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Where Have All The Poor Gone? Cambodia Poverty Assessment 2013

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CURRENCY and EXCHANGE RATE EQUIVALENTS

Currency Unit = Cambodian Riel (CR)

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Exchange rate average 2011: CR 4,066 = US$1

Exchange rate April 19, 2013: CR 3,995 = US$1

FISCAL YEAR

January 1 – December 31

Regional Vice President, EAPVP :	**Axel van Trotsenburg**
Country Director, EACTF :	**Annette Dixon (until July 2013)**
	Ulrich Zachau (from October 2013)
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Cambodia Poverty Assessment 2013

THE WORLD BANK
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Contents

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The report was prepared by a team led by Carlos Sobrado and Samsen Neak. Chapter 1 was written by Sodeth Ly and Enrique Aldaz-Carroll (Macroeconomic Conditions) and Carlos Sobrado (Poverty and Well-being). Chapter 2 was written by Elisa Gamberoni and Francisco Arias-Vazquez (Urban Labor), Samsen Neak (The Role of Rural Sector), and Carlos Sobrado (Drivers of Poverty Reduction). Chapter 3 was written by Tsuyoshi Fukao, Carlos Sobrado, and Simeth Beng (Education) and Timothy Johnston and Miguel San Joaquin (Health). Lucilla Bruni and Richard de Groot composed the portions on social protection and their recommendations in Chapter 3. The report also benefited from contributions from Puja Dutta, Mariana Infante, Huot Chea, and Emre Ozaltin. Enrique Aldaz-Carroll provided overall technical advice for the document and supported the interaction with the Royal Government of Cambodia, international institutions and other stakeholders. Lyden Kong, Linna Ky, and Phalline Sath provided useful logistic and administrative support. The report was edited by Jeremy Gerardi Mazzola.

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Preface

It is not possible to comprehend the socioeconomic conditions of Cambodia today without mentioning the impact of not only the Vietnam War, but also the country's nearly thirty years of concurrent internal conflicts and civil wars from 1970 to 1999. The war in Vietnam started in late 1955, eventually spreading to Cambodia and Lao PDR—especially along the heavily bombed border with Vietnam, bombed heavily by the United States. After a coup d'état in 1970, Cambodia underwent multiple internal conflicts—most notably the revolution led by the Khmer Rouge from 1975-79 characterized by loss of all personal property, forced labor and migration, imprisonment, and executions. An estimated two million died—most owing to execution, famine and disease. The Vietnam occupation at the end of 1978 did not stop the fighting. Their eventual withdrawal in 1990 led to the Paris Peace Accords signed in October 1991. Fighting significantly reduced; nevertheless, the 1990s was strife with political instability because of the various political groups backed by their own military forces. Finally, in 1999, the use of military force to challenge political rivals seemed to conclude, marking an end to decades of conflicts and wars.

It is difficult to imagine the extent of these conflicts' impacts in Cambodia. Comprehensive estimates of the death toll from 1970 to 1987 range from 2.3 to 3.9 million people, or almost one-third to one-half of the 7.1 million Cambodians alive in 1970 (Rummel 1994). All urban centers were evacuated in 1975, and as of 2010, Cambodia has had the second lowest urbanization rate in all of Asia. Money was eliminated—as well as most administrative records—including land tenancy and birth certificates, which were either lost or destroyed. Many of the land issues faced today can be directly traced back to the massive displacement of people and the loss of proper documentation that took place during this time.

Fourteen years of peace have dramatically changed the country in almost every aspect, but the remnants of the armed conflicts and instability are still present in both Cambodian society and its institutions. For example, most people in positions of power today—in both the private and the public sector—were born either during or just before the Khmer Rouge years of 1975-1979, although many either suffered its consequences or participated in the various armed conflicts. At a more personal level, in Cambodia today it is not uncommon to find people unsure about their birth date, and almost every Cambodian family has close relatives—even members of their nuclear family—who were lost during those years.

Institutions today are the product of a process of reconstruction during the 1990s, a period when the priorities were feeding the people, reconstructing basic infrastructure, and establishing a minimum level of security and the rule of law—all during a time of not only political instability but continued civil war. Under such extreme conditions, it is not unusual for a country to underplay concepts such as inclusion, participation, and accountability—even if such concepts would potentially produce more benefits in the long term—and to concentrate efforts on the more urgent tasks of developing a functioning, lasting state.

The newer generations of Cambodians, with more distance to the past, are becoming more important and starting to take their place in society. As of 2010, over two-thirds of Cambodians were born after 1993. For most of them, the years of conflict are perceived as a distant memory that belongs to the previous generation with either a limited or no relations to their day-to-day life. Young adults in Cambodia are more concerned about their future: employment opportunities, new technology, new families, rice production, health, education, motorbikes, and so on and less about their past.

Over time, the Royal Government of Cambodia has been able to provide the basic living requirements for its citizens and enabled them to improve their socioeconomic status. With improved conditions and a better sense of security, its people's expectations are changing more towards those of other advanced countries than that of other post-conflict countries.

The positive changes are also accompanied with new challenges. On one hand, people's expectations are no longer limited to having food on the table and they are beginning to demand access to better basic services—including the rule of law, transparency from their elected officials, and especially land tenure security. They now have an earnest desire to improve their living conditions. Development also has created new problems; for example, environmental concerns (pollution, land degradation, overuse of natural resources, and the like), the rising costs of living, as well as new health problems such as HIV/AIDS, avian flu, and so on. One of the biggest challenges for the Royal Government of Cambodia is its ability to adapt to these new conditions and to address problems that did not exist in the 1990s.

Executive Summary

Over the seven years from 2004 through 2011, Cambodian economic growth was tremendous, ranking amid the best in the world. Moreover, household consumption increased by nearly 40 percent. And this growth was pro-poor—not only reducing inequality, but also proportionally boosting poor people's consumption further and faster than that of the non-poor. As a result, the poverty rate dropped from 52.2 to 20.5 percent, surpassing all expectations. However, the majority of these people escaped poverty only slightly: they remain highly vulnerable—even to small shocks—which could quickly bring them back into poverty. The main drivers of poverty reduction were high rice prices, higher rice production, higher revenue from non-farm businesses, higher wage rates of rural workers, and growth in salaried jobs in urban areas. Improvements in health and education—as well as government investment in infrastructure—provided a favorable environment for the poor, allowing many of them to pull themselves out of poverty. Looking forward, some of these drivers of poverty reduction are likely to stall. Coupled with increased vulnerability, the present conditions create new challenges for the Royal Government of Cambodia. Furthermore, most of the improvements in Cambodia originated at very low values—thus leaving much work to better the well-being of many Cambodian households. Outstanding gains have been achieved, but it will take focus and further actions to maintain Cambodia's future growth. Most poverty in Cambodia is found in the countryside: about 90 percent of Cambodia's poor live in rural areas. To generate the maximum impact, government policies should concentrate on the productivity of the rural poor's major assets: their labor and their land.

Macro Economy

The end of internal conflicts in 1999 also marked Cambodia's integration into international markets; more notably; it marked the expansion of the industrial sector, fueled by the apparel industry. With yearly growth rates as high as 30 percent, industrial output doubled by 2004 and represented 27 percent of Gross Domestic Product (GDP). At the same

time, the agriculture share of GDP decreased from 44 percent in the mid-nineties to less than 29 percent by 2004.

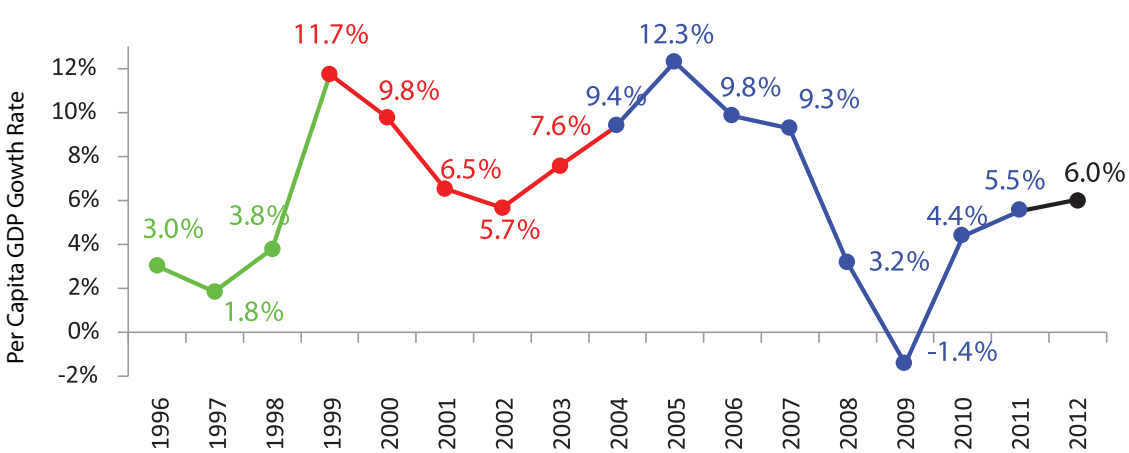
From 2004 to 2011, Cambodia's per capita GDP (in constant 2000 US$) grew 54.5 percent, ranking fifteenth among 174 countries. Cambodia's remarkable performance was possible because of a combination of factors including sustained peace and the demographic dividend, free trade and open investment policies, and finally subsequent macroeconomic stability—all of which were conducive to increases in tourism, construction, the garment sector, agriculture, and foreign direct investment (FDI). As in much of the world, the economy slowed in 2008 and contracted further in 2009 (1.4 percent per capita constant 2000 US$), but Cambodia was not as hard hit as most industrialized countries, and it recovered quickly.

