: Ministry of Education (2005a)

Cueto et al. (2005: 12–13, 18–21) show several results that allow for a better characterisation of over-age students, some of which confirm Cortez' (2001) findings. Compared to on-age students over-age students were older when they started school; are more likely to have mothers who speak a native language and are less educated; come from bigger families; report a lower indicator of household assets; are more likely to attend public schools; perform worse in reading, writing and numeracy tests; and have poorer nutritional status as measured by height-for-age and weight-for-age scores.^{67, 68} In addition, the authors find that social capital – e.g. parents' participation in community-level organisations, level of trust among

⁶⁴ Cortez (2001b: 2) shows that absenteeism is higher among over-age children.

⁶⁵ Alarcón uses a descriptive study that tries to identify correlates of average overage across provinces using 1993 Census data. Cortez' study is based on a human capital framework in which overage is interpreted as a school performance indicator explained by individual, household and community characteristics – it uses LSMS 2000. Cueto et al. add the notion of social capital as a way of explaining differences in educational achievement between on-age and overage, using Young Lives 2002. Finally Cueto, which is the only one of these studies to use longitudinal data, performs a multi-level analysis of those variables associated with the probability of completing primary school in a group of rural, mostly Quechua-speaking, students.

⁶⁶ Unfortunately, due to data constraints, they do not control for school supply availability in the district/province or distance to school, so we do not know if the importance of living in urban areas is due to school supply issues or because of other factors.

⁶⁷ In all cases except one, differences between on-age and over-age students are statistically significant. This test was not performed when the results of writing, literacy and numeracy tests were compared between groups. However, differences are considerable.

⁶⁸ With regards to nutritional status, as the authors point out, no differences between groups were found for body mass index, which would have suggested acute malnutrition.

members of the community⁶⁹ – does not seem to have an impact on school achievement and argue this may suggest that, given the characteristics of the education system, there is little parents from poor environments can do to help their children when they have problems at school. ‘Thus it would seem that the possibilities of social capital variables having a marked influence on educational outcomes are, indeed, limited by the characteristics of an education system that is marked by low quality and high inequality’ (Cueto et al. 2005: 29).

Finally, Cueto (2004) analyses transition from primary to secondary school for a cohort of rural students interviewed in 1998, when they were in primary school, and again in 2001 when they were supposed to be in secondary school, assuming they had neither repeated years nor left school. By 2001, from 576 children, 43 per cent had made it to secondary school, 37 per cent were still in primary school and 20 per cent had abandoned school. Analysing the probability of completing the transition to secondary school, Cueto (ibid) finds that achievement in language and mathematics in primary school is the best predictor of who is promoted to secondary and who fails. In addition, Spanish-speaking students and students from *polidocentes* schools were more likely to succeed.

Most of the studies deal with overage and school abandonment as related phenomena^{70, 71}. The proportion of students that complete basic education in rural areas is indeed low (37 per cent in 2003, see Table 7), so it is worth understanding how both variables are related. Lavado and Gallegos (2005) and Cueto (2004) find that, controlling for other factors, overage students are more likely to give up school. While Lavado and Gallegos (2005: 29) interpret overage as a proxy for school achievement, Cueto (2004: 31) controls directly for both overage and school achievement and shows that the former is important per se. Moreover, he finds that the performance of those who withdraw is not significantly different in mathematics and reading comprehension tests to that of other students, at least not among rural students (ibid). This finding is important because it shows that overage and school abandonment are not necessarily explained by the same factors. Those who perform worse are more likely to be above the normal age for their grade, but they are not necessarily those who are going to drop out later.

One of the main reasons behind school abandonment is the lack of economic resources in the household and the opportunity costs that going to school involve (INEI 2002b: 24). Lavado and Gallegos (2005), as well as Jacoby (1994), find that abandonment is more likely to happen among children from extremely poor households. They (ibid) also find that, among poor households, abandonment is higher for students who have younger siblings, perhaps due to an increase in child care responsibilities. It is also higher for those children who do not have a direct relationship with the head of the household (Lavado and Gallegos 2005; Jacoby 1994), which may be either because parents are dead or because they were sent to live with their extended family.

