HEALTH AND EDUCATION

IN GREATER MEKONG SUBREGION:
POLICIES, INSTITUTIONS AND PRACTICES

A GMS-DAN PUBLICATION

Phnom Penh, August 2015

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Chapter 2
Health and Education in the GMS: The Case of Cambodia

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Executive summary

Using a Human Opportunity Index (HOI) and Institutional Analysis and Development (AID) framework, the study examines policy and institutional factors contributing to access to basic education and health services. The analysis focuses on demand and supply. The study is mainly motivated by the observation that both access to basic and particularly secondary education, and health indicators are relatively low. The objectives of the paper are (1) to identify and analyse current national policies and institutional arrangements that support inclusive development in health and education and (2) to identify areas for improvement or changes in these policies and frameworks in order to achieve more inclusive development in the sectors. Net attendance and on-time completion rates are educational indicators; vaccination coverage, antenatal care and delivery in public hospital are health variables. The paper uses quantitative and qualitative methods. A few rounds of Cambodia Socio-Economic Surveys of households (National Institute of Statistics 2007, 2009 & 2011) are utilised for the former technique, whereas secondary information is analysed for the latter. A village panel data set of 2009, 2010 and 2011 was also constructed for quantitative analysis.

The results show that Cambodia has made considerable progress toward achieving universal nine years of education and is most likely to meet goal 2 of its Millennium Development Goals by 2015. This is evident through the increased coverage and reduced "dissimilarity" index during the observed periods, contributing to a high HOI. For example, the HOI for net attendance improved between 2007 and 2011 for all levels of basic education; however, the upper secondary index is relatively low due to low coverage and uneven distribution. A similar trend is observed for on-time completion. There is no serious gender difference in the two education indicators, and in some circumstances, girls perform better than boys. Parents also invest as much in girls' education as in boys'—a positive achievement attributable to gender-sensitive policies and programmes. The results of AID show that lack of access lies more on the supply than the demand side, particularly the lack of quality; relatively low, albeit growing, government funds for education; corruption in service delivery; low and uncompetitive incentives for teachers; and a lack of systematic coordination. Institutionally, the analysis of secondary data, combined with the results of previous studies, shows that the still weak vertical accountability of the district to the Ministry of Education, Youth and Sport (MoEYS) and limited involvement of local citizens in education matters potentially affect service delivery and teachers' incentives. The study argues that decentralising financial and managerial power to commune/*sangkat* or village chiefs is crucial. The deconcentration and decentralisation programme is an initiative to achieve that; however, discussion on functional assignments and finance is still at an early stage. The policy implication is that action should be taken before more damage is inflicted on the system and its graduates, specifically when the regional economy is becoming integrated and competitive. The authors argue that both national and sectoral education policies and plans are adequate to tackle the challenges. Nonetheless, effective implementation and institutional capacity should be the main focus of reform.

Considerable progress has been made in vaccination of children aged 0-23 months and the percentage of women who seek antenatal care during pregnancy. However, the percentage of women who give birth in public health centres is still low. Area of residence and per capita household consumption are the main contributors to the probability of women delivering using public health facilities. This implies disparities of region (rural vs urban) and family status (rich vs poor). The survey data, however, show increased use of trained midwives over traditional birth attendants, a positive development. The AID demonstrates that that also relies more on supply than demand issues. Remaining challenges in providing quality health services are limited coverage; not enough health facilities, equipment and medicines; and high cost.

While the demand side might also explain the observed low level of interest in education and health, the paper argues that the supply side is the main culprit. Thus, providing 12 years of quality education and some basic health services such as vaccination, antenatal care and public facilities for safe delivery could equalise individuals' opportunities to compete at a later stage. This surely is the basic role of government.

1. Introduction

Cambodia has performed satisfactorily on access to primary education, achieving almost universal access with a net enrolment rate of 96.9 percent in 2012-13 (MoEYS 2013). However, secondary and tertiary education challenges remain in both quantity and quality, constraining efforts to improve human capital. A few observations could be drawn from Figure 2.1, which illustrates net lower and upper secondary attendance rates (NAR) tabulated by time and consumption distribution. The NAR at both levels improved on average during the observed periods and across consumption quintiles. As expected, children in the bottom 40 percent of the distribution had the lowest NAR, and the situation is worrisome even in upper secondary. Despite improvement, children's performance, measured by completion on time, is also an issue, particularly at 12th grade (Table 2.1). Regional disparities also exist, children in rural areas achieving lower completion on time. There seems to be no serious gender gap in the figure at 12th grade.

The results clearly suggest that one unfinished agenda in education and health is to know exactly the root causes of unsatisfactory progress and to examine how important actors could work together to resolve the issues. The study, therefore, investigates how policy and institutional changes could help progress in health and education. The exercise is motivated mainly by the previous results of the country assessment of inclusive development, which suggest that, despite remarkable achievement in growth and poverty reduction in the last two decades, Cambodia's performance in social dimensions, especially health and education, is still below expectations. Therefore making development of those areas more inclusive has become a priority for sustainable and equitable growth.

The objectives of the study are (1) to identify and analyse current national policies and institutional arrangements that support inclusive development in health and education and (2) to identify areas for improvement or changes in national policies and institutions in order to achieve more inclusive development.

This study is surely not the first of its kind. Similar regional and country-specific works examine root causes of lower-than-expected secondary and tertiary progress (quantity and quality). Wan and Francisco (2009) synthesise factors affecting unequal access to basic services and illustrate best practices and policies used by a number of developing countries to make access to services more inclusive, especially for the poor. They examine supply and demand and institutional factors, specifically focusing on governance and corruption. Hang (2014) provides a quick review of progress in education and outlines a reform agenda to improve quality and quantity in Cambodia. The review also postulates some important constraints on progress. However, the exercise lacks an empirical base.

Our work provides an in-depth investigation of the barriers to good service delivery by employing a two-pronged approach—Human Opportunity Index and Institutional Analysis and Development. On education, we focus on basic education for three reasons. We argue that quality secondary education is a precondition for tertiary success. There

are studies that show that more focus should be given to improving secondary quantity and quality. Using Benefit Incidence Analysis, Tong and Phay (2014) conclude that public spending on primary and lower secondary education in Cambodia is pro-poor, while upper secondary spending tends to benefit middle income children. The authors also suggest that more funds should be allocated to primary and lower secondary education if public spending on education increases. Secondly, social and private returns to basic education are higher than to tertiary education. Lastly, we observe the lack of scientific research on education in Cambodia. Although there have been reports on progress and remaining challenges in the sector, they are mostly qualitative and lack an analytical framework. Using Institutional Development Analysis combined with Human Development Index, we provide a more comprehensive examination of the multifaceted interactions within the entire system. There are similar reasons to focus on primary health services because of their significance in poverty reduction and long-term performance of children.

Section 2 briefly describes data sets, while Section 3 discusses results on education and Section 4 discusses findings on health. Section 5 concludes and provides recommendations. Appendix provides detail accounts of the two-pronged approach.

2. Data

Cambodia Socio-Economic Surveys of households (NIS 2007, 2009, 2010 & 2011) are employed for the quantitative part. The study also utilised three rounds of village panel data (2009, 2010 and 2011) to investigate important village attributes that could further explain observed trends. CSES provides the most comprehensive and nationally representative data on a number of socio-economic characteristics. The survey has been conducted every year since 2007 with a sample of 3500 households and every five years with 15,000 households. The survey is in three stages, with the village as primary sampling unit. With this design, we need to account for sampling weight in calculating different estimates. The qualitative part is mainly based on secondary data analysis because of insufficient time to conduct representative key informant interviews.

The variables of interest are as follows. Net attendance rate is the percentage of children in the age group that officially corresponds to primary/secondary schooling who attend primary/secondary school. The on-time completion rate is the percentage of children in the age group that enters the last grade of primary/secondary education. The vaccination rate is the percentage of children aged 0-23 months old who received a vaccination, while the antenatal care rate is the percentage of women who seek care during their pregnancy. Delivery in public health centres is the percentage of women who give birth in public health centres.

3. Results and discussions: Education

3.1 Inequality of opportunity

Barros et al. (2009) argue that three factors influence inequality of access to certain services: individual efforts, the availability of services and circumstances over which individuals have no control. Tables 2.4 and 2.5 illustrate the net attendance rate and

completion on time by school levels. It is worth explaining the meaning of each element and how the results could be interpreted. Average opportunity represents the access rate of a service by eligible children—in this case access to primary and secondary education. It also signifies the availability of the services. The D index indicates how available services are distributed among the subpopulation; it is interpreted as the fraction of the opportunities that need to be reallocated from the better-off to the worse-off to equalise opportunity. HOI summarises the two components into one index. The index could be increased either by raising availability of services and/or improving distribution across population.

In one of the education indicators, NAR in primary education, average opportunity (access) improved to 85 percent in 2011 from 82 percent in 2007. The D index dropped from 7 to 1 percent in the same period, indicating improved distribution of the available service without discriminating, especially against individuals' circumstance variables. Increased average access and improved distribution resulted in a high HOI of 84 percent in 2011, from 76 percent in 2007. The overall lower and upper secondary trends are similar, yet a few observations should be pointed out. First, average opportunity tended to be lower at higher levels. This could mean either the availability of the service *per se* is low or distribution is concentrated. Access to lower and upper secondary education averaged 35 and 21 percent, respectively, during the observed periods. Secondly, the D index was rising, signifying possible discrimination against certain groups, particularly the worse-off. The D index for upper secondary education in 2007 indicated that 31 percent of the available opportunity needed to be reassigned to the poor to make opportunity equal. Lastly, the decrease in access and increase in dissimilarity resulted in a low HOI. Another education indicator is on-time completion rate. Children performed better at sixth grade, having a completion rate of 56 percent in 2011. The D index was also low, 12 percent, in the same year. However, access and distribution become an issue in higher grades, specifically grade 12. The completion rate was only 32 percent in 2011, with a D index of 20 percent. Another observation is an apparent correlation between consumption inequality and inequality of opportunity. This relation is explained by the high D index in education in 2007—a year in which consumption inequality increased (World Bank 2009a: ix).