If Cambodia continues to exhibit sustained growth rates similar to those of the last decade, it could become a middle income country as early as 2015. Given the very low initial per capita Gross National Income (GNI) value in 2004 (US$400), the impressive growth rate has not been enough to lift Cambodia from its status as a low income country; in 2011, the GNI remains at US$823, below the US$1,026 per person threshold for middle income countries. But it is not that far away from rising out of low income status—sustained growth levels can bring the country into middle income status by 2015. **(Figure A)**

Consumption, Well-being, Inequality, and Poverty

The Royal Government of Cambodia and the World Bank updated the way consumption and poverty was measured from 2004 to 2011 to better reflect the conditions of Cambodia today. The first methodology to measure poverty in Cambodia was developed and applied to the 1993 Cambodia Socio-Economic Survey (CSES), but it is no longer valid for Cambodia. For example, the consumption patterns of the poor have changed significantly implying that the original poverty lines are no longer a good reflection of the

Figure A: Cambodia Per Capita GDP Growth Rate (Constant 2000 US$)



Source: National Accounts and population projections from National Institute of Statistics

poor today. As a result, the government and the World Bank—working independently but coordinating actions—estimated poverty using the 2009 CSES. The World Bank team benefited from the insights and preferences made by the government and incorporated many of the choices and decisions into its own estimate. The government benefited from the experience and previous work carried out by the World Bank and used some of the same principles and results. Both teams used the new methodology to estimate poverty for 2004 through 2011, and the results were very similar, especially from 2009 onwards.[1]

The average per capita consumption (in constant 2009 CR) increased 37.8 percent from CR 6,399 in 2004 to CR 8,815 in 2011, which was consistent with GDP growth. Over the seven years from 2004, the average per capita consumption has increased 4.7 percent for each year. This total increase of 37.8 percent is well below the total per capita GDP growth of 54.5 percent. However, the variance is consistent with international experience: its explanation lies in the portion of the economy included in GDP that has a limited impact on household consumption.

Improved access to services and increased ownership of consumer goods confirm consumption growth. The leading indicators in housing services and durables illustrate that the improvements are as big as or greater than consumption increases. This is true not only for the following improved access to housing services: electricity (triple), sewerage or septic tanks (double),and piped water during the dry season (25 percent), but also for the following improvements in access to durables such as televisions (37 percent), motorbikes (double), and mobile telephones (quadruple)—all of which reaffirms consumption growth.

The average household in 2004 is comparable to the poorest household in 2011. The aforementioned access to both housing services and durables by the poorest quintile in 2011 is almost the same as the access to these same housing services and goods by the middle quintile in 2004. In other words, these indicators show that the poorest households of 2011 are similarly situated to the average households of 2004—again, a clear reaffirmation of growth.

Consumption increases were pro-poor: the percentage increase in consumption was higher for the poor than for the rich. Although average consumption increased by 37.8 percent, the increases were higher among the poor than for the rich. For households in the first quintile (the poorest 20 percent of the population), the increase was 56.5 percent. The increase was lower for each subsequent quintile: 51.6 percent for the second quintile, 45.0 percent for the third quintile, 38.4 percent for the fourth quintile, and 26.8 percent for the fifth quintile (the richest 20 percent of the population).

The shared prosperity index improved. The share of consumption from the poorest 40 percent of the population increased from 20.7 percent in 2004 to 23.1 percent in 2011.

After an initial increase, inequality has decreased every year since 2007. One of the most surprising results from the analysis was the reductions in inequality after 2007. Comprehensive measures of inequality like the Theil and Gini Index show an initial increase of inequality followed by reductions until 2011.

The Gini increased from 0.326 in 2004 to 0.374 in 2007, but it decreased every subsequent year to 0.282 in 2011.

But the actual gap between the rich and the poor has increased in absolute terms. Because all of the inequality measures are relative, it is possible to reduce inequality—and at the same time, to increase the gap between the poor and the rich. This helps to explain why the perception of increased inequality—based on absolute differences between the rich and the poor—do not match with the reported decrease in inequality (based on relative changes). For example, having twice the income is not that much of a difference if one person has US$10 and the other has US$20; however, it is much more noticeable if one person has US$100 and the other person has US$200. The measure of relative inequality is the same in both scenarios. But in the first scenario, the difference is US$10, while the second scenario is US$100. This is why the measurement of inequality can decrease—even though the actual gap between the rich and the poor increases.

Combined with pro-poor growth, the consumption increase resulted in poverty decreasing from 53.2 to 20.5 percent. Unlike many other countries where inequality increases with growth, the pro-poor growth in Cambodia enhanced poverty reduction—surpassing all expectations and substantially exceeding the Millennium Development Goal (MDG) poverty target.

But the majority of households that escaped poverty did so by only a small margin—they are highly vulnerable to falling back into poverty. For example, in 2011 a small shock of CR 1,200 per day (US$0.30 or the cost of two small water bottles from a street vendor in Phnom Penh) would cause Cambodia's poverty rate to double. **(Figure B)**

Where did all the poor go? Not very far! Most moved from being poor to being vulnerable.[2] The tremendous poverty reduction was possible because many of the poor—who were just below the poverty line in 2004—were able to move just above the poverty line in 2011.

Figure B1: National Poverty Rate, Cambodia 2004-2011

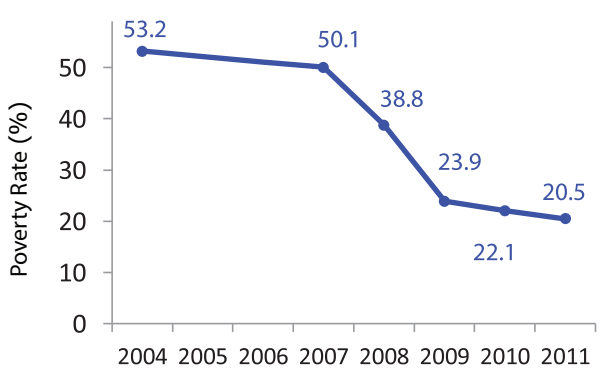
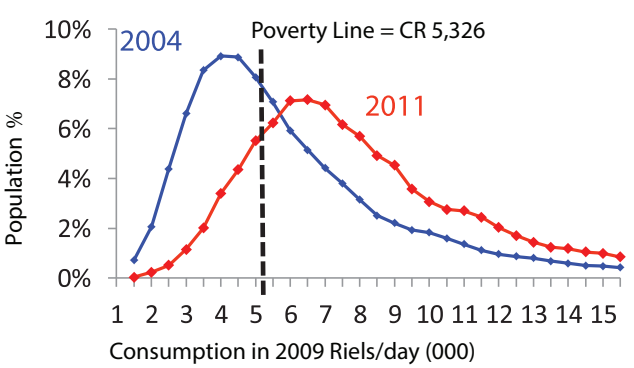


Figure B2: Population Shares By Consumption, Cambodia



Source: World Bank staff estimates based on CSES

However, conclusions from other independent international reports and indicators support these poverty reduction results. The MDG Progress Report ranks Cambodia's improvements fifth out of 76 poor countries; the UNDP Human Development Indicator ranks Cambodia as the country with the best improvement in the region from 2000 through 2010—above countries such as China, Lao PDR, and Vietnam.

Drivers of Poverty Reduction

The right government policies enhanced opportunities for households to pull themselves out of poverty. Government policies in basic infrastructure improvement (roads, communication, rural irrigation); in rice production (no price controls and no taxes); on minimum wage in apparel manufacturing; and in overall industrial policy provided the right environment for the poor to take full advantage of favorable conditions.