Girls are also more likely to leave school earlier. Related to this, Cueto (2004) finds that in rural areas a higher proportion of girls compared to boys leaves school to help in domestic activities at home.⁷² However, a higher proportion of boys leaves school to help in productive

⁶⁹ See Cueto et al. (2005: 2–4) for a formal definition of social capital.

⁷⁰ In terms of methodology, all studies have to assume that a student who did not go to school during the last academic year is a dropout, though in practice this may not be so, as the student could return to school later.

⁷¹ From those previously quoted see Alarcón (1995) and Cueto (2004).

⁷² This part of his study is based on interviews with students who have dropped out, as well as with their parents and teachers.

activities (farm labour).⁷³ So, gender bias works in both directions and is related to the traditional roles of boys and girls in rural areas. See Montero et al. (2001) and Alarcón (2001) for a description of the use of time by boys and girls in rural areas.

It is worth complementing the quantitative evidence with some elements suggested by the qualitative literature. Parents in rural areas are aware of the value of education.⁷⁴ However, they also value work as an important aspect of their children's lives. For instance, based on interviews in peasant communities in the highlands, Alarcón suggests that less educated parents send their children to school only to learn basic skills (especially Spanish). After this is accomplished, they want their children to participate in economic or domestic activities; if the family is numerous, they often send their children to work in the city. Alarcón (2001: 51–67) also adds that the perception that secondary school is less important might be reinforced by the small added-value that parents perceive children receive at school and by some specific factors such as teachers' absenteeism.

Overall, the links between school abandonment and child work are complex. Most of the children that leave school do so in order to work at home or elsewhere. But they do not necessarily need to drop school in order to work. The relationship between child work and school abandonment is considered in more detail in the next section.

4.3 Child work⁷⁵

The literature about child work in Peru is quite fragmented and, at least from the quantitative perspective, small. Some authors have studied child work in as much as it affects progress through school. But child work is an important phenomenon on its own. It is estimated that one out of four Peruvians aged 6–17 years (about 2 million) is involved in some kind of labour activity.⁷⁶ Moreover, it is thought that official statistics underestimate the real number of working children. These statistics do not provide too many insights about the activities in which children are involved. Because of this I will also rely on evidence provided by qualitative studies.

Taking into consideration the results of both quantitative and qualitative studies, some salient features of child work in Peru can be identified. One, already mentioned, is that child work has a negative impact on school achievement, year repetition and school abandonment. But the relationship between child work and educational outcomes – particularly, school abandonment – is not an easy one. In the previous section it was suggested that those who abandon school in rural areas are not necessarily bad students compared to those who stay. To elaborate further, evidence from qualitative studies shows that child work in the rural Andes and in the rural jungle is linked not only to liquidity constraints. From the parents' point of view, child work is seen as a way of transmitting knowledge and building skills that children will need in adult life, with differentiated gender roles that are community-specific. Evidence from both quantitative and qualitative studies also shows that farm labour and school attendance are not unrelated activities per se, except during specific periods (e.g. harvest time). However, time for homework is greatly affected by these activities. As suggested in the previous section, it seems

⁷³ Cueto (2004: 19) directly asks students who left school why they did so – economic problems and/or the need to find a job were the two most common reasons given.

⁷⁴ There are different reasons why education is important to them, from learning basic skills to its credential value, or as a way to migrate to the city. See Benavides et al. (2006).

⁷⁵ For simplicity, I will use the term 'child work' to refer to both children's (6–13) and teenagers' (14–17) work.

⁷⁶ Government of Peru (2005: 40), Cortez (2004), INEI (2002b) and Rodríguez and Vargas (2005) obtain similar estimates.

that child work itself cannot explain school abandonment in rural areas, unless it is accompanied by additional factors such as extreme (monetary) poverty; low-educated parents; long distance to school; low-quality secondary schools; or a combination of these factors.