The calculation of HOI for net attendance rate in lower and upper secondary education by province in 2011 reveals some interesting trends. In lower secondary, HOI in Phnom Penh, Takeo and Battambang is above the national average, Phnom Penh showing the most equal opportunity. Pursat and Siem Reap had the lowest HOI of provinces with sufficient observations for computation. That a number of provinces did not have enough observations to obtain the index is unfortunate, for those areas might be disadvantaged in equality of opportunity. The upper secondary NAR is similar, Phnom Penh having the highest equality of opportunity.

Since the D index controls for individual circumstance variables in the calculation of HOI, it is important to report circumstance components that contribute to differences in access. This will enable us to design specific targeting programmes, if necessary, to reduce such inequality. To calculate the D index, access to and/or completion of

certain services (a binary variable assuming the value of 1 if children have access and 0 otherwise) is regressed on a number of circumstance variables: gender of individual, gender of household head, residential location (urban or rural), age and education of household head, household size and per capita consumption. Logistic regression is used. We then estimate the percentage contribution of each independent variable to the overall inequality of opportunity. Table 2.6 presents the results. Area of residence, per capita household consumption and education of household head substantially explain the probability of a child attending school even though the contribution of each variable varies across time and education level. For instance, at lower secondary education in 2011, area of residence explains 19.5 percent of the inequality of opportunity, per capita household consumption 31.6 percent and education of household head 30.3 percent. In the same year, those three factors were significant also for upper secondary education. Where a child was born contributed 36.9 percent. Education of household head seems significant in explaining access of a child to upper secondary education. The decomposition also shows that the gender of a child does not prevent access. This is an optimistic trend. However, the evidence indicates regional disparities at a higher level of education. The results on the contributions for on-time completion rate are similar (Table 2.7).

The contribution of each circumstance variable to overall inequality of opportunity varies across countries. In Indonesia, for instance, per capita household consumption accounted for 69.1 percent of inequality in secondary education compared to 17.2 percent for education of household head and 11.6 percent for area of residence. In the Philippines, per capita household expenditure contributed 90.7 percent, indicating serious disparities in secondary education due to family background. In Bangladesh, gender is the second most important contributor after per capita consumption (76.9 percent) to overall inequality of opportunity, accounting for 20.8 percent (Son 2012: 10). Barros et al. (2009: 87) also present the contribution of each variable to overall inequality for countries in Latin America and the Caribbean. They find that, for example, parents' education contributed 11.7 percent to the D index for the probability of completing sixth grade on time and 8.7 percent for gender. However, in Guatemala, parents' education accounted for 20.6 percent of the overall inequality and gender for 2.2 percent. Gender disparities in completing sixth grade on time were highest, among the countries examined, in Nicaragua, accounting for 11.2 percent.

3.2 Barriers: Demand and supply of education

The results in 3.1 clearly suggest that redistribution initiatives might be considered by the government if existing opportunities are to be made available to all. However, redistributive programmes are controversial and complex because of the trade-off between efficiency and distributive effects. It is sometimes unfair to put all the pressure on the government, for low performance might be attributable to individual efforts to grasp prevailing opportunities, not to the availability of services. Therefore, scientifically understanding which force determines observed unsatisfactory progress is crucial for policy decisions.

3.2.1 Demand side

Although there are low cost and affordable services available, the poor might decide not to use them. The World Bank (2009b) postulates factors that potentially cause households not to invest or to under-invest in children's education; two important ones are misinformation and principal-agent problems.

Misinformation refers to the mistaken belief that the return on sending a child to school is lower than the earning a child could contribute to household income. It is difficult to compare these figures, but one way to do so is proposed by the World Bank (2009b). That is to compare the perception of parents on the return on education and the Mincerian return calculated using household survey data. On return to education, on average, empirical literature shows a positive rate of return to an additional year of schooling. For instance, Ashenfelter and Krueger (1994) showed that wages increased by 12-16 percent if an individual spent an additional year in school. Lynch (1992) postulated that all types of training are associated with higher wages. One of the empirical studies using the 2007 Cambodia Socio-Economic Survey is by Lall (2008). Using ordinary least square and IV regressions to control for age, the author found that overall returns to education were 7 percent for males and 6 percent for females. The returns were highest in urban areas (8-8.6 percent) and lowest in rural areas (3.9-5.8 percent). In addition, returns in private jobs were higher than in public employment for both sexes, but, the gap had declined significantly. This is important information that could be used in awareness-raising campaigns to inform parents about the long-term benefits of keeping children in school. What is lacking, however, is a study on the rate of return to education as perceived by parents. That is beyond the scope of the current study. Nonetheless, some proxy indicators could be used to show the relation. Table 2.11 documents eligible school-aged children's reasons for not attending school. During the observed periods, the contribution to household income was an important issue preventing school attendance. Low living standards were also reported. Nonetheless, questions of data accuracy should be noted here. The estimates are calculated from cross-sectional data; thus, sample selection could affect the consistency of the results.

The existence of large gender differences in children's education is an indication of a principal-agent problem, the situation in which parents decide to invest in certain group of children but not others. The "dissimilarity" index seems to suggest that there is no serious gender discrimination in access to secondary education; typical parents spent as much on girls' education as on boys'. In addition, the ministry has been trying to ensure that its policies are gender balanced and in certain cases are biased in favour of girls and women. In 2012-13, for instance, the net enrolment rate at primary school for girls was 97.0 percent and for boys 96.9 percent (MoEYS 2013). Our results similarly support the conclusion that there is gender parity on net attendance and on-time completion rates for boys and girls in all 12 years of education (Table 2.1).

High opportunity costs and out-of-pocket expenses are issues particularly constraining poor households from keeping children in school. These costs increase with the level of education. One of the challenges to achieving universal primary education is the

high private costs perceived by farmers of keeping their children in schools for 10 years or more (RGC 2011). Table 2.2 presents mean out-of-pocket expenses per enrolled child as a share of daily median consumption. A few observations are in order. First, household expenses of all consumption quintiles and education levels increased during the observed periods. For instance, the poorest 20 percent of the distribution spent about 10.4 percent of the median consumption per day for boys' education and 8.6 percent for girls' in 2011, a 8.3 percentage point rise for boys and 6.7 percentage points for girls from 2007. The share of expenditure in 2011 was 6.4 percent (boys) and 7.4 percent (girls) in primary school and 26.3 percent (boys) and 25.2 percent (girls) in upper secondary school. The increased spending signals both good and bad news. The good news is that the poor also value and are willing to invest in their children's education. The bad news is that they may face trade-offs between an acceptable level of nutrition and good education for their children. The pattern is even more evident when expenses are disaggregated by public and private education (Table 2.3). Households spent more on private than public education, which is expected because Cambodia's children are entitled to 12 years of free education; the expenses reflect indirect costs that are households' responsibilities. The increased expenses on private education were significant during the observed period, increasing to 20.0 percent for the poorest 20 percent in 2011 from none in 2007. The downside of this development might be a decreasing confidence of households in public education.

Other studies also find significant differentials in household expenditure on education per enrolled child and high out-of-pocket expenses in Cambodia. The World Bank (2009a: 61) found that in 2007 the poorest 20 percent spent KHR22,944 (USD6) per annum per enrolled child in primary school, KHR62,836 (USD16) in lower secondary school, and KHR92,238 (USD23) in upper secondary school. The ratios between the middle and the poorest 20 percent were 1.7, 1.5 and 2.5 in primary, lower and upper secondary schools, respectively. The ratios between the richest and poorest 20 percent were 10 in primary, 6 in lower secondary, and 7 in upper secondary. These figures, however, mask quintile differences in expenditure on public and private education. RGC (2009: 58) also acknowledges the need to reduce direct and indirect costs in access to education.

3.2.2 Supply side

A. Policies, plans and reform agenda

Policies, programmes and achievement in education are outlined in the National Development Strategic Plan 2009-13 update (RGC 2009) and the 2014-18 NSDP (RGC 2014). The latter's plan on education has been designed based on the lessons from the previous plan and aims to address remaining and emerging challenges to the three policy pillars: (1) "ensuring equitable access for all to education services"; (2) "enhancing the quality and relevance of learning: all children and youth have a relevant and quality learning experience, enabling them to contribute effectively to the growth of the nation"; (3) "enhancing effective leadership and management of education staff: educational services are provided effectively and flexibly". To achieve these, the MoEYS has its own Education Strategic Plan and other sectoral policies. It has adopted monitoring

indicators, from gross primary and lower secondary enrolment and completion rates to gross enrolment rate and number of upper secondary schools. MoEYS aims to achieve 100 percent net enrolment and completion rates at primary school for both boys and girls by 2017. Achieving high gross, net and completion rates at upper secondary school is still a challenge; the ministry projects a 45.3 percent gross enrolment rate at upper secondary by 2017. The number of upper secondary schools is projected to increase to 668 in 2017 from 433 in 2013. The plan also outlines the intention to increase technical high schools to seven in 2017, enrolling 3000 students.

The Education Strategic Plan (MoEYS 2014b) also emphasises early childhood education as one of the main drivers for school performance at higher levels and outlines initiatives. The programmes also target children in disadvantaged communities. Between 2009 and 2011, 424 early child classrooms were constructed to serve 7462 children aged 3 to 5 years. A preschool teacher training centre was built in Phnom Penh (Hang 2014). The NSDP 2014-18 also intends to expand access to home-based, community and preschool education to at least 80 percent of children.