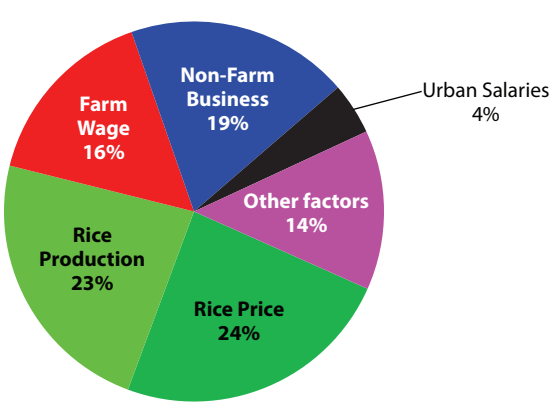
To identify the drivers of poverty reduction, a simulation was developed linking income increase from several factors to their impact on poverty. Income and farmers information derived from the Cambodian Socio Economic Survey (CSES) was used to compare changes in household behavior from 2004 through 2011. Official government statistics for rice production, rice prices, and inflation were also used to estimate the impact of the changes in rice prices.

Poverty reduction concentrated in rural Cambodia (where 90 percent of the poor reside) and was driven by rice farming. From 2004 to 2009, the price of rice (in constant value) increased by 37.1 percent, boosting farmer's income and providing incentives for increased production. Poverty reduction in rural areas was driven by the substantial increase in rice prices (24 percent), increased rice production (23 percent), better rural wages (16 percent), and improved income from non-farm self-employment (19 percent).[3] **(Figure C)**

Poverty reduction in urban areas was driven by increased salaried employment (4 percent). The share of urban workers engaged in salaried employment increased, reaching over 50 percent by 2011. Salaried workers in urban areas have more years of education than other workers and were able to take advantage of this education premium, thereby increasing their income.

Women have benefited from the garment industry, but wage inequalities remain important. Among salaried jobs, the garment industry is one of the main employers. About 85 percent of workers in the garment industry are female, and the higher wages paid by garment factories have benefited women in Cambodia. Nevertheless, the overall gender wage gap was 30 percent—most of it from lesser returns to women with similar endowments to men: education, age, and so forth.

Figure C: Drivers of Poverty Reduction, Cambodia 2004-2011



Improving Human Development

Health and education improves people's welfare while sharing important synergies. Healthier people are able to perform better in almost any activity in which they engage. Good health not only improves physical efficiency but also enhances concentration and the ability to process tasks that require planning, organizing, and multitasking. Higher education opens opportunities to engage in salaried jobs that pay an important premium for education; it also increases the ability of self-employed workers to manage their own businesses and to increase the returns to their investment and labor. Moreover, there are important synergies between health and education from very early in life to later in life: an undernourished child may not be able to walk to school and his ability to learn will be diminished; likewise, educated mothers use the knowledge gained from school to raise healthier children.

Because of better access to schools and better access to medical facilities and services, key education and health indicators improved. Improvements from 2004 through 2011 were observed in many education outcome indicators: adults 25 years and older with primary education (10.0 percentage points increase), literacy among the youth 15-24 years old (11.1 percentage points increase), literacy gender-gap for the youth (reduced from 7.4 percent to less than one percent), the net enrollment rate in primary school (18.2 percentage points increase), and the gross enrollment rate in secondary school (18.4 percentage points increase). Furthermore, there is no longer any gender gap among current students enrolled in either primary or secondary school. Health outcomes also showed remarkable improvements from 2005 to 2010, illustrated by the following indicators: decreasing maternal mortality rate (from 437 to 288 per 100,000 live births); decreasing mortality rate for 0-1 month old (from 30 to 25 per 1000 live births); decreasing mortality rate for 1-12 months old (from 66 to 45 per 1000 live births); decreasing mortality rate for 12-60 months old (from 37 to 22 per 1000 live births); better measles immunization coverage (from 79 to 93 percent); better DTP immunization coverage (from 82 to 92 percent); and more births attended by skilled health staff (from 44 to 71 percent).

A noticeable exception is the lack of progress in combating malnutrition. Although substantial nutrition improvements were observed from 2000 through 2005, progress was limited, stalled, or even reversed from 2005 to 2010. The percentage of stunted children 0-60 months old decreased from 42 to 40 percent only, underweight children stalled at 38 percent, and children with wasting actually increased from 8 to 11 percent. The results are especially surprising given the improvements in consumption—including food intake. The reasons are not fully understood, but there is a consensus that the solution has to include several actions targeting issues beyond the amount of food consumed. This should include actions addressing the quality of the food, the environment (open defecation), and hygiene practices (washing hands and food, and other better hygiene practices). This study finds that stunting is more common among the poor, among children with mothers of lower education, and among communities with over half of the households defecating in the open.

Health issues are more common among the poor. The following are some other

health issues that hit the poor hardest: mortality of 1-12 month old children, access to family planning, antenatal care (minimum four visits), and the presence of skilled birth attendants. Coverage levels of targeted health programs based on Health Equity Funds (HEF) and ID-poor cards are pro-poor, but coverage remains low. Among the poor seeking health treatment, only 20 percent reported using free or subsidized treatment.

For the poor, the main source for health care is private non-medical providers. The main providers consulted for health issues by the poor—55.1 percent of the time—are shops and markets selling drugs compared to only 17.9 percent for the richest Cambodians. These providers are not well regulated: serious problems in the quality of medications and in the quality of advice are reported every day.

The improvements in education and health outcomes have not been enough to compensate for the low values in 2004. This is true of almost every indicator; for example, by 2011 only 29 percent of adults 25 years and older had finished primary school, illiteracy among 15-24 years old was 11.1 percent, the net enrollment rate in primary school was 48.8 percent, and the gross enrollment rate in secondary school was 54.2 percent. All the mortality rates in Cambodia are higher than the average for developing countries of East Asia and the Pacific (about double). And among the poor, all education and health outcomes are lower than the average.

The biggest problem in primary education is late entry into the first grade. Of all students entering first grade, 40 percent enter 2 years late. The problem is then compounded over time with dropouts—by grade six, the overage is 3.1 years. Therefore, these students are finishing primary school at age 15 instead of at age 12. This overage has two negative consequences: First, children are forgoing education at an early age, missing a crucial time for cognitive development, which makes learning more difficult in years that follow. Second, drop-out rates significantly increase with age, especially beginning at age 13. Students entering primary school late create a situation in which more students will leave the education system earlier—thus having a negative impact in secondary enrollment and retention.

Both economic reasons and access to secondary education are problematic for school enrollment, retention, and dropouts. Secondary education coverage is expanding in Cambodia, but proximity to schools remains a problem. The number of students that make it to secondary school is greatly reduced by late entry into primary school. However, those students that do enter secondary school report high levels of dropouts in the initial grades. The main reason is economic: it is either too expensive or young people go to work—this is especially true for female students. Household chores are reported by less than 14 percent of dropouts as the main reason for leaving secondary school (with no difference between young women and young men).

Overall education attainment remains significantly lower for the poor, for ethnic minorities, and in rural areas. Most of the problems described above are relevant to all Cambodians, but they are more prevalent among the poor and ethnic minorities. The gap between the poor and the rich significantly broadens for enrollment and dropout rates in secondary education.

Beyond the Health Equity Funds (HEF) and scholarship programs, there are no major government-funded social protection programs in Cambodia. Social programs funded and administered by the government is a new concept in Cambodia. The traditional social safety nets came from family, friends, and faith-based institutions, mostly from pagodas. Social assistance is mainly food, for distribution programs, and for assistance after natural disasters.

The National Social Protection Strategy (NSPS) has yet to be implemented. In 2011, the government approved the first social protection strategy (NSPS), which "…sets the framework for sustainable and comprehensive social protection for all Cambodians over the long term. This includes both contributory and non-contributory schemes." While the strategy was an important step to provide the basic foundations and principles for an integrated social protection system in Cambodia, the implementation of the strategy remains slow with only limited new initiatives by 2013.

Lessons

To reduce poverty, actions should be focused where the poor live and endowments of the poor. Two important lessons can be learned for poverty reduction in Cambodia from 2004-2011. First, improvements have to reach rural Cambodia to reduce poverty (where nine out of ten poor persons live). Second, actions should impact the activities in which the poor are already engaged (including agriculture) and increase the returns to their endowments—land and labor.

From 2004 through 2011, over half of the poor were able to maximize the return to their main assets—land and labor in rural areas, and labor in urban centers—thereby lifting themselves out of poverty. Better infrastructure and communications, favorable economic conditions, and government policies allowing for the free movement of commodity prices without tax burdens and business-friendly industrial policies were also key factors in helping the poor. These factors provided the poor with the flexibility to allocate their resources to the most productive activities, as well as to capture an important share of benefits, thereby allowing many to escape poverty.