Perhaps obviously, economic activities carried out by children differ between urban and rural areas. In urban areas, the main two areas of activity are domestic service and retail. In most cases, these activities can be called informal – the size of the informal sector in Peru ranges from 40–60 per cent of GDP according to the definition used (see De La Roca and Hernández 2004). In some cases, such as domestic service and, to lesser extent, street vending, these activities are performed by children who either migrated directly from the countryside or come from families that migrated in previous years. There is also qualitative evidence that some of these activities are harmful to progress through school, particularly those that require children to work outside the home. Yet, as in rural areas, the relationship between school abandonment and child work in urban areas is also complex. In some cases, children work in order to have enough money to attend school. In other studies, it has been found that some children start working in the street with their parents or older siblings because their families lack money to send them to school and there is no one at home to take care of them.

It has been pointed out that child work statistics are likely to understate the real proportion of working children. In part this is because in its current form ENAHO does not properly elucidate the type of economic activity the under-14 population carries out or the amount of time these activities demand.^{77, 78} Indeed, it is hard to make a valid distinction between economic and domestic activities, particularly in rural areas, unless one considers in detail the nature of activities performed by children. This means that even if children were asked the same questions as adults about their economic activities,⁷⁹ it might still not be that informative, as the type of work children carry out and the time they devote to it often differs compared to adults. Notably, Alarcón (2001: 93) and Montero et al. (2001: 51) point out that according to their observations (qualitative evidence) nearly all children in the rural highlands are involved in some kind of time-consuming domestic and/or economic activity. Perhaps it is due to these limitations that quantitative studies about child work are scarce.⁸⁰

4.3.1 *Child work in rural and urban areas*

With the available data, Alarcón (1998) and INEI (2002b) provide an overall description of child work at national level, the former giving a more in-depth analysis combining both quantitative and qualitative evidence. Both studies find that the majority of working children are non-paid family workers. They also identify three main areas of activity: agriculture, domestic service and retail (see Alarcón 1998: 126–7 based on the 1993 Census; INEI 2002b: 38–9). While agriculture is the main economic activity in the countryside, retail is relatively more important in urban areas. Domestic service is a hybrid; it takes place in the city but is typically performed by girls (teenagers) who have migrated from the countryside. Child work is by far a more important phenomenon in rural areas (Table 8), where more than half of adolescents work. The proportion of boys reporting to be working is higher than girls in

⁷⁷ Fourteen years old is the minimum legal working age.

⁷⁸ By convention, child work refers to economic activities only, i.e., activities described in National Accounts. In general child work is not included in a country's GDP because it is unpaid and/or sometimes illegal.

⁷⁹ ENNIV 1997 and 2000 and ENAHO prior to 1997 asked the same questions about employment to all members of a household above 6 years old.

⁸⁰ It is worth mentioning that INEI is currently working on a national survey about child work, whose results should be available by 2008.

urban and rural areas, though the extent to which this difference is because domestic activities are not considered as child work by official statistics is unknown.

Table 8. *Child work in Peru (2000)*

	Urban		Rural	
	Male	Female	Male	Female
5-11 years	4	4	32	29
12-13 years	11	12	59	45
14-17 years	23	16	74	54

Source: Cortez (2004)

It is important to state that not only the type of economic activity but the way work affects children's lives varies according to a child's age and geographical location. In rural areas in the three climatic zones, children start working in domestic and economic household activities as early as aged 5 (Alarcón 2001; Montero et al. 2001).⁸¹ For children aged 5–11 years, these tasks include fetching water, wood or cow dung, food preparation, washing dishes and clothes, and in some areas, shepherding. They also start helping with basic farm activities. At this stage, the authors do not detect an important differentiation in the role of boys and girls and, typically, children combine work and study.⁸² However, work is a more time-consuming activity for boys and girls in the rural highlands and in the rural jungle compared to the rural coast, and this implies not only that children in these areas have less homework time, but they also have less time for recreational activities; they have less time to play (Montero et al. 2001: 49 and 51).