Other supply side issues include insufficient schools and classrooms, high teacher absenteeism due to low salaries, high pupil-teacher ratios and low quality inspection. The number of schools increased between the 2009-10 and 2012-13 academic years, to 11,370 in 2012-13. Although rural areas are home to more schools (10,037 in 2012/13), the number of rural schools grew by only 12.0 percent compared to 17.0 percent in urban areas (MoEYS 2009, 2010, 2012 & 2013). There was a 48 percent increase in the number of preschools in the same period, indicating the government's focus on early childhood education. The number of lecturing staff rose 5.0 percent—11.0 percent in urban areas and 4.0 percent in rural zones. This confirms the ongoing challenge of moving more teachers to rural and remote areas, given the risks and low incentives. Female teaching staff increased 13.0 percent overall—14.0 percent in rural areas and 10.5 percent in urban areas. Upper secondary female teaching staff accounted for only 3.5 percent of the total lecturing staff or 27.5 percent of all upper secondary staff and the growth rate dropped 5.6 percent between 2012-13 and 2009-10 academic years (MoEYS 2009, 2010, 2012 & 2013).

The primary school pupil-teacher ratio for 2012-13 was 48.5, not significantly changed from 2009-10. The ratio is high compared to that of other countries, for example, China (18.2), Laos (27.2) and Vietnam (19.4) in 2012 (World Bank 2012). The lower ratio for upper secondary, at 21.6 in the same year, reflects a lower enrolment rate rather than increased teaching staff. Teachers in rural areas have more of the burden of many pupils, and classrooms there are more crowded.

B. Budget allocations

Cambodia in 2010 spent 2.6 percent of gross domestic product and 13.1 percent of government expenditure on education. Those figures are lower than in other ASEAN countries. In the same year, Vietnam allocated 6.3 percent of GDP and 20.9 percent of government expenditure. Education expenditure in Laos was comparable to Cambodia's

at 2.8 percent of GDP and 13.2 percent of government spending. Thailand spent 3.8 percent of GDP and 16.1 percent of government expenditure, but the spending increased to 5.8 and 24.0 percent in 2011 (World Bank 2010, 2011). As a percent of government expenditure, spending on education in Cambodia grew 14.0 percent a year during 1995-2012 (authors' calculations using data from ADB 2013), indicating growing attention by the government. The biggest government expenditure categories were general public services and defence. Between 1995 and 2012, expenditure on general public services accounted for, on average, 20.0 percent, growing by 20.0 percent annually. The annual growth rate of expenditure on defence averaged 6.0 percent; its share of total government expenditure was 32.6 percent. Thus, the government could consider reallocating money from these sectors to education.

Cambodia seems to focus more on primary education. In 2010, primary education accounted for 41.8 percent of the total education expenditure, secondary education for 17.6 percent and tertiary education 14.5 percent. The aim is to fast-track a universal nine years of education. However, spending per primary student is still low at 6-7 percent of GDP per capita in 2010 (Lall 2008: 1; World Bank 2010). Recent data on spending per secondary student are not available; however, the World Bank (2001) estimated that the country's expenditure per secondary student in 2001 was 6.1 percent of per capita GDP, comparable to that per primary student.

Figure 2.2 illustrates actual and estimated recurrent funding allocated to selected sectors and ministries during previous planning cycle and 2014-18. It shows that a growing share of the budget will be allocated to social administration—information, public health, education, culture, environment, social affairs, religions, and woman affairs—averaging 40.6 percent per annum of the total government expenditure, while spending on general administrative services is maintained. There is also an indicative commitment to reduce gradually expenditure on defence and national security, to 19.1 percent of the total budget in 2018. The share allocated to the MoEYS gradually increases to 19.6 percent. However, education expenditure will account for 3.0 percent of GDP in 2018 (MoEYS 2014b: 51). The indicative budget allocations are a good sign of growing commitment to shift spending from the armed forces toward social activities and programmes. However, the government also needs to ensure that funds allotted in the budget are consistent with actual disbursement.

C. Conditional cash transfers

School, household and individual interventions have been adopted to increase school enrolments and attendance: de-worming for school-age children, school construction, additional teachers, vouchers for private schooling, provision of school meals, textbooks and materials, bicycles and uniforms, and conditional cash transfers.

Conditional cash transfer (CCT) programmes either conditional on keeping school-age children in schools or going to health centre for regular health check are intended to increase the use of basic services like education and health and to tackle short-term consumption poverty. Success stories include Brazil, Mexico, Colombia, Ecuador,

Honduras and Nicaragua. Transfers range from 30 percent of household consumption in Nicaragua and 20 percent in Mexico to 2-3 percent in Cambodia (World Bank 2009b: 3). The programmes usually target the poor as determined by proxy means tests, particularly geography and household attributes. CCTs aim to raise short- and long-term outcomes of beneficiaries. Short-term outcomes encompass mainly increased use of education and health services and reduced present consumption poverty. Longer term outcomes might include reduced child labour, increased employment and wages and increased human capital accumulation. Most empirical studies (see World Bank 2009b for a more comprehensive review of literature and documentation of CCTs in various countries) on the effects of CCTs show that such programmes have achieved their objectives. In addition, they also reduced consumption poverty of beneficiaries. Ravallion and Wodon (2000) find that enrolment subsidy programmes increase school enrolment and reduce child labour.

Similar programmes in education and health have also been implemented in Cambodia even though they do not have all the characteristics of CCTs. A few are school breakfasts and the distribution of uniforms, bicycles and learning materials. Another initiative is the scholarship programme under the Cambodia Education Sector Support Project, which provides scholarships to poor students to keep them in lower secondary school. One example is from the Japan Fund for Poverty Reduction with support from the Asian Development Bank and UNICEF. The offered scholarships were USD60 for students with the lowest drop-out risk in large schools and USD45 for those with the next lowest risk (Filmer & Schady 2009: 7). Using administrative data plus a survey of selected students who did or did not receive the scholarship, Filmer and Schady (2009) found a significant increase among beneficiaries in enrolment and attendance of 25 percentage points. However, the authors found no evidence that the scholarship increased the ability of beneficiaries in mathematics and vocabulary tests. There was also no statistically significant effect of the programme on other outcomes: knowledge of health practice, future expectations and adolescent mental health. The authors also cautioned about potential selection bias. Other studies found no significant impact of such programmes on consumption poverty of recipient households (World Bank 2009b). However, this is expected because poverty reduction was not the initial objective of the intervention, and the amount given was relatively small.

Experience in Cambodia and countries that have implemented CCTs has created optimism about using the programmes to increase utilisation of basic services and partly to tackle inequality through redistribution. Cambodia's government should consider raising the scale of existing or upcoming programmes because of their limited coverage. Designers of CCTs should consider transfers conditional not only on the use of services but also on other indicators such as good performance in school.

D. Quality of service delivery

Cambodia faces not only high drop-out and relatively low completion rates in secondary education but also a lack of quality among secondary graduates. Lack of quality is also observed in tertiary education. The World Bank (2010) recommends immediate efforts to improve the quality of education to prepare the next generation for the labour market. There also exist regional differences in the quality of general education, ranging from the lowest performing province, Ratanakkiri, to the highest, Phnom Penh (UNDP 2011). Wan and Francisco (2009) argue that inadequate and insufficient services hamper access even when households could afford the services.

Lack of quality in general and higher education reduces the quality of graduates and diminishes confidence in public education. Out-of-pocket expenses for private education increased between 2007 and 2011 for all consumption quintiles (Table 2.5). This trend implies two things. It suggests the growing attention that parents pay to their children's education through increasing investment. On the other hand, increased private education expenses could put more burdens on households, particularly in the poorest 40 percent given their already-stretched situations.

3.2.3 Roles of development partners

Development partners have been financially and technically crucial in promoting and improving education in Cambodia. The limited financial and human resources allocated by the government have been complemented by aid. Between 2001 and 2013, total aid disbursement amounted to USD1.2 billion, averaging USD94.7 million. The growth rate, however, shows significant fluctuations (Figure 2.6). Bilateral and multilateral development organisations funding education-related projects include the EU, US through USAID, France, South Korea, Sweden, UNICEF, UNESCO, World Bank, ADB and JICA.

UNICEF, for instance, focuses more on preschool and basic education, aiming to increase outreach and sustainability of child learning, specifically early childhood education. UNICEF also assists the government in promoting central and local institutional capacities to manage implementation of the Education Strategic Plan. Other development partners assist in other levels of education, mainly tertiary and technical and vocational education training.

The Education Sector Working Group, which is chaired by UNESCO, coordinates among development partners who have intervention programmes in education. Some of its responsibilities are to: (1) share education-related information, (2) organise policy dialogue between development partners and donors, (3) establish joint programmes to avoid overlaps, (4) provide technical support to MoEYS in the implementation of the Strategic Plan and Annual Operational Plan, (5) organise capacity building courses

and coordinate key events on education and (6) lead the discussions on Education for All, teacher training and non-formal education. The group can be a good platform for development partners to achieve harmonisation and effectiveness in aid delivery and to avoid unnecessary duplication.

3.2.4 Institutions: Governance and coordination

Figure 2.5 illustrates the hierarchy of administration and management of general education. There are four levels: central, provincial/municipal, district and school. The MoEYS is responsible for designing policies and strategies, providing guidance, examining budget plans and ensuring education quality.[1] Provincial or municipal officials lead and manage through the Provincial Office of Education. The District Office of Education works closely with schools to ensure that central policies and guidance are implemented and quality is assured. The district office also performs regular school inspections through its District Training and Monitoring Team. One of the major tasks of the schools is to prepare an annual budget (school development plan), which is reviewed by provincial and district offices and submitted to MoEYS for approval. Local communities also play important roles in education matters. The Education Strategic Plans for 2009-2013 and 2014-2018 (MoEYS 2010, 2014b) emphasised the engagement of local players, particularly commune councils, parents and elders, in the planning and execution of activities.