However, the key drivers of poverty reduction are likely to stall. Increases in the price of rice had a positive impact—both in improving households' welfare and in reducing poverty—but it is not likely to continue. Therefore, public policies should not rely on continued increases in rice prices for further poverty reduction.

Cambodia has not created artificial price control for commodities and other barriers that limit the free flow of resources. This is the right thing to do. International experience has shown that price control policies not only lessens the free flow of resources to more efficient uses but also lessens the welfare of the people. International experience has proven that price controls usually distribute benefits from one group of people to another group. Because most of the poor and vulnerable in Cambodia are involved in rice production, rice price intervention policies would only take away some of the benefits from the group of people that need it the most. Moreover, creating artificial barriers would make it more difficult to freely move or switch activities and resources with changes in conditions over time.

Not all poverty reductions are the same. Poverty reduction can take many forms depending on income and consumption distribution. In Cambodia from 2004 through 2011, the reduction in poverty—while positive—was relatively small for the majority of households. These households remain vulnerable to falling back into poverty—even from small shocks.

Implementation of the National Social Protection Strategy (NSPS) requires more support to coordinate actions across government agencies. It is important to recognize that a social protection strategy requires several ministries and government agencies to cooperate, not only on objectives but the strategies to achieve those objectives. The need for stronger support to the particular agency implementing the NSPS is necessary, especially at the early stages of social protection in Cambodia. New programs require a stronger mandate to facilitate participation by all stakeholders.

The endowments of the poor and vulnerable are not fixed and can be improved over time. Another way to improve welfare for the poor and vulnerable is to increase endowments. This would either create opportunities for increased returns from their existing activities or allow them to move to more profitable activities. Among the more important endowments for the poor are education and health—of which the government is the main service provider. Specific education and health recommendations are put forward in the next section on policy recommendations.

Policy Recommendations

Making a Robust Rural Economy

Investing in rural infrastructure needs to continue. The poor will benefit from further investment in the upgrading of rural roads, expanded irrigation facilities, increased access to electricity, cleaner water, and improved sanitation.

Rural extension programs that promote better practices for improving productivity need to be increased. Rice production needs to be intensified from one-crop to two-crops annually in areas that currently rely on only rain-fed, single season crops. Rice intensification requires a shift from subsistence farming practices to commercial farming. This intensification should include giving farmers increased access to improved rice seeds; likewise, it should promote crop diversification—especially in agro-ecological zones that are better suited for crops besides rice. This would facilitate two important benefits: better productivity and better diet diversity.

Activities that create more value added to agricultural products should be supported. Value added includes all activities related to agricultural products from after actual production to packages in shops or markets. Activities that enhance the value chain from the farmers' gate would keep much of the value of these products within the country, instead of allowing neighboring countries to grasp most of this added value. This would include—but not be limited to—marketing, processing (such as rice milling), packaging, and commercialization. In fact, it includes any and all steps from the farmers' gate to consumer's hands. To achieve this goal, it is necessary to improve the connectivity among farms and farmers—as well as the rest of the supply chain—by using different means such as promoting cooperatives; improving the flow of information; creating credit instruments

suitable to small and middle-sized businesses; knowledge sharing among existing, successful experiences in the country; and the like.

Policies (namely commodity price controls and unreasonable taxes) that distort prices in the agricultural sector should be avoided. Different to many countries in the region, Cambodia's agricultural markets have been mostly free of government intervention, which has had two advantages: First, it has allowed farmers to take full advantage of commodity price increases. Because most of poor people are linked to agricultural production, the benefits of increased prices have reached the poor. Second, it did not create artificial barriers or incentives tied to specific activities or products, which created opportunities for farmers and their family members to engage in the most efficient use of their labor. Maintaining the same policies in the future would allow for not only a better flow of resources in and out of the agricultural sector, but also improved allocation of the assets of rural households.

Although agriculture has lifted people out of poverty, it probably cannot be sustained alone. In the middle and over the long run, non-agricultural activities are the most important factor for sustained economic growth and well-being improvements in Cambodia. The country should be ready to step-up efforts to promote industry and services sectors in both urban and rural areas.

Continue Investing in Human Development

Rural children need to be brought into the education system earlier; moreover, the remaining poor and minorities that have never been to school need to be brought into the education system. Among rural areas, education policies should concentrate on primary education—specifically by decreasing late entry and promoting enrollment by the remaining poor and minorities who have never attended school. To counter these problems, scholarships and school feeding programs have been found to be effective—both internationally as well as in Cambodia. Therefore their coverage should be expanded. For rural households, access to secondary education should increase gradually as the demand increases.

Urban secondary dropout rates can be reduced with an incentive program, and primary early entry for selected groups can be improved. For the urban poor and vulnerable, better education would increase productivity in salaried jobs, which would result in increased incomes. The main recommendation is to keep increasing the education level of future workers to increase productivity, which will improve incomes. Programs like cash transfers and other targeted schemes are well-suited to improve secondary education in Cambodia.

Health Equity Funds (HEF) coverage and utilization needs to be increased for the poor and the vulnerable, while maintaining low user fees for public health care. A large proportion of HEF members did not use their benefits, especially for primary care. The reason for this needs to be better understood. Moreover, oversight mechanisms need to be strengthened to ensure that all eligible poor are not only covered, but aware of their benefits. A robust impact evaluation study is recommended to evaluate utilization changes of HEFs services among the poor.

Controls must be established to ensure the quality of health care (medicines and advice) of private providers outside of the public health system. Strengthening oversight and regulating the private and informal sector is crucial. Likewise, it is vital to develop mechanisms of accreditation to combat counterfeit drugs. In the future, it is recommended that the standards of pre-service training (medicine and nursing degrees) are thoroughly evaluated. Such an evaluation should start with an independent needs assessment to identify areas for support and for future investment.

A multi-sector approach needs to be adopted to reduce maternal and child malnutrition. Support for community-based programs needs to be increased while the elimination of open defecation, better feeding practices, food fortification, and micronutrients supplements (targeting the poor and children) requires substantial improvement. Currently, a large proportion of Cambodia's children do not receive a minimum acceptable diet, and this has not changed since 2005. The health sector needs to strengthen the monitoring of child growth in health facilities (similar to observation of any other disease); it also needs to link the identification of malnutrition to appropriate response mechanisms (this may include the prescription of fortified foods, micronutrient supplements, and thorough counseling on feeding practices).

Enhancing Social Protection System

Stronger institutional support must be provided to the agency implementing the National Social Protection Strategy (NSPS); furthermore, the resources necessary for its implementation should be appropriately allocated. To accelerate the implementation of the NSPS, a stronger mandate should be given to the central agency responsible to facilitate its role as coordinator of several government ministries and institutions. Such a mandate has to be accompanied with increased resources to initiate some of the NSPS programs by providing seed money and by attracting other resources from the government, as well as from other stakeholders.

Social protection programs should target not only the poor—but the vulnerable as well. The reported poverty reduction from 2004-2011 should not be a reason to reduce coverage of targeted programs. Many of the formally poor remain very vulnerable, and the NSPS should include such households in their planning to prevent them from falling back into poverty.

Use the same labor standards applied in the garment factories to other industries and sectors. Labor laws protecting workers and enrollment into the social security system are good tools to reduce vulnerability and to improve household well-being. Building on the experience it has gained from the garment sector, the government has the option to expand coverage into other industries to protect vulnerable people in urban areas of the country.

END NOTE

1. The World Bank estimates are used for this study. Comparisons of the estimates could be found in the annex 2.

2. Brett Ballard from the Australian Agency for International Development, during the decision review meeting.

3. The percentages corresponds to the impact in national poverty reduction: 100% = 32.7 percentage

What Happened With The Poor?

Chapter 1

Cambodia experienced surprisingly impressive economic growth from 2004 through 2011. The per capita Gross Domestic Product (GDP) increased by 50.9 percent, and the average per capita consumption increased by 38 percent. At the same time—and very unexpectedly—inequality began to fall after 2007, further increasing the poor's income. This reduction in poverty was beyond all expectations—including the Cambodia Millennium Development Goal target for poverty (CMDG). The striking growth certainly moved people out of poverty—but for a large majority, it was not large enough. Much of the poor moved just above the poverty line, remaining highly vulnerable to falling back into poverty.

This chapter describes both the main improvements and the main weaknesses of the Cambodian economy; concurrently, it performs a detailed exploration of not only poverty conditions but also the characteristics of the poor. At the same time, it gives special attention to qualifying these improvements for a better understanding of their implications. The aim is to provide a clear, concise analysis for continued poverty reduction in Cambodia.