As children age (i.e., 12–16 years old), work intensity increases and gender roles become more obvious: in agricultural communities in the rural Andes, adolescent girls specialise in domestic activities and adolescent boys in farm activities; whereas in herding communities girls also specialise in textile production and boys in the commercialisation of these products. A similar pattern is found rural *selva*, albeit gender roles vary between communities (for instance, in *aguaruna* communities girls specialise in agricultural activities, whereas boys specialise in hunting and fishing). In indigenous communities in the jungle region, it is common for adolescent girls to start a family as young as 13 years old, which reduces their chances of attending school.⁸³

The type of activity performed by children in urban areas obviously differs from rural patterns. In cities, retail and domestic service are among the most important activities. Within retail, street vending in Lima City is perhaps the type of child work most extensively studied (though unfortunately all of these studies are, to my knowledge, prior to 1995). See, for instance, Alarcón and Vega (1995) and Alarcón (1991). In trying to summarise the evidence of several case studies, Alarcón (1998) notes that most of the street vendors worked for and with their parents and that most of them were boys. The reasons why these children worked vary. Some started working in the street with their parents or older siblings at an early age because there was no one at home to take care of them and the family lacked money to send them to school.

⁸¹ In the case of communities located in the jungle, the evidence corresponds to *aguaruna*, *shipiba* and *ashaninka* communities, see Montero et al. (2001: 46–51).

⁸² There are different strategies that families and children use in order to do this. For instance, children take turns in shepherding, see Alarcón (2001: 33–9).

⁸³ For a recent study about early motherhood, see Alcázar and Lovatón (2006).

Later on, they became independent workers. Others started working on their own initiative or following a friend's example. Alarcón (1991) also quotes evidence of parents forcing their children to work through physical abuse, but these cases were rather uncommon in his sample (ibid: 66). Interestingly, though hard to generalise, this study also finds that the majority of working children in Lima City come from families that migrated from the highlands (ibid: 63).

Among others, Escalante (2003) and the International Labour Organization (ILO) (2002) study the case of domestic service in major cities in Peru. The latter is based on 1, 200 interviews with both domestic workers and their mothers in Lima, Cajamarca and Cusco (unfortunately, it does not have a rigorous sampling design so results cannot be generalised). The ILO finds that in general domestic workers come from very poor households with low-educated mothers (in the case of Cajamarca and Cusco, two out of three mothers are illiterate). Most of the domestic workers are adolescent girls, who are not native speakers of Spanish and who migrated from the highlands. Escalante (2003) and Alarcón (1998) mention that most of these girls are sent by their families to the city to live and work for their godmothers.⁸⁴ In addition, the ILO finds that girls are also sent to work directly for the extended family or are recommended by friends.

4.3.2 *Child work and school abandonment*

There are different ways through which child work can affect children's development. Here I focus on one specific, important example: education. Some of the quantitative studies mentioned in the previous section show that child work has a negative impact on school achievement, year repetition and school abandonment (Cortez 2001b; Cueto 2004; Ministry of Education 2004). More generally, the relationship between school abandonment and child work is complex. On the one hand, there is evidence that some children abandon school in order to work, and this is particularly true in rural highlands (Alarcón 2001; Cueto 2004). In some cases, this decision is taken regardless of children's performance at school. However, there is also evidence, mainly from urban areas, of children who drop school due to lack of monetary resources to pay for transportation and other school-related expenses, and the decision to work is taken by the parents in order to avoid children staying at home (Alarcón 1998). In other cases, some children can afford to go to school precisely because they work (ibid: 136; Rodriguez and Vargas 2005: 56).

Evidence provided by qualitative studies also shows that some activities are potentially more damaging for progress through school than others. For instance, regarding domestic service, frequently entrusted families do not allow children to go to school (ILO 2002: 63–74). Pavement vending is another type of job that reduces the probability of children attending school, as it is a time-consuming activity (Alarcón 1998: 136). In contrast, it seems that household farm activities for children aged 6–11 years are less harmful in this respect (except during harvest time) and, in general, those activities that do not require children to work outside the home are less likely to affect school attendance.