Local School Support Committee members are trusted and respected citizens nominated by the village chief and/or commune chief, agreed upon by the school director and approved by the District Office of Education (World Bank & Asian Foundation 2013: 48). Since 2012, the MoEYS has issued guidelines on members, roles and responsibilities of primary and secondary support committees.

A Primary School Support Committee represents communities in participating, developing and, to a lesser extent, implementing planned activities. Its establishment and functions are given in guideline No. 30 of the MoEYS issued in 2012. The committee consists of 6-12 members according to the size of the school. Positions are honorary chair, advisers, chair, deputy chairs and members. The honorary chair might be elected from local authorities (commune/sangkat chief or councillors, head monk or private donor). Advisers could be the school director, retired education official, elder, community representative or local authority. Duties of the committee include: (1) formulating, implementing and monitoring the school's plan, (2) enrolling children, (3) monitoring students' learning, (4) generating revenue and mobilising funds and (5) preventing irregularities in and outside schools. A Secondary School Support Committee has similar purposes and responsibilities. It might have five members for a small school, seven for medium and nine for large. Positions are chair, vice-chair, accountant, cashier and members. A lower secondary committee is officially recognised by the commune/

1 Refer to Sub-decree 84 on the "Organisation and Functioning of Ministry of Education, Youth and Sport" for a detailed description of tasks and responsibilities of MoEYS and its various departments.

sangkat and upper secondary by the district. Duties and operational arrangements are outlined in Guideline No. 21 issued by the MoEYS in 2012.

There is evidence that the roles and responsibilities of community players have been unclear and largely confusing and overlapping. The World Bank and Asia Foundation (2013) examined institutional arrangements and their impact on local basic services. Some of the findings on education include: (1) voice and participation of local citizens are limited even with the establishment of school support committees, which focus mainly on providing financial support; (2) villagers tend to have less power to demand accountability for the quality of education, implying limited horizontal accountability; (3) parents are not engaged enough in education services because there is no effective forum; and (4) district accountability to MoEYS officials remains weak, particularly because of the lack of effective monitoring mechanisms.

Another issue in education governance is corruption, which is not uncommon in developing countries and has jeopardised the effectiveness and efficiency of services delivery and affected incentives of service providers, particularly teachers. Bribes, high absenteeism among teaching and non-teaching staff, lengthy and complicated bureaucracy and nepotism are some examples of governance and coordination issues. Rajkumar and Swaroop (2008) studied empirically the correlation between governance, public spending and outcomes and found that outcomes are positively associated with good governance. This is because good governance ensures effective and efficient use of public money. Davis (2003) illustrated how corruption affects accountability and quality of service delivery in water and sanitation in south Asia. Some of the corruption the author documented included field officers taking bribes from households before connecting water pipes and officials receiving favours during bidding for government projects. Gupta et al. (1998) analysed the effect of corruption on inequality and poverty. The authors argued that corruption increases inequality and poverty, reduces the progressiveness of tax systems and effectiveness of social spending and, most importantly, constrains the formation of human capital.

High absenteeism among lower and upper secondary teachers reflects the problematic incentive structure and ineffective public human resource management. It is obvious that teachers are demanding decent pay so that they can concentrate on teaching instead of using teaching hours for secondary occupations to compensate for the insufficient public salary. Our results also indicate incentive problems: half of the village chiefs interviewed in 2011 reported that low living standards of teachers are one of the most pressing constraints (Table 2.10).

Coordination in service delivery is also problematic. Lack of systematic coordination in education and other sectors is often cited. Sen (2013) states: "Cambodia's current higher education system is characterised as having many competing governing powers in the State, an anarchical and minimally regulated market environment, and a gradually weakening academic community."

3.2.5 Village attributes

Village characteristics are also important to explain the propensity of children to use certain basic services. Table 2.9 presents the evidence. Half of the surveyed village chiefs reported having one primary school in their community, but the status did not change much during the observed periods. A lack of village secondary schools constrained children's access; children needed to commute to nearby villages or even other communes to attend lower and upper secondary school. The average distance to the nearest upper secondary school in 2011, for instance, was 7.4 km, and the fact that 50 percent of means of transport were bicycles and the long distance partly explain low access. Villages which have lower and upper secondary schools continued to face challenges to quality and effectiveness. They include low living standards of teachers, budget constraints, insufficient teaching materials and low village living standards (Table 2.10).

An initiative to tackle the number of schools is the "SUNTUK Declaration on One Commune, One Lower Secondary School" officially announced by the prime minister in February 2008. During 2012-13, 149 of 1633 communes/*sangkats* (39 *sangkats* in Phnom Penh) did not have secondary schools (MoEYS 2014a). Conditions of some communes/*sangkats* are not suitable for school construction.

4. Results and discussions: Health

4.1 Inequality of opportunity

Coverage and distribution of health indicators—vaccination, antenatal care and delivery in public hospitals—improved between 2007 and 2011 (Table 2.12). Access to vaccination, for instance, was nearly universal, reaching 99 percent coverage in 2011 and almost evenly distributed (D index equals 1 percent). Frequency of pregnant women receiving regular medical check-ups was also high at 92 percent in 2011 and depicted good distribution. Nonetheless, the percentage of women who gave birth in public health centres was relatively low, but improving, at 70 percent. The decomposition results (Table 2.16) show no single circumstance variable dominating the probability of access to vaccination, even though gender of children and education of household head seemed to be relatively significant in 2011. Descriptive statistics also show no significant difference in access to vaccination of children by consumption quintiles, regions or gender. Utilisation of publicly provided vaccination increased across quintiles and region (Tables 2.12 and 2.13).

Area of residence and per capita household consumption were the main contributors to the probability of women seeking antenatal care during pregnancy. For instance, only 79 percent of women residing in rural areas sought antenatal care, compared to 96 percent in Phnom Penh and 94 percent in other urban areas. However, the percentage of women in rural areas receiving antenatal care increased to 90 percent in 2011. Differences were also observed among women in different consumption quintiles. In 2009, only 73 percent of women in the poorest quintile reported seeking the care, compared with

86 percent of women in the middle quintile and 90 and 93 percent of those in the next and richest quintiles. The two figures might not be mutually independent since living standards in rural areas are usually lower than in urban areas. Thus, public policies aimed at increasing the coverage of services to rural areas are as important as raising income (consumption). Area of residence, per capita household consumption and age of household head were the main contributors to the probability of women delivering in public hospitals. Descriptive statistics show that only 34 percent of women in rural areas delivered in public hospitals in 2009, compared to 54 and 65 percent in other urban areas and Phnom Penh. The good news is that the rural figure increased to 65 percent in 2011 (Table 2.14).

Other studies also found that area of residence and per capita household consumption are the main contributors to inequality of opportunity for a number of basic education and health services. Son (2012) decomposed the contribution of circumstance variables explaining the probability of access to sanitation and safe drinking water in several ASEAN countries. The contribution of area of residence ranged from the lowest, 8.5 percent, in the Philippines to the highest, 89 percent, in Sri Lanka, indicating a serious regional disparity in coverage. Per capita household consumption, the second main contributor, ranged from 9.1 percent in Sri Lanka to 89 percent in the Philippines. Area of residence accounted for 79.6 percent of overall inequality in access to sanitation in Indonesia, compared to only 2.5 percent in the Philippines.

4.2 Barriers: Health services demand and supply

Access to vaccination and the use of antenatal care have improved among children and women in different consumption quintiles and regions. Nonetheless, the percentage of women who give birth in public health centres is still relatively low, and there are consumption and regional differences in seeking delivery services. In what follows, we discuss some demand and supply factors that could shed light on delivery in public health facilities. We also discuss factors contributing to the observed low quantity and quality of health services.

4.2.1 Supply side

A. Policies, plans and reform agenda

National health policies are specified in the Rectangular Strategy III, the base document for NSDP 2009-13 and 2014-18. The goal is to build capacity and develop human resources to improve health services. Five policy pillars are (1) improving health services delivery, (2) improving health financing, (3) increasing human resources for the health sector, (4) enhancing health information system and (5) improving health system governance through decentralisation and deconcentration. To achieve these goals, the Ministry of Health developed the Health Strategic Plan 2008-2015 (RGC 2008), which tackles three areas: reproductive, maternal, newborn and child health; communicable diseases; and non-communicable diseases and other health problems.

HSP 2008-2015, a sectoral strategy document, presents progress in improving reproductive, maternal, neonatal and child health, including the utilisation of antenatal

care, birth delivery attended by a doctor or trained midwife and increased immunisation. However, it highlights remaining challenges, particularly the still lower-than-expected use of public child and maternal health services. Inequality of access to the services by region and family background is also highlighted. The strategy to address these issues is based on four strategic documents: the National Strategy for Reproductive and Sexual Health, the Child Survival Strategy, the Five Year Strategic Plan for National Immunisation Programme and the National Nutrition Strategy (RGC 2008: 51). Priority actions and targets for health services in HSP 2008-15 will be implemented in the 2014-18 National Strategic Development Plan. The two core indicators are the percent of births delivered by trained personnel and the percent delivered by trained personnel at health facilities. The target for the former by 2015 is 80 percent from a baseline (2005-08) of 44 percent and for the latter 70 percent from 22 percent (RGC 2008: 54).

One of the factors constraining women from using public health services for delivery is a lack of trust in the capability and ability of health personnel at public facilities. Thus, two points of the reform agenda are to improve human resources and health system governance. The former includes implementing the suggestions of the Midwifery Review and the High-Level Midwifery Taskforce and strengthening technical skills and competencies of health professionals. The latter encompasses the design and implementation of a code of conduct for the health workforce and remuneration.