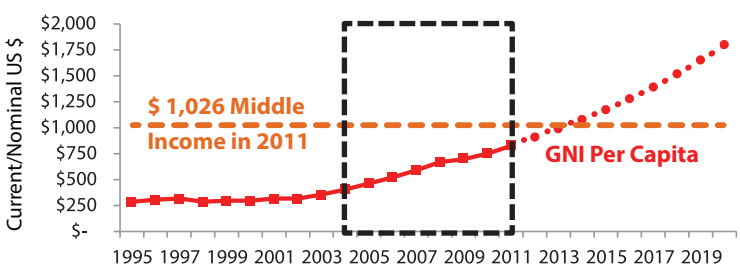
Macroeconomic Conditions

After several years of stagnant per capita Gross National Income (GNI) during the nineties and the beginning of the new millennium, Cambodia GNI grew at a surprisingly fast pace of 11.5 percent for seven consecutive years, increasing its value to US$830, more than double the 2004 GNI **(Figure 1)**. Given the very low initial value in 2004 ($400), the impressive growth rate has not been enough to lift Cambodia out of its Low Income status and the GNI remains below $1,026 per person in 2011. But it is not that far from rising out of Low Income status: *if Cambodia has similar growth rates to the preceding years, it would become a middle income country sometime between 2014 and 2015*. Gross Domestic Product (GDP) per capita figures from the Royal Government of Cambodia are similar to the GNI values with almost the same growth rates at any period of time.

The composition of Cambodian economy has changed dramatically since 1995, reducing agriculture's share and increasing industry's role. Agricultural share in GDP has steadily decreased from 45 percent in 1995 down to 26 percent in 2011 with most of the gains captured by the industrial sector **(Figure 2)**. Almost all the observed changes in GDP shares were during the second half of the 1990's and the first part of the millennium. From 2004 to 2011, shares of agriculture, industry, and services in GDP experienced only small changes.

At almost 10 percent for each year from 1998 to 2008, GDP growth was very strong. It relied on four sources of growth: rapid garment exports, strong tourism receipts, a continuing construction boom, and increasing yields in agriculture. Sustained growth was possible because four key factors: First, Cambodia achieved peace and stability and derived a growth dividend as evidenced by significant inflows of foreign direct investment (FDI) and official development assistance (ODA). Second, the global and regional environment during this period was very favorable, and Cambodia was able to tap this potential through open trade and investment policies. Third, macroeconomic policies—essentially through fiscal policy and given the high actual dollarization of the economy—were conductive to stability. Fourth, the growth of the garment sector through bilateral trade agreements with the United States and the European Union under the Everything But Arms agreement. Both agreements allowed for better access to markets against higher labor standards.

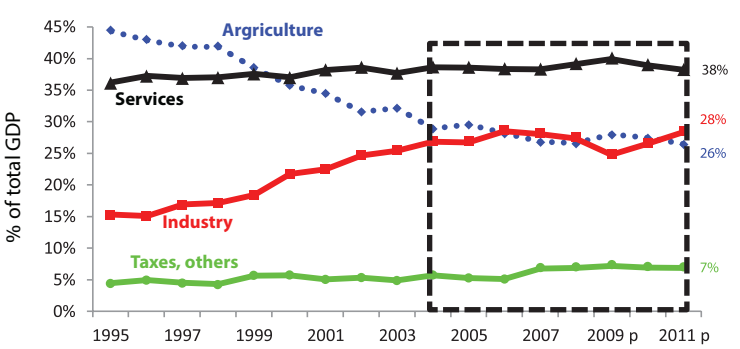
Figure 1: Cambodia Per Capita GNI, 1995-2020



Note: The World Bank middle income threshold is updated every year to account for inflation. Dotted lines are projections based on constant growth rate equal to the average of the last four years.

Source: GNI from World Bank, World Development Indicators. GDP figures from the RGC Macroeconomic Report.

Figure 2: Cambodia GDP Composition By Sector, 1995-2011



Source: National Accounts, National Institute of Statistics

This sustained growth was interrupted in 2008 and 2009 because of both internal and external reasons. Overheating of the economy in 2007 and 2008 was evidenced by very rapid growth in credit to the private sector and a bubble in real estate prices. When combined with the successive shocks of food and fuel price increases, resulting high inflation peaked at 35.8 percent in May of 2008. After this, the global financial crisis led to a sharp deceleration in growth. The crisis hit Cambodia severely in 2009 and flattened its real growth rate. The government adjusted its policy mix in response to external shocks by increasing reserve requirements and then decreasing the same requirement in response to the global financial crisis. This led to a government-led a fiscal stimulus in 2009.

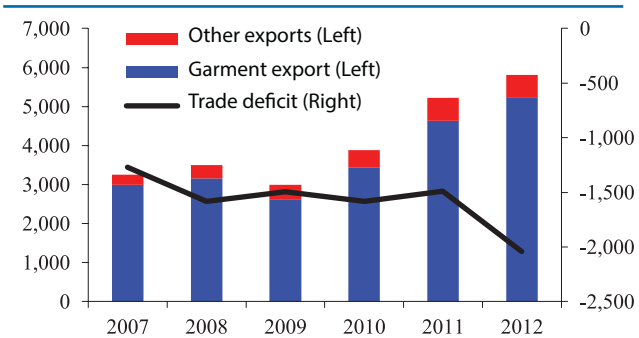
Supported by an enabling economic policy and an improved external environment, Cambodia's economy has recovered well since 2010. Real GDP growth reached 6.0 percent and 7.1 percent in 2010 and 2011, respectively. The growth was supported by a resilient agriculture sector, by a recovering garment and construction industry, and by strong tourism. The Government has recently revised the 2012 real GDP growth upward to 7.3 percent from the former estimate of 7.1 percent—this reflects the better performance of not only the agricultural sector and but also the tourism industry.

Mainly because of petroleum and construction material imports for building hydropower plants under "Build, Operate, and Transfer" (BOT) contracts, the trade deficit is estimated to have grown to US$ 2.0 billion: it has remained at about 18 percent of GDP in 2012 **(Figure 3)**. Because of continued, substantial foreign direct investment inflows—which reached US$1.5 billion in 2012—the balance of payments remains positive and the current account deficit (excluding transfers) is projected to stay at about 12 percent of GDP. The recent debt sustainability analysis (DSA) shows that Cambodia's debt distress rating remains low under the baseline scenario. However, envisioning a scenario of limited progress reform, the indicator would breach the threshold and would not be able to absorb significant risk. This underscores the need to continue reforms for sustainable strong growth that should include not only pursuing fiscal consolidation and mobilizing revenue, but also improving debt and contingent liability management.

The overall macroeconomic outlook remains positive. Real GDP growth is projected to reach about 7 percent in 2013. The real GDP growth is underpinned by a continued strong performance of the tourism and agriculture sectors, and the garment industry is likely to benefit from improved external demand. The growth in the construction sector is projected to continue, but at a slower pace.

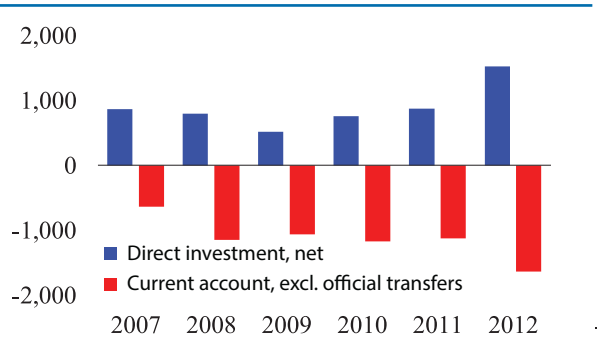
Inflation continues to wane, and it is projected to remain at about 3 percent in 2013. In the meantime, the nominal exchange rate remains stable. Fiscal consolidation continues and overall fiscal management remains sound. The overall debt sustainability outlook remains favorable owing in part to the policy of avoiding non-concessional borrowing. Moreover, most borrowing is being used for productive sectors. This is vital to sustainable debt management.

Figure 3 a: Trade Balance (Million US$)



Source: Balance of Payments, National Bank of Cambodia

Figure 3b: Current Accounts And FDI (Million US$)



Source: Balance of Payments, National Bank of Cambodia

Cambodia's external public debt and publicly-guaranteed debt stock is estimated to reach 30.1 percent of GDP in nominal terms in 2012. However, fiscal risks from contingent liability are gradually building up; at the same time, power purchasing agreements will become effective and require a relatively large portion (up to 15 percent) of the domestic revenue (if the risks fully materialize). Therefore, the financing of the power sector, specifically, needs to be carefully managed. Financial deepening continues and credit growth—although eased—continues to raise concerns as a financial risk. The credit growth does not appear to be concentrated in either a single or a variety of sectors.