According to Montero et al. (2001) and Alarcón (2001), the importance of child work in the rural Andes and in the rural jungle goes beyond liquidity constraints: child work is highly valued by parents both socially and culturally as a way for children to get to know their environment; to learn to be responsible; to build skills for adult life; and, to transmit knowledge from one generation to the next. From the economic point of view, this implies that child work is important in building non-academic skills that can also be seen as part of

⁸⁴ Escalante (2003: 29–35) explains that godparents, who typically live in urban areas, are part of a mechanism through which rural families try to establish a social connection with the city and in a way are seen as an extended family.

their stock of human capital. As such, the balance between work and secondary school can be broken by different factors, such as liquidity constraints, parental education, farm labour force requirements, distance to school, school quality, among others. It is nevertheless hard to find one specific factor that is more important than others.

In addition to the impact of child work on progress through school, there is a growing literature that focuses on high risk work such as mining (Piazza 2001), garbage sorting at city dumps (CESIP 2004), brick making (Rodriguez and Vargas 2005), among others, and its impact on several dimensions of child development. The study of high risk activities is important as the elimination of the worst forms of child labour is among the Government of Peru's objectives. I refer the reader to the specific references quoted above for further details, see also Government of Peru (2005).

5. Conclusions

In the previous sections I described the performance of key child development indicators in Peru during recent years and linked some of these results to evidence and explanations proposed in the recent literature. The emphasis was on quantitative studies, except in the case of child work, where a more flexible approach (including quantitative and qualitative studies) was taken. Based on this evidence, I make the following observations:

1. An important characteristic that arises from this evidence is that the way community and household factors affect child development differs between urban and rural areas. For instance, the impact of health infrastructure on child nutrition has a positive effect in urban areas, but not in rural areas (Valdivia 2004). Also, the way child work affects children's lives differs significantly between urban and rural areas.
2. The evidence provided by the literature also shows that household and community factors associated with childhood poverty are likely to interact. For instance, the impact of public infrastructure on nutritional status tends to be smaller in households with more educated mothers (Escobal et al. 2005). Qualitative studies also show how different factors such as parental education and school quality interact to explain school abandonment (Alarcón 2001).
3. Several studies find that social exclusion exists in the sense that, even after controlling for other factors (including urban-rural location), children who are not native Spanish speakers are more likely to report lower levels of development in nutrition and school-related outcomes.
4. Although there does not seem to be gender discrimination concerning food allocation and access to primary school, in rural areas girls are less likely to attend secondary school and, thus, to complete basic education. Gender roles are clearly defined in rural areas and become more obvious as children age and, thus, affect the accumulation of human capital by both boys and girls, but affect girls (relatively) more strongly.
5. Perhaps the main disadvantage faced by most of the quantitative studies included in this review is that their results are based on the analysis of cross-sectional data; which does not allow for tracing the impact of different factors affecting child development over time, or for determining causality (except when adequate strategies are used). Only a handful studies have used longitudinal data (Cueto 2004; Cueto et al. 2004; Cueto et al. 2006; Escobal et al. 2005; Penny et al. 2005). However, many of the factors affecting child development are of a dynamic nature.

For instance, our understanding of subjects relevant in the context of Peru such as (a) the consequences of chronic under-nutrition; (b) the transition from primary to secondary school; (c) the bi-directional links between child work and school attendance; and (d) the impact of adverse events and public interventions on household outcomes (particularly, child development), could be further improved by using longitudinal data.

Finally, it is important to state that there are also other subjects important for understanding child development in Peru not reviewed here, such as violence – both family and political – and internal migration (which was barely discussed in the child work section). In addition, I did not review literature about child rearing practices, which is clearly an important aspect of child development. These subjects were not included because there was not enough quantitative evidence to discuss and also due to manageability. However, in the case of child rearing, it is relevant to mention the existence of a public programme called *Wawa Wasis* (Children's House) aimed at promoting integral development of vulnerable children aged 6–48 months. This programme is important because it is likely to have an impact on both nutrition and educational outcomes.⁸⁵

⁸⁵ Although there have been some evaluations of this programme, most of them lack a control group, so the interpretation of results is complicated. See www.mimdes.gob.pe/wawawasi and Boza (2007) for details about *Wawa Wasi*.

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