B. Budget allocations

Overall, expenditure on health averaged 6.0 percent of GDP between 2000 and 2012, which is comparable to that in Japan, South Korea and Vietnam (World Bank 2013). The issue, however, is still the low public recurrent and capital health expenditure from government budgets, external borrowings and grants and social health insurance funds. In 2012, for instance, public health expenditure was 1.3 percent of GDP. In the same year, health expenditure in Japan was 10.1 percent of GDP in 2012 with 8.3 percent came from the public expenditure. Other countries with relatively high public expenditure health included South Korea, China, Malaysia, Thailand and Brunei Darussalam (Figure 2.3). Cambodian health expenditure per capita (current USD) averaged USD34 annually between 2000 and 2012, with an average growth rate of 8.0 percent a year, reaching USD51 in 2012. Overall, Cambodia has the lowest public health expenditure as a share of total health expenditure (higher only than Myanmar, if available Myanmar data are accurate).

Government expenditure on health grew 21.0 percent annually between 1995 and 2012 and is expected to increase further during 2014-18 (authors' calculations using ADB 2013). As a share of total government spending, health expenditure averaged 9.2 percent during the same period. However, the recurrent budget for 2014-18 indicates an average of 14.0 percent per annum. This is a good sign that the government is willing to allocate more funds to public health.

Low public expenditure might largely explain the inadequate supply of health facilities and services. Excluding Myanmar, Cambodia has the lowest number of hospital beds

per 1000 people (0.7). Cambodia also has the lowest number of nurses and midwives and physicians (0.9 and 0.2, respectively). Out-of-pocket expenses as percent of total health expenditure are the second highest. This might present another burden, particularly on the poorest 40 percent of households (See Table 2.17).

Development partners play important roles in resource mobilisation for the Ministry of Health. They are helping under a Sector Wide Management Framework to implement the HSP. The aim is to provide greater ability of the government to manage and implement its strategies. This also presents challenges for the MoH needs to strengthen its capacity to manage financial and human resources. Development partners disbursed around USD1.7 billion between 2001 and 2013, with an average growth rate of 7.1 percent annually (Figure 2.4).

4.2.2 Institutions: Governance and coordination

The management of the health system is divided into central, provincial and district levels. The Ministry of Health, the highest body, is responsible for tasks from policy design to resource mobilisation, to monitoring and evaluation of health targets and outcomes and overall coordination within the system and with other ministries. The provincial tasks consist of linking the MoH with operational districts (ODs), ensuring equitable allocation of resources, implementing policies put forth by the centre and monitoring and evaluating targets and outcomes. ODs, which consist of referral hospitals and health centres, implement health policies and guidelines. ODs are also the centre of attention in efforts to decentralise power to sub-national bodies (RGC 2008).

The World Bank and Asia Foundation (2013) provide a comprehensive examination of the governing structure of the health system, focusing specifically on local players. Apart from central, provincial and district actors, there are commune councils, village health support groups, non-state actors and, of course, end users. A few findings of the study include: (1) there is not much engagement by citizens although there are available mechanisms for them to engage; (2) there is a lack of demand for participation; and (3) "upward accountability" is functioning effectively, whereas "horizontal accountability" is still limited due to unclear roles and responsibilities.

4.2.3 Village characteristics

Table 2.18 illustrates availability of health facilities and services in villages as reported by village chiefs. The calculations were done using pooled and panel data in 2009, 2010 and 2011 to examine possible biases due to sample selection. Variables of interest range from facilities to health personnel (formal and informal). It should be noted that pooled and panel data provide similar estimates. A few observations could be obtained. First, there is a lack of public and private health facilities and centres. Only 17.5 percent of interviewed village chiefs in 2009 reported having private clinics in their villages. However, the percentage increased to 20.3 percent in 2011, implying in an increase in service coverage. Second, the availability of referral, provincial, national and private hospitals is rare, and the situation did not change much during the survey period. This might be the direct effect of low public health expenditure. The good news, however, is

that the number of doctors, nurses and trained midwives increased during the observed period. Third, it is interesting that the role of traditional birth attendants and traditional healers decreased even though the practices are still relatively prevalent.

Table 2.19 presents some of the most important and pressing health services issues (public and private) for the people in villages. Three issues that stand out are inadequate medicines and drugs, the expense of health services and the long distance people need to travel to receive better care. The percentage of village chiefs who reported that health services in their locality are still too expensive dropped from 25.1 percent in 2009 to 18.5 percent 2011, indicating a deduction in health care costs resulting from supplementary programmes. In addition, village chiefs reporting that health services in their villages improved in the last five years increased from 79.2 percent in 2009 to 90.4 percent in 2011 (Table 2.20).

5. Concluding remarks and recommendations

Lack of affordable access to basic education and health, particularly by the poor, is not uncommon in developing countries. Making access inclusive would be popular and is a target the government should aim for. Cambodia has performed relatively well on net attendance and on-time completion rates in primary education, but access to lower and upper secondary schooling remains characterised by limited coverage and uneven distribution between rich and poor and urban and rural areas. On health, coverage and distribution of vaccination and antenatal care are good, but the percentage of women who give birth in public health centres is still low due to limited coverage.

Based on the analysis, the study provides the following recommendations:

- Empirical studies have clearly shown that corruption and nepotism in service delivery negatively affect social spending, jeopardising human capital formation. The recommendation, therefore, is that corruption be seriously dealt with.

- The authors recommend scaling up supplemental programmes similar to conditional cash transfers. This would reduce out-of-pocket expenses of poor households, thus increasing the probability of investing in children's education and basic health services. Scaling-up should focus on increasing the number of beneficiaries and the amount of transfers. Designers need also to consider conditioning the transfers on outcomes (e.g., school performance, nutritional status of children), not only utilisation of basic services. However, CCT-like programmes need strong capacity of implementing institutions and quality monitoring and evaluation mechanism to ensure that they achieve the intended purposes.

- National and sectoral education and health policies seem adequate to tackle the problems at hand. However, the inputs (funds and institutions) need to be provided to deliver effective services and achieve intended outcomes.

- Decentralising of financial and managerial decisions through clearly defined roles and responsibilities of commune/*sangkat* councils and support committees should be fast-tracked. Functional assignments and funds need to be explicit.

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Annex Tables

Table 2.1: Completion on time (%)

	Sixth Grade			Ninth Grade			Twelfth Grade		
	2007	2009	2011	2007	2009	2011	2007	2009	2011
Quintile									
Poorest 20%	20.6	32.8	42.5	44.1	28.5	65.6	0.0	0.0	22.2
Next Poorest 20%	31.1	36.9	50.4	34.9	41.0	39.0	0.0	20.0	25.5
Middle	39.0	45.9	54.2	40.7	45.7	52.5	5.8	15.7	18.2
Next Richest 20%	41.0	49.1	69.8	49.3	52.1	46.0	19.9	17.4	22.3
Richest 20%	75.6	59.5	68.8	75.8	61.2	59.3	32.1	32.6	58.2
Region									
Phnom Penh	69.0	72.0	82.0	69.0	66.0	75.0	34.0	44.0	46.0
Other Urban	33.0	48.0	67.0	55.0	58.0	48.0	26.0	21.0	35.0
Rural	33.0	40.0	49.0	45.0	44.0	47.0	6.0	17.0	24.0
Gender									
Male	32.0	44.0	55.0	52.0	49.0	52.0	11.0	24.0	29.0
Female	39.0	41.0	49.0	49.0	46.0	41.0	27.0	25.0	41.0
Cambodia	36.0	44.0	54.0	50.0	49.0	50.0	18.0	24.0	31.0
Total obs.	448	2986	339	274	805	206	156	467	175

Source: authors' calculations using CSES

Table 2.2: Out-of-pocket expenses on education as share of daily median consumption for last academic year (per enrolled child, %)

	2007		2009		2011	
	Male	Female	Male	Female	Male	Female
Quintile						
Poorest 20%	2.1	1.9	3.7	3.3	10.4	8.6
Next poorest 20%	2.5	2.4	4.3	4.6	11.4	10.9
Middle	3.4	3.1	5.6	7.2	12.8	11.1
Next richest 20%	5.9	5.2	8.3	7.2	19.9	20.5
Richest 20%	10.1	10.3	14.6	15.5	23.2	24.9
School						
Primary (Grades 1-6)	1.6	1.9	3.3	3.5	6.4	7.4
Lower Secondary (Grades 7-9)	5.2	5.7	8.4	9.3	14.5	12.3
Upper Secondary (Grades 10-12)	12.1	13.3	20.1	18.6	26.3	25.2

Note: Daily median consumption by quintiles was used to calculate share of out-of-pocket expenses by quintiles, whereas daily median consumption for Cambodia was used for the share by school levels.
Source: authors' calculations using CSES

Table 2.3: Out-of-pocket expenses on education as share of daily median consumption for last academic year (per enrolled child, %)

	2007		2009		2011	
	Public	Private	Public	Private	Public	Private
Poorest 20%	2.0	0.0	3.5	12.4	9.9	20.0
Next poorest 20%	2.4	6.3	4.1	19.0	10.9	39.4
Middle	3.0	26.2	5.1	37.8	10.1	76.1
Next richest 20%	4.5	37.2	6.4	46.2	16.2	75.3
Richest 20%	6.6	24.7	10.0	39.1	16.8	43.6

Source: authors' calculations using CSES

Table 2.4: Inequality of opportunity in access to education—net attendance rate (%)

	Primary (1-6)			Lower secondary (6-9)			Upper secondary (10-12)		
	2007	2009	2011	2007	2009	2011	2007	2009	2011
Average opportunity	82.0	84.0	85.0	33.0	37.0	35.0	16.0	21.0	25.0
D index	7.0	2.0	1.0	19.0	13.0	15.0	34.0	22.0	26.0
HOI	76.0	82.0	84.0	27.0	32.0	30.0	11.0	17.0	19.0
Total obs.	2390	8264	2119	1433	4061	999	1318	4217	1083

Source: authors' calculations using CSES

Table 2.5: Inequality of opportunity in access to education—completion on time (%)