Foreign direct investment (FDI) inflow is expected to account for 9.3 percent of GDP for 2012. In the first half of 2012, 72 new projects were approved led by Korean, Chinese, and Japanese investors (compared to 57 projects approved over the same period in 2011. The number of new firms registered at the Ministry of Commerce also increased by 10 percent to 1,712 during the first half of 2012 (compared to 1,563 at the same time in 2011). Gross foreign reserves continue to rise, reaching the US$3.2 billion mark by June 2012; it is projected to reach US$3.5 billion by the end of 2012 (representing 4.5 months of imports).

Revenue collection did not increase in 2011 (13.2 percent of GDP in 2011—similar to collection in 2010) and there were record high general government outlays of 22.2 percent of GDP in 2011. The fiscal deficit became high again in 2011 reaching an estimated 9.0 percent of GDP (compared to 7.5 percent of GDP in 2010 when the government exercised an aggressive cut of non-essential current expenditures).

Prospects for fiscal balance are anticipated to improve in 2013 and 2014 because revenue collection has improved, increasing by 29 percent in the first half of 2012 compared to the same periond in 2011. This is attributed to growth of direct and inditect taxes. While the fiscal management remains under control, it is increasingly vulnerable to unpredictable external financing and increased pressure of operational and maintenance budgets.

Cambodia's economic outlook is subject to considerable risks, arising from a fragile global economic outlook and from domestic factors like rapid credit growth, contingent liabilities and potential weather shocks (IMF 2013). A deepening of the euro area crisis and global financial turbulence could end up affecting Cambodia's garment exports and its financial sector. Credit growth—though eased (29.2 percent in January 2013 year on year down from 34.6 percent in January 2012)—continues to raise concerns as a financial risk because of weak banking supervisory capacity. The public-private power sector projects could also potentially result in contingent liabilities for the government if they are not implemented according to plan, which could negatively affect the budget. Cambodia could also be affected by weather shocks and natural disasters, similar to the recent Mekong flooding, which could impact agricultural production and individual incomes.

If these risks materialize, the policy space of the government to mitigate their impact would be limited. Persistent high dollarization limits the country's ability to use monetary policy to mitigate shocks and implies that the government needs to rely on fiscal policy as its main tool for macroeconomic stability. However, the present low levels of government deposits limit the fiscal

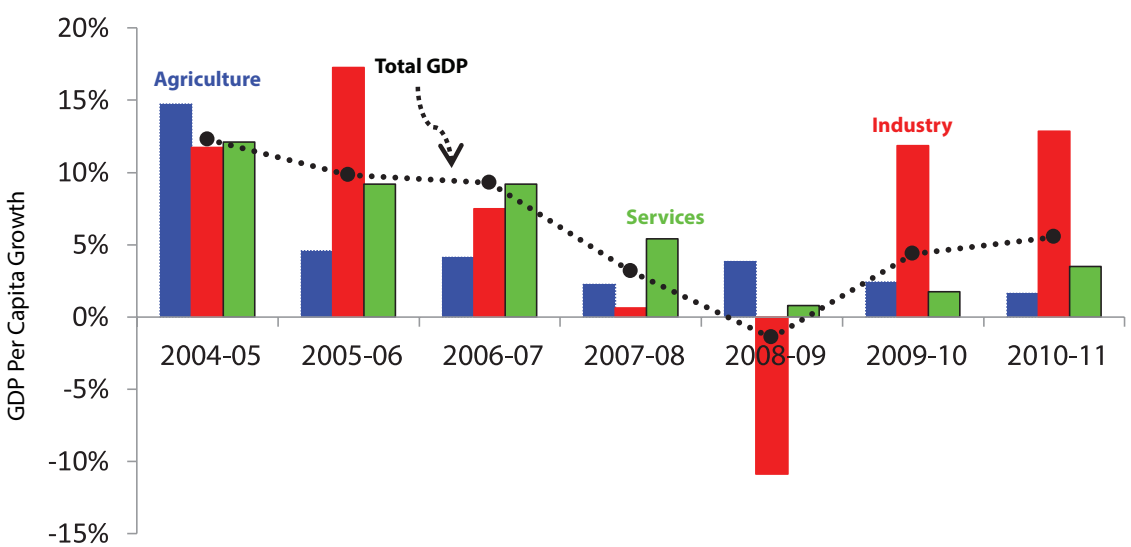
buffer that can be used to mitigate shocks. This underscores the need to continue reforms that enhance the country's resilience to shocks, like pursuing fiscal consolidation through improved efficiency, mobilizing revenue, and improving debt and contingent liability management.

The development of the private sector in Cambodia is constrained by a poor business environment. Cambodia ranks 133rd out of 185 economies in the overall Ease of Doing Business index (World Bank series). This is well below the average for East Asia and Pacific Region, which ranks 86th. For example, starting a business in Cambodia requires 9 procedures, takes 85 days, and costs 100.5 percent of income per capita, which gives it the poor ranking of 175th in the world. The following are other aspects in which the business environment fairs badly: resolving insolvency (152), dealing with construction permits (149), enforcing contracts (142), getting electricity (132), and trading across borders (118). The high cost of electricity, corruption, and transport are also identified as three of the four largest obstacles by firms in the latest Investmnet Climate Assessment 2012 survey (ICA). The high cost of doing business in Cambodia particularly hurts small and micro enterprises, which represent 99.6 percent of firms in Cambodia (2011 Cambodia Economic Census).

Poverty and Well-being

After discounting for inflation, the yearly average GDP per capita for 2004-2011 was 6.1 percent (50.9 percent for the entire period). Because inflation reduces a household's ability to acquire goods and services, GDP per capita in constant dollars is a better measure of well-being. After three years with growth rates close to 10 percent, Cambodian GDP growth decelerated in 2008 and was negative in 2009. It started to improve, reaching 5.5 percent in 2011 **(Figure 4)**. Individual sectors do not have a uniform tendency; the industrial sector shows the biggest yearly

Figure 4: Constant GDP Growth (Per Capita) By Sector, Cambodia 2004-2011



Source: World Bank staff estimates based on National Accounts

increase in 2006 (17.3 percent) and the lowest and only negative growth (-10.9 percent in 2009). Agricultural growth has become more stable in the last seven years with only small changes over time. *In 2009, agricultural growth did not decrease.*

Socio-Economic Surveys

Cambodia estimated poverty for the first time in 1997 based on the first Cambodia Socio-Economic Survey 1993/94. Because of a lack of reliable census information, the sampling frame used the village population data prepared by the United Nations Transitional Authority (UNTAC). The survey included 5,578 households and was carried out by the National Institute of Statistics (NIS) with support from the Asian Development Bank (ADB) and the UNDP. The survey included 15 out of 21 provinces (59 percent of the villages) excluding sparsely populated areas, areas that were expensive to reach, or unsafe to survey at that time. The survey included most of the elements of a Living Standard Measurement Survey (LSMS) with the information necessary to estimate both per capita consumption and poverty lines (World Bank 1997).

During the second part of the nineties, three other household surveys were implemented, but all presented serious limitations: (i) the 1996 survey included only a reduced version of the consumption module; (ii) the 1997 CSES was collected over a period of only two months and it coincided with a deep political crisis; and (iii) the 1999 CSES presented inconsistencies arising from inadequate training, which resulted in not only under recorded consumption but also overestimated poverty.[4]

It was not until 2004 that a more standardized methodology (including the questionnaire) was adopted in Cambodia. Since 2004, LSMS type surveys have been collected every year from 2007 through 2013. The sample size for the 2004 and 2009 surveys were close to 12,000 households; in other years, the sample size was about 3,600 households. All of the surveys were collected over the entire year and are representative for Phnom Penh, other urban areas, and rural areas, as well as for the entire country.[5]

After the 2004 questionnaire, some sections have been added, others removed or modified, but most of the questions used to estimate poverty remain the same, especially since 2007. The Swedish International Development Cooperation Agency (Sida) provided permanent advice and financial support since the 2004 CSES—promoting best practices, standardization, and limiting comparability problems over time.