	Sixth grade		Ninth grade		Twelfth grade	
	2009	2011	2009	2011	2009	2011
Average opportunity	47.0	56.0	50.0	49.0	24.0	32.0
D index	11.0	12.0	9.0	17.0	22.0	22.0
HOI	42.0	49.0	45.0	40.0	19.0	25.0
Total obs.	1218	339	805	206	467	175

Source: authors' calculations using CSES

Table 2.6: Contribution of circumstance variables to inequality of opportunity—net attendance rate (%)

	Lower secondary (6-9)			Upper secondary (10-12)		
	2007	2009	2011	2007	2009	2011
Gender (male/female)	3.3	4.6	5.4	0.7	0.6	2.4
Gender of household head (male/female)	0.4	0.5	2.2	9.7	0.3	3.0
Area of residence (urban/rural)	17.5	31.9	19.5	61.8	65.0	36.9
Household size	7.4	13.9	10.1	4.1	8.7	3.0
Per capita consumption	15.0	39.4	31.6	4.0	18.8	10.1
Education of household head	2.8	5.0	30.3	6.3	4.0	42.9
Age of household head	53.6	4.7	0.8	13.4	2.6	1.8

Source: authors' calculations using CSES

Table 2.7: Contribution of circumstance variables to inequality of opportunity—on-time completion rate (%)

	Sixth grade		Ninth grade		Twelfth grade	
	2009	2011	2009	2011	2009	2011
Gender (male/female)	21.3	6.9	19.8	22.1	2.0	18.8
Gender of household head (male/female)	1.6	0.8	1.1	10.7	0.3	19.3
Area of residence (urban/rural)	20.4	15.1	33.0	18.5	49.3	20.9
Household size	10.8	3.6	5.2	7.0	6.1	8.1
Per capita consumption	16.8	21.6	31.4	4.4	6.1	15.3
Education of household head	18.0	41.9	2.2	30.6	19.3	15.5
Age of household head	11.2	10.1	7.3	6.6	17.1	2.1

Source: authors' calculations using CSES

Table 2.8: Indicative recurrent funding for sectors and ministries (percent of total government budget), 2014-18

	2014e	2015p	2016p	2017p	2018p
Sector					
General Administration	17.5	17.2	16.8	16.4	16.0
Social Administration	38.0	39.4	40.6	41.9	43.3
Defence and Security	21.5	21.2	20.6	20.0	19.4
Economy Administration	8.7	8.8	8.9	9.0	9.1
Miscellaneous	14.3	13.4	13.1	12.7	12.3
Ministry					
Education, Youth and Sport	16.0	16.9	17.8	18.7	19.6
Health	12.8	13.4	13.9	14.5	15.2
National Defence	12.6	12.4	12.1	11.7	11.4
Interior-Security	8.9	8.7	8.5	8.3	8.0

Note: e = estimated; p = projected.
Source: RGC (forthcoming)

Table 2.9: Village attributes

Indicators	2009	2010	2011
Primary school in village (yes, %)	54.9	55.1	54.8
Lower secondary school in village (yes, %)	17.9	20.0	18.3
Upper secondary school in village (yes, %)	7.51	6.7	7.8
Distance to nearest primary school (km)	1.2	1.4	2.0
Average minutes spent to get there	12.8	12.5	14.0
Means of transport (bicycle, %)	50.0	48.4	44.2
Distance to the nearest lower secondary school (km)	3.2	3.1	3.5
Average minutes spent to get there	15.6	17.0	16.1
Means of transport (bicycle, %)	76.1	76.5	74.11
Distance to the nearest upper secondary school (km)	7.9	6.8	7.4
Average minutes spent to get there	17.6	18.6	18.7
Means of transport (bicycle, %)	64.1	58.8	55.6

Note: Respondents are village chiefs. Figures are calculated using panel data of 346 villages in each year and the panel variable is strongly balanced. 2009 data contained 720 villages compared to 355 villages in 2010 and 2011. Thus, 374 villages are excluded from 2009 data and 9 villages from 2010 and 2011. Refer to NIS (2005) for sampling design to select sampled villages in each enumeration area.
Source: authors' calculations using CSES

Table 2.10: Most important problems in education

	2009	2010	2011
Lower secondary school			
Low living standards of teachers	34.4	33.3	52.4
School budget constraint	6.6	15.9	11.1
Not enough supplies (places and desks)	4.9	11.6	9.5
Poor living standards in village	9.8	15.9	11.1
Upper secondary school			
Low living standards of teachers	42.3	40.9	24.0
School budget constraint	11.5	9.1	20.0
Not enough supplies (places and desks)	7.7	13.6	12.0
Poor living standards in village	7.7	9.1	20.0
Adult literacy programmes (yes, %)	1.8	9.0	6.1

Note: Respondents are village chiefs.
Source: authors' calculations using CSES

Table 2.11: Reasons for not attending school (%)

	2009	2010	2011
Don't want to	22.3	14.8	14.4
Did not do well in school	8.2	13.0	9.3
No suitable school available/school is too far	7.3	4.5	2.0
No teacher/supplies	1.6	1.6	0.5
High cost of schooling	0.3	0.1	0.0
Must contribute to household income	19.3	16.5	26.6
Must help with household chores	18.3	10.9	9.1
Too poor	0.0	16.1	14.4
Disability	5.5	1.4	1.8
Long-term illness (over 3 months)	0.0	1.0	1.8
Too young	0.0	18.4	19.0
Other	17.2	1.7	1.1
Total obs.	901	3604	747

Source: authors' calculations using CSES

Table 2.12: Vaccination coverage, 0-23 months (%)

	2007	2009	2011
Quintile			
Poorest 20%	85.5	88.3	96.5
Next Poorest 20%	88.1	93.5	99.6
Middle	88.3	94.2	99.0
Next Richest 20%	93.6	96.5	98.4
Richest 20%	95.1	97.0	100.0
Region			
Phnom Penh	91.0	98.0	100.0
Other Urban	92.0	99.0	98.0
Rural	89.0	91.0	98.0
Gender			
Male	92.0	92.0	98.0
Female	87.0	93.0	99.0

Source: authors' calculations using CSES

Table 2.13: Vaccination coverage, 0-23 months (%)

	2009		2011	
	Public	Private	Public	Private
Poorest 20%	80.6	19.4	92.6	7.4
Next Poorest 20%	84.0	16.0	98.0	2.0
Middle	87.3	12.7	94.2	5.8
Next Richest 20%	90.8	8.2	94.0	6.0
Richest 20%	87.7	12.3	97.8	2.2
Phnom Penh	88.0	12.0	97.9	2.1
Other Urban	94.3	5.7	97.2	2.8
Rural	83.1	16.9	94.3	5.7

Note: No data available for 2007.
Source: authors' calculations using CSES

Table 2.14: Antenatal care and delivery in public hospital (%)

	Antenatal care		Delivery in public hospital	
	2009	2011	2009	2011
Poorest 20%	72.5	84.3	29.2	56.1
Next Poorest 20%	79.8	89.9	38.5	71.5
Middle	86.0	95.2	38.6	71.7
Next Richest 20%	90.3	95.7	46.8	72.1
Richest 20%	92.8	95.6	53.6	70.4
Phnom Penh	95.8	97.7	65.1	75.5
Other Urban	93.5	91.8	54.3	77.0
Rural	79.0	90.2	34.1	64.8

Note: No data available for 2007.
Source: authors' calculations using CSES

Table 2.15: Inequality of opportunity, child and mother health care (%)

	Access to vaccination			Antenatal care		Delivery in public hospital	
	2007	2009	2011	2009	2011	2009	2011
Average opportunity	91.0	94.0	99.0	85.0	92.0	41.0	70.0
D index	3.0	1.0	1.0	3.0	1.0	9.0	2.0
HOI	88.0	93.0	98.0	82.0	91.0	38.0	68.0
Total obs.	17439	12443	16327	23437	16327	23437	16327

Note: No data available on antenatal and delivery in public hospital for 2007.
Source: authors' calculations using CSES

Table 2.16: Contribution of circumstance variables to inequality of opportunity in health indicators (%)

	Access to vaccination			Antenatal care		Delivery in public hospital	
	2007	2009	2011	2009	2011	2009	2011
Gender (male/female)	12.2	4.6	21.7	-	-	-	-
Gender of household head (male/female)	1.5	19.6	15.2	3.3	12.4	1.7	2.6
Area of residence (urban/rural)	15.3	44.2	16.0	40.1	22.5	69.5	52.7
Household size	0.5	2.5	9.0	1.7	21.9	2.3	1.9
Per capita consumption	26.7	13.1	11.5	37.1	32.3	10.7	13.5
Education level of household head	9.5	3.8	25.2	3.3	7.2	5.5	14.2
Age of household head	34.3	12.3	1.3	14.6	3.6	10.3	15.0

Note: No data available on antenatal and delivery in public hospitals for 2007.
Source: authors' calculations using CSES

Table 2.17: Statistics on health services (most recent values)

Country	Hospital beds (per 1000 people)	Nurses and midwives (per 1000 people)	Out-of-pocket health expenditure (% of private expenditure on health)	Out-of-pocket health expenditure (% of total expenditure on health)	Physicians (per 1000 people)	Health expenditure per capita (current USD)
Brunei Darussalam	2.8	7.7	97.8	8.1	1.5	939
Cambodia	0.7	0.9	81.9	61.7	0.2	51
China	3.8	1.9	78.0	34.3	1.9	322
Indonesia	0.9	1.4	75.1	45.3	0.2	108
Japan	13.7	11.5	80.6	14.1	2.3	4752
South Korea	10.3	5.0	79.1	36.1	2.1	1703
Lao PDR	1.5	0.9	78.2	38.2	0.2	40
Malaysia	1.9	3.3	79.0	35.6	1.2	410
Myanmar	0.6	1.0	93.7	71.3	0.6	20
Philippines	1.0	1.0	83.5	52.0	1.2	119
Singapore	2.0	6.4	93.9	58.6	1.9	2426
Thailand	2.1	2.1	55.8	13.1	0.4	215
Vietnam	2.0	1.1	85.0	48.8	1.2	102

Source: authors' preparation using data from World Bank (2013)

Table 2.18: Availability of medical facilities and services in village (yes, %)

	Pooled			Panel (strongly balanced)		
	2009	2010	2011	2009	2010	2011
Private clinic	17.5	17.4	20.3	20.4	18.2	20.7
Dedicated drug stores	21.8	23.1	27.6	24.8	23.9	28.0
Other drug stores	26.8	26.3	30.7	28.3	25.8	29.6
Communal health centre	11.8	11.1	11.0	12.7	11.5	11.2
Referral (or district) hospital	2.5	2.6	3.7	1.9	2.6	3.2
Provincial hospital	1.1	1.7	2.0	1.3	1.6	1.6
National hospital	0.1	0.3	0.0	0.0	0.3	0.0
Private hospital	2.5	2.0	2.3	2.6	2.2	2.2
Doctor	21.8	25.2	29.0	26.8	26.1	30.3
Nurse	38.6	34.5	37.3	40.1	35.0	36.9
Trained midwife	38.0	33.1	38.2	39.8	32.5	38.5
Traditional birth attendant	55.1	43.4	38.6	49.7	42.4	37.3
Traditional healer	56.9	47.1	48.3	54.8	47.8	48.4
Others	29.9	28.4	34.6	31.9	27.8	34.7
Total obs.	10004	4904	4954	4396		
Total villages	716	351	355	314		
Missing value	1	1	0	0	1	0

Source: authors' calculations using CSES

Table 2.19: Most important health problems (public and private) for people in village (%)

	Pooled			Panel (strongly balanced)		
	2009	2010	2011	2009	2010	2011
Lack of beds in hospital, equipment etc	7.3	11.1	8.8	7.8	11.3	8.4
Not enough medicines, drugs	25.1	25.6	31.5	24.9	25.2	31.4
Poor quality of services	7.9	4.6	3.7	6.1	4.6	3.8
No physician or qualified medical assistant	2.5	1.4	1.7	2.0	1.5	1.7
No secondary nurse / midwife available	0.6	1.1	0.9	0.6	1.2	0.9
Health facility is not open 24 hours	3.1	3.4	4.8	3.2	3.5	4.9
Health services are too expensive	25.1	20.2	18.5	27.8	20.0	18.3
Long distance to better quality care	12.5	13.4	16.8	12.4	13.3	16.9
Unsanitary health facilities	0.1	0.6	0.3	-	0.6	0.3
Staff are unhelpful	9.0	9.4	6.3	8.1	9.6	6.4
Staff are not friendly	3.5	6.0	5.4	3.2	6.1	5.5
Other (specify)	3.2	3.1	1.4	4.1	3.2	1.5
Total obs. (villages)	718	352	354	346		
Missing value	6	1	2		2	

Source: authors' calculations using CSES

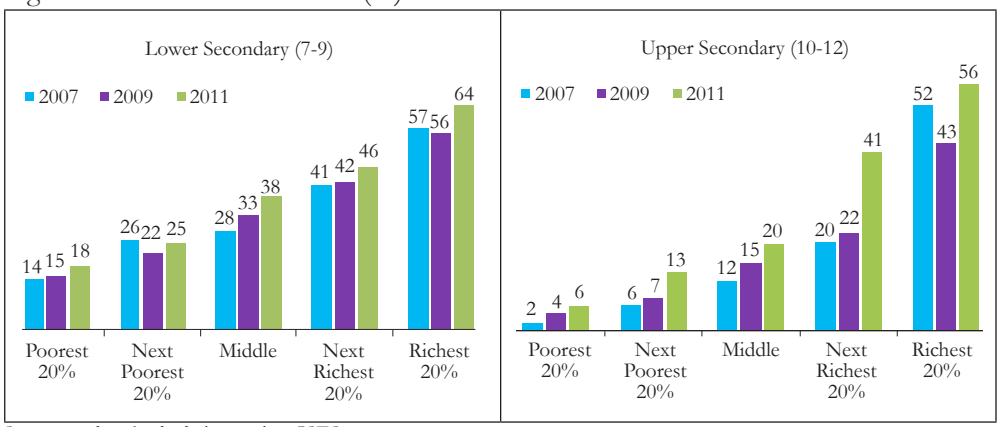
Table 2.20: Existence of other health programmes in village and village chiefs' perception of improvement in health services (%)

	Pooled			Panel (strongly balanced)		
	2009	2010	2011	2009	2010	2011
Immunisation Programme	31.9	23.7	25.7	31.8	23.5	26.0
Maternal and child health/Family planning Programme	77.2	71.8	74.6	73.7	71.6	74.9
Testing for HIV/AIDS	35.9	29.1	25.1	36.4	29.3	24.6
Programme for iodine deficiency or goitre	56.6	53.1	51.8	57.5	52.9	51.6
Perception of improved health services	79.2	87.1	90.4	81.2	86.9	90.7
Total obs. (village)	718	352	354	346		
Missing value	2	8	5	0	8	2

Source: authors' calculations using CSES

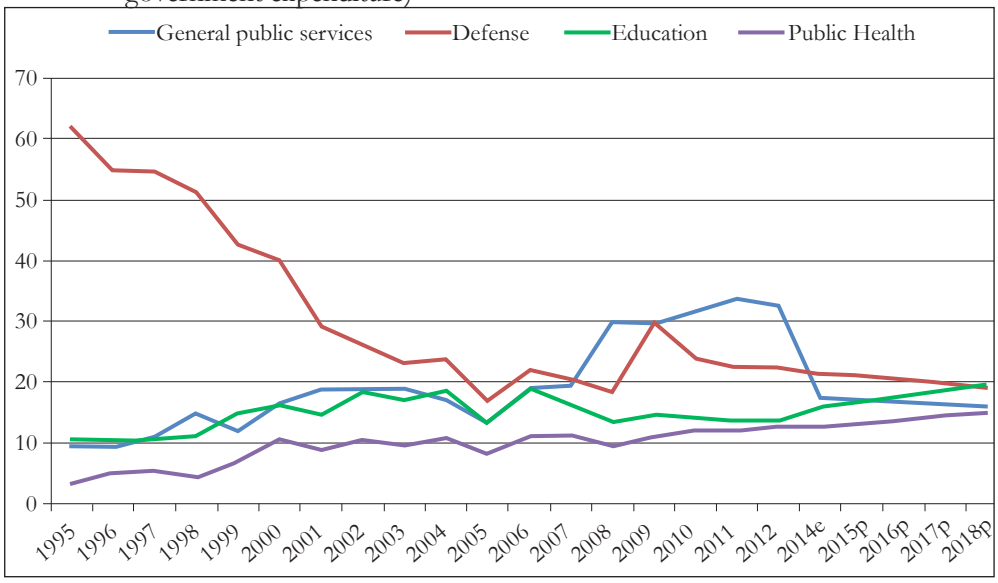
Annex figures

Figure 2.1: Net attendance rate (%)



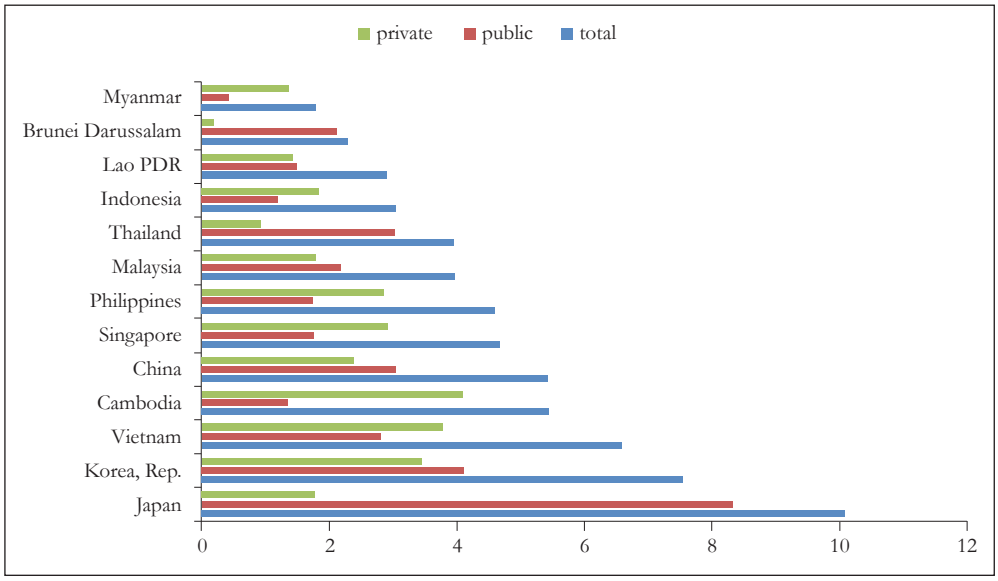
Source: authors' calculations using CSES

Figure 2.2:Expenditure and budget allocated to selected sectors (% share of total government expenditure)