Measuring Poverty

Poverty was first estimated in Cambodia using the CSES 1993/94. Consumption per capita was selected as the preferred indicator of household well-being. Extreme (food) poverty lines were estimated based on the food consumed by poor households in 1993/94, and total poverty lines were estimated based on poor households' consumption of non-food items. The main source of information was the recall data; if no recall data was available, the information reported on the diary section was used.[6]

Over time, several improvements have been added to the questionnaire, but it was decided not to incorporate such changes into

the poverty estimate. The main reason for not changing the way consumption is estimated was to ensure comparability over time and to ensure that such comparisons were fair. Nevertheless, the preferences and habits of the population change as time passes. This is especially true for countries similar to Cambodia that have experienced important changes since 1993/94 making an "update" necessary to obtain results that are relevant for Cambodia today.[7]

From the first time poverty was estimated through 2010, the World Bank was leading the work with limited participation from the Royal Government of Cambodia. Training was provided to improve government staff members' ability to measure poverty and to understand poverty results better. In 2011 the Government appointed a team of specialists to measure poverty. The work was carried out in parallel with the World Bank, allowing both teams to provide inputs, insights, and assistance to each other. The World Bank team benefited from the insights and preferences made by the government and incorporated many of the choices and decisions into its own estimate. The government benefited from the experience and previous work carried out by the World Bank and used some of the same principles and results. **(Box 1)**

Box 1: Measuring Poverty In Cambodia: The World Bank Updated Methodology In 2009

The recall section of the CSES 2009 contains all the necessary information to create the per capita consumption for each household. The components include all food consumed at home or outside the home (purchased, produced, received as gifts, or otherwise), housing (rented or owned), housing services (firewood, electricity, gas, water, and so forth), transport and communication, purchase values of selected durable goods, personal use goods, recreation and entertainment, outlays on education and health, and the like. Total monthly household consumption was estimated by adding all the individual components: this was converted into a measure of individual (per capita) welfare per day using household size.

The consumption aggregate is computed using a total of 60 household questions and 9 questions asked to all household members. Missing information and outliers were identified and imputed based on values of similar households. Only 3.3 percent of households required any imputation at all; for most of the households, the imputed values represented less than 5 percent of their own consumption with only 8 cases reporting too many imputations to be used. For 2009 the average per capita daily consumption was CR 15,709 for Phnom Penh, CR 10,184 for other urban areas and CR 6,013 for rural households (in per capita, daily nominal Cambodian Riels).

Consumption Aggregate In Cambodia 2009

- All food consumed at home or outside (20)
- Monthly value of the home (2)
- Housing services (electricity, water, etc.) (10)
- Transport and communication (2)
- Purchase value of selected durable goods (16)
- Personal goods (3)
- Spending on recreation and entertainment (3)
- Education expenditures (7 x member)
- Health related expenditures (2 x member)
- Others (including goods received in kind) (4)

The poverty line is equal to the cost of a basic food basket plus an allowance for a minimum amount of non-food goods and services (housing, clothes, personal goods, entertainment, and so forth). The basic food basket composition is drawn from the information provided in the dairy section of the household survey and reported by the poorest 5-25 percent of households. The total food quantities are the necessary amount to provide the minimum average caloric requirement of 2,200 Kcal per day per person: the cost was estimated for Phnom Penh, other urban areas, and rural households. The basic non-food part of the poverty line is estimated from a group of households with total consumption that hover around the food poverty line; in the CSES 2009, 498 households have total consumption within 10 percent of the food poverty line value. In these households, food represented 64 percent of total consumption in Phnom Penh and 66 percent of total consumption in the other two regions: non-food consumption represented 36 and 34 percent, respectively. The same shares were applied to the non-food part for a total poverty line of CR 5,326 for Phnom Penh, CR 4,273 for other urban areas, and 3,914 for rural households (in per capita, daily nominal Cambodian Riels).

Households with per capita daily consumption below the poverty line were classified as poor and non-poor otherwise. The national poverty rate in 2009 was 23.9 percent with poverty being the lowest in Phnom Penh (4.3 percent), the highest in rural areas (27.5 percent) with urban households outside Phnom Penh nearly midway between the former two (12.7 percent). Poverty levels with the "old" methodology were substantially lower with a national average of 20.7 percent in 2009. A complete comparison for the entire period is presented in **Annex 2.**

The 2009 Cambodia Socio-Economic Survey was chosen to "update" and to improve the way poverty is measured in Cambodia. The update follows the same principles with the same objective of measuring well-being using household consumption and poverty lines. It includes several changes and improvements: (i) the use of all information available since 2004; (ii) new caloric requirements and population weights; (iii) a new food basket to represent conditions in 2009; (iv) an update of non-food value for the poverty line to represent preferences of the near poor in 2009; and (v) the use of an expanded Consumer Price Index (CPI) that includes information from several provinces.[8] **Annex 1** includes a full explanation of how the consumption aggregate and poverty lines were measured.

In November 2012, the government and the World Bank compared poverty estimates and agreed that the results were very similar. After estimating poverty in 2009, both teams repeated the exercise going back in time for 2004, 2007, and 2008 and forward for 2010 and 2011. Poverty estimates were almost the same for 2009, 2010, and 2011, with differences of one percentage point or less. Headcount rates in 2007 were also very similar (a 2.3 percentage point differential). In 2008, inflation was very high in Cambodia, and the World Bank team used an alternative index that accounted for most of differences. **Annex 2** includes detailed results from the World Bank update and compares the poverty rates with the government's new numbers. Because the World Bank uses the results for other analysis beyond headcount rates requiring specific

characteristics, it was agreed to use both estimates and to recognize each other's work. The World Bank results are used for this study.

Poverty Levels and Trends

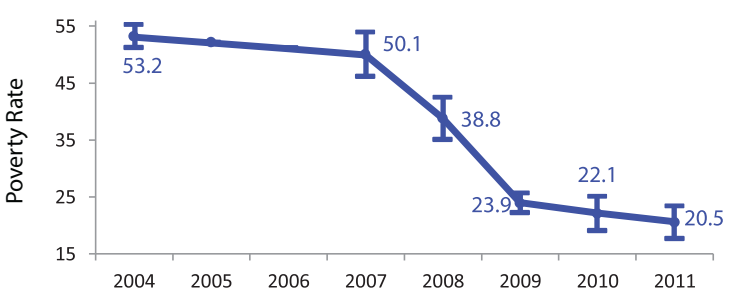
In seven years, Cambodia has reduced poverty by over half—reaching 20.5 percent in 2011. After a modest poverty reduction from 2004 to 2007, poverty was reduced drastically in Cambodia for the next two years. Indeed, the drop from 50.1 percent to 23.9 percent in 2008 and 2009 was one of the most impressive poverty reductions observed anywhere in the world. After 2009, poverty reduction has been more modest—averaging slightly more than 1.5 percentage points per year **(Figure 5)**.

The size of the 2007-2009 poverty reduction was unexpected. It prompted a series of reviews comparing results with independent poverty estimates from a consultant working out of Thailand. This independent study cross-checked other well-being indicators based on the same survey, and conducted internal reviews with World Bank experts. Finally, comparisons were made to other international indicators—the results were also compared to the government estimates: it was found that all of the overall trends were the same. The high inflation levels of 2008 increased the non-sampling error for that year but there is general agreement for the total inflation from 2007-2009.

Poverty has been reduced in the three main areas of the country, but with some distinctions in time. About 80 percent of Cambodians live in rural areas; it is therefore not surprising that rural poverty has evolved at the same pace as the national trend. In Phnom Penh, most poverty reduction took place from 2004-2007, and poverty actually increased until 2010. In other urban areas, the distinction occurred after 2009, and a poverty increase in 2011 **(Figure 6)**.

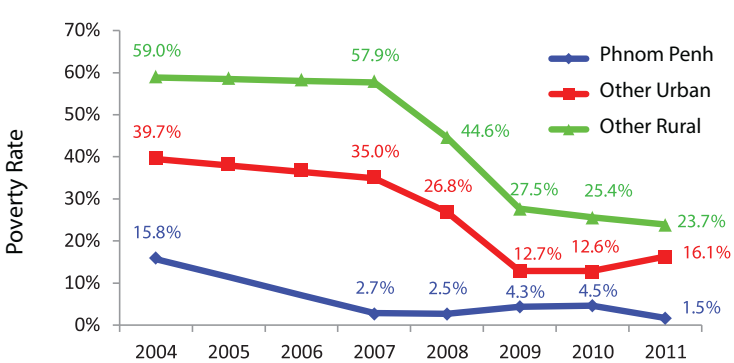
Any successful poverty reduction program has to target rural households and direct actions to promote human capital and income generation activities in these rural areas, including health, education, agriculture and fisheries, and agricultural and fisheries related industries. By 2011 poverty remains the highest in rural areas (23.7 percent) and the lowest in Phnom Penh (1.5 percent) with poverty in other urban areas falling nearly halfway between the two (16.1) **(Figure 6)**.

Figure 5: National Poverty Rate With Confidence Intervals, Cambodia



Source: World Bank staff estimates based on CSES

Figure 6: Poverty Rate By Region, Cambodia 2004-2011



Source: World Bank staff estimates based on CSES

Even after decreases between rural and urban poverty (from 27.6 percentage points in 2004 to 14.9 in 2011[9]), the higher poverty incidence in rural areas, combined with a very low urbanization rate (21.2 percent urban, 78.8 percent rural), concentrates more than nine out of ten poor Cambodians in rural households with no significant change over time **(Table 1)**.

Poverty is not higher in female headed households. There are only small differences and no discernible trend: in some years, female households have higher poverty and in other years they exhibit lower poverty **(Table 1).** Non-Khmer households are a reduced group representing 2.9 percent of the population (National Institute of Statistics 2011), and the information for them is only reliable during the years with the expanded CSES sample. *Poverty rates for non-Khmer headed households (minorities) were about six and half percentage points higher than Khmer-headed households from 2004 to 2009.* But this should be taken more as a tendency because the differences are not statistically significant.[10]

Poverty remains significantly higher for children, yet lower for the elderly in Cambodia. Poverty incidence for children six years and younger is 27.2 percent, over ten percentage points above that of working age people **(Table 1)**. Poverty incidence decreases with age, and it is the lowest for the elderly. The surprisingly low poverty rate of 15.4 percent for Cambodians 60 years and older indicates a strong cultural practice of support for the elderly. High levels of support for the elderly are also easier because there are more than 15 working age adults for each elderly person.

Poverty has not only decreased in Cambodia but the remaining poor are in better condition than in the past, including the extreme poor. The Poverty Gap Index—a measure of how poor the poor actually are—has also significantly decreased from 16.2 percent in 2004 to 4.2 percent in 2011. Even the Depth Index, a measure that highlights the conditions for the poorest of the poor has decreased during the same period of time from 6.6 percent to 1.3 percent. Both measures show the same tendencies for urban and for rural households.[11]

Total per capita consumption increased by 37.8 percent from 2004-2011 (4.7 percent per year) compared to 50.9 percent increase in GDP per capita. Since the poverty line is fixed in real terms (by definition), poverty reduction is determined by increases in consumption and by changes in distribution (inequality). In order to put the poverty reductions in context, the total and yearly consumption growth from 2004 was estimated. Consumption grew at a yearly average of 4.7 percent from 2004 to 2011, for a total increase of 37.8 percent. At the same time, per capita Gross Domestic Product grew a total of 50.9 percent.

Other Well-being Indicators

This report develops a wealth index calculated as the first principal component using durables ownership (44 items) and housing characteristics (34 indicators) from the Cambodia Socio-Economic Survey (CSES) and presents results for 2004 and 2011.[12] (A wealth index is a summary measure of durable goods and housing characteristics that is

Table 1: Poverty Rate, Poverty Gap, Depth Index And Contribution To Poverty, Cambodia

	Year					
	2004	**2007**	**2008**	**2009**	**2010**	**2011**
Poverty Rate						
TOTAL	**53.2%**	**50.1%**	**38.8%**	**23.9%**	**22.1%**	**20.5%**
Male household head	53.6%	51.1%	38.7%	24.2%	22.6%	20.1%
Female household head	51.3%	45.5%	39.0%	22.4%	19.3%	22.5%
Khmer household head (HH)	53.0%	s.s.	s.s.	23.6%	s.s.	s.s.
Non-Khmer HH (Minorities)	59.2%	s.s.	s.s.	30.3%	s.s.	s.s.
0-6 years old	62.5%	57.6%	47.7%	30.4%	30.6%	27.2%
7-20 years old	57.3%	54.7%	43.5%	27.0%	25.4%	23.9%
21-59 years old	48.2%	45.6%	34.2%	20.9%	18.6%	17.3%
60 years and older	42.9%	41.2%	30.1%	17.0%	13.0%	15.4%
Poverty Gap Index						
TOTAL	**16.2%**	**15.6%**	**10.4%**	**5.3%**	**4.7%**	**4.2%**
Phnom Penh	4.0%	0.4%	0.6%	0.9%	0.8%	0.2%
Other Urban	11.6%	10.4%	6.5%	2.5%	2.4%	3.5%
Rural	18.1%	18.2%	12.1%	6.1%	5.4%	4.8%
Depth Index (Squared Poverty Gap Index)						
TOTAL	**6.6%**	**6.5%**	**3.9%**	**1.7%**	**1.5%**	**1.3%**
Contribution To Poverty						
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Phnom Penh	2.5%	0.5%	0.6%	1.7%	2.0%	0.8%
Other Urban	8.1%	7.2%	7.1%	5.1%	5.9%	8.2%
Rural	89.4%	92.3%	92.3%	93.2%	92.1%	91.0%
Consumption Aggregate in per capita/day 2009 Phnom Penh Riels (Poverty Line = 5,326.36)						
Cambodia	**6,399**	**7,176**	**7,580**	**9,325**	**9,105**	**8,815**
Yearly growth from 2004		3.9%	4.3%	7.8%	6.1%	4.7%
Total growth from 2004		12.1%	18.5%	45.7%	42.3%	37.8%

s.s. Small sample. **Source:** World Bank staff estimates based on CSES

increasingly used as a proxy for longer-term household income.[13]) Two indicators derived from the wealth index are used and compared: First, the percentage change of the wealth index is compared to the percent change in per capita consumption. Second, a proxy poverty rate based on the wealth index is compared to the actual poverty rate for 2004 through 2011.

The wealth index results correspond to the changes in consumption and in poverty results over time. The overall increase of 45.6 percent in the wealth index in seven years is only slightly lower than the 56.5 percent increase in average per capita consumption **(Table 2)**. Furthermore, from 2004 and 2011, *the proxy poverty estimate derived from the wealth index improved at almost the same rate (63.3 percent) as the actual poverty decrease (61.4 percent).*

Impressive well-being improvements are also reported by other international independent studies. In 2010 an MDG Progress Index was estimated by Leo and Barmeier, which included 76 countries classified as the poorest countries by the International Development Association at the World Bank (IDA). The Index compares country performance against the core MDG targets of poverty, hunger, gender equality, education, child mortality, health, and water. For each individual component that was on track or above the set target, a score of one was provided. Those that were at least 50 percent on track received a score of 0.5; those below received a score of 0. With a score of 5.5, Cambodia shares the fifth best performance with Nepal—just below Vietnam and Lao PDR (Barmeier 2010).

Cambodia's ranking in the world in terms of human development remains very low, but changes in the last ten years are the best in the region. The Human Development Indicator (HDI) is tracked by the UNDP all over the globe. The HDI combines several indicators to capture health, education, and living standards by normalizing individual country values within the range of observed values. From 2000 through 2010, Cambodia shows the best improvement in the region[14] at 18 percent—above countries like China and Lao PDR (16 percent) or Vietnam (12 percent). But Cambodia's 2011 HDI of 0.523 ranks it among the worst in the region and the 139th worst in the world (UNDP 2000 to 2011). **(Figure 7)**

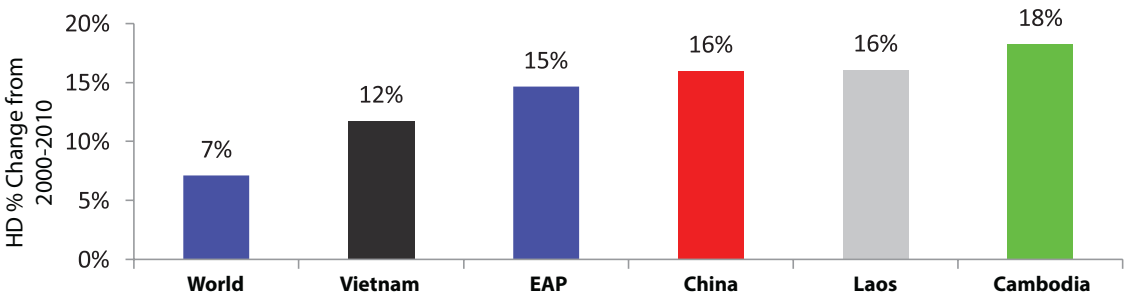
Housing and Durables

Improvement in housing and housing services are observed in every category including construction materials (floor, walls, and roofs), access to water, electricity, and sanitation. For example, Cambodian households showed the following housing improvements in the seven years from 2004 to 2011:

Table 2: Wealth Index And Consumption In Cambodia

Measure	Actual value			Poverty rate		
	2004	2011	change	2004	2011	change
Wealth Index	1.6	2.3	45.6%	41.6%	15.3%	-63.3%
Consumption	2,693	4,214	56.5%	53.2%	20.5%	-61.4%

Figure 7: Change In The Human Development Indicator