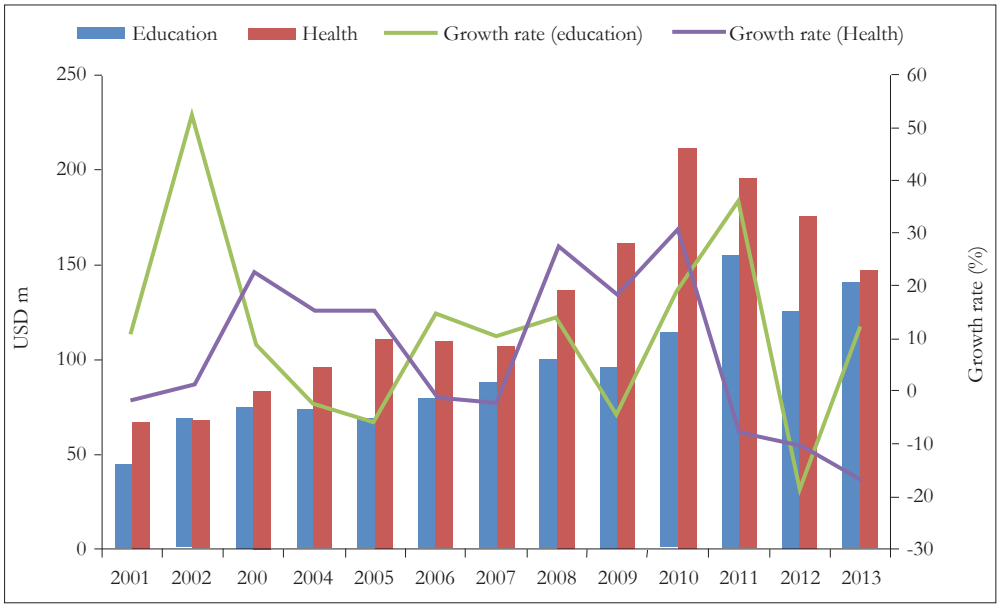
Note: Data between 1995 and 2012 is actual expenditure and that from 2014 to 2018 indicative.
Source: authors' calculations using ADB (2013) and RGC (2014)

Figure 2.3: Health expenditure (% of GDP)



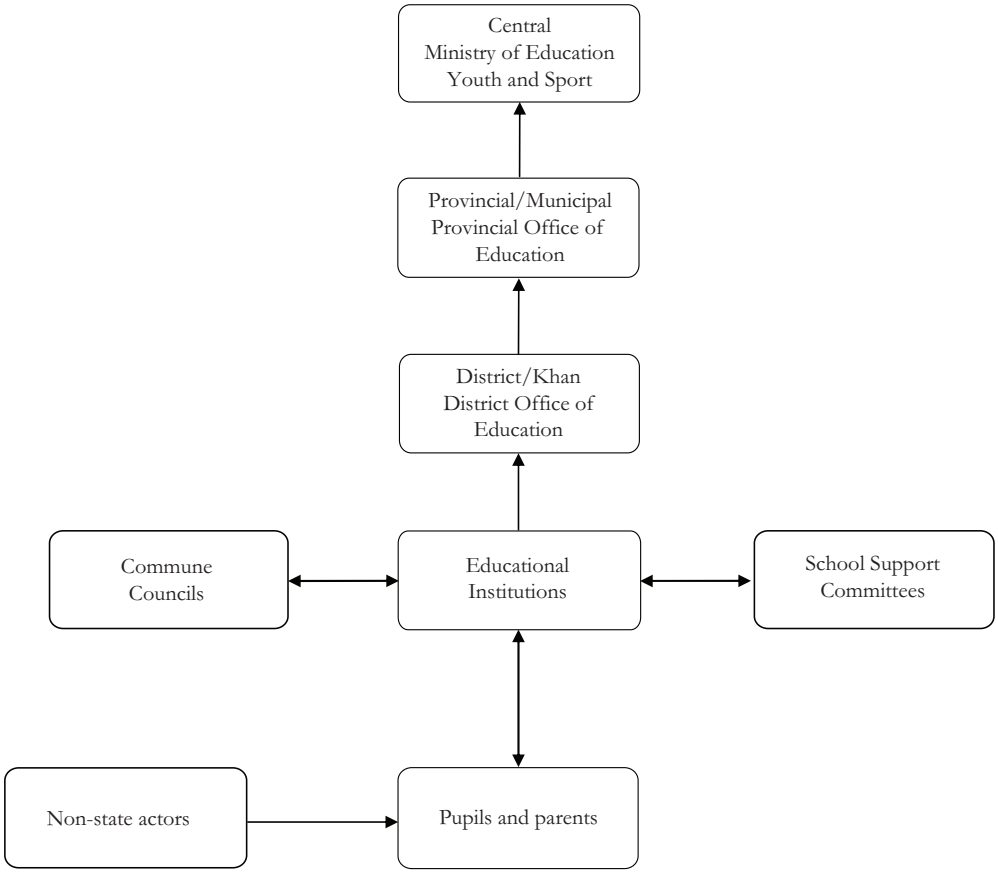
Source: authors using data from World Bank (2013)

Figure 2.4: Aid disbursement for education and health



Source: authors' calculations using data from CRDB (2013)

Figure 2.5: Hierarchy of administration and national and sub-national management of education



Source: authors using information from RGC (2007) and World Bank and Asia Foundation (2013)

Appendix

A two-pronged approach

The study employs both quantitative and qualitative techniques. The former utilises the Human Opportunity Index proposed by Barros et al. (2009). The qualitative technique adopts the Institutional Development Analysis framework, analysing the interaction between national and sub-national government institutions, development partners and concerned individuals and families.

Human opportunity index

HOI summarises into one index the average availability of basic opportunities and their equitable distribution. The first component is readily available through household survey data, whereas the second needs a more detailed calculation. HOI can be written as:

$$HOI = C\,(1 - D) \qquad (1)$$

where C is the basic coverage (access) rate of a service or opportunity and D is a "dissimilarity" index measuring unequal access rates to a given basic opportunity for groups defined by circumstance characteristics. C is calculated by $\sum_{i=1}^{n} w_i p_i$, where $\{i = 1, 2, 3, ..., n\}$, w_i represents the weight of individuals, and P_i is individual-specific access to the designated services or opportunities. The "dissimilarity" index, the underlying component of HOI, ranges from 0 to 1, 0 representing perfectly equal distribution and 1 perfectly unequal distribution. D's index is given by

$$D = \frac{1}{2\bar{p}} \sum_{i=1}^{n} \beta_i |p_i - 2\bar{p}| \qquad (2)$$

where $\bar{p}$ is the average access. Thus, D calculates the weighted average of the distance of individuals' access to services or opportunities from the national average access. The importance of D is that it controls for circumstance variables, emphasising that an individual's access to services or opportunities should not be dependent on ascribed variables such as gender, race, location of residence, parents' occupations, ethnicity, religion or income or consumption. Barros et al. (2009) show that the D index could be interpreted as the percentage of available opportunities that need to be reallocated from the rich to the poor to achieve equal opportunity.

The paper also decomposes the contribution of different circumstances to overall inequality of opportunity using the decomposition method proposed by Hoyos and Narayan (2011). The approach could also be found in Vega et al. (2010) and Son (2012). The logit model of the probability of access to an opportunity is given by

$$ln\,(\hat{y}_\iota) = \sum_{1}^{m} \hat{\beta}_j X_{ij} \qquad (3)$$

Where $X\mathbf{ij}$ is a vector of circumstance variables, $\hat{\beta}\mathbf{j}$ is a vector of coefficient estimates from the logit model using maximum likelihood estimation method. The decomposition of inequality of opportunity can be derived by taking the variance of both sides in equation (1) (see Fields 2002; Son 2012) to obtain

$$\sigma^2 ln\,(\hat{y}_\iota) = \sum_{1}^{m} \hat{\beta}_j cov\left(X_{ij}, ln(\hat{y}_\iota)\right)$$

Thus, the percentage contribution of the j^{th} circumstance variable to the total inequality of opportunity can be written as

$$S_j = \frac{100 \times \hat{\beta}_j cov\left(X_{ij}, ln(\hat{y}_\iota)\right)}{\sigma^2 ln\,(\hat{y}_\iota)} \qquad (4)$$

Institutional analysis and development framework

The Institutional Analysis and Development framework by Ostrom et al. (1994), although being applied in natural resource management, is very applicable to this study. It has also been applied by many researchers (Andersson 2006; Gibson et al. 2005) in a wide range of disciplines, from governance to development economics.

The basic concept is that the actors involve in creating the institutional arrangements that constrain individual behaviour and interactions that affect outcomes. The impacts of institutional arrangements are also subjected to other factors, including socio-economic and political conditions, policies, formal and informal rules and regulations and resources and capacity. Interests of different actors also determine the institutional arrangements and individual interactions that shape the effectiveness of policy. Therefore, understanding individual actors' incentives is crucial. Socio-economic and political factors might have direct and indirect impacts on policy choices, institutional arrangements, capacity and resources, course of action and outcomes. Those factors include economic growth, poverty, political stability and macroeconomic variables. Characteristics such as historical background, tradition, religion and belief are also considered.

Rules and regulations are important elements driving performance and behaviour. Formal and informal rules, including the norms that actors adopt, are analysed. Understanding those norms requires careful observation, which could not be done without collecting primary data. Yet, formal rules could be examined using available secondary information. In some countries, informal rules weigh even more than formal ones due, for instance, to weak institutions or conflicts of interest. Unlike formal rules, norms are difficult to change or need more time. This study should also pose the question whether these norms have a profound effect on actions and outcomes. All of the exogenous factors mentioned have effects on actors' actions. Interactions among actors from different levels of governance then form patterns. Actors select a course of action or a strategy subject to their incentives.

Different layers of actors can be classified by their decision making power. The inner circle consists of core individuals who have direct and influential decisions on issues (e.g., the prime minister and ministers of education and health). Outer circle elite groups are included but are not key decision makers. However, these individuals could have both direct and indirect influences on people in the inner circle through their political and elite connections. Development partners can create both positive and negative externalities although their presence is thought to generate more positive impacts. Different development agendas demanded by development partners, sometimes conflicting, could impose another challenge, further constraining the quality and efficiency of programme intervention. Included population groups are those connected to the dominant coalition by patronage ties or because of their similar political ideology and support to dominant groups. This connection might define their access to education and health services that are intended for the public regardless of political support. This would also create excluded populations who lack such connection and are thereby disadvantaged in access and opportunity.

HEALTH AND EDUCATION IN GREATER MEKONG SUBREGION:
Policies, Institutions and Practices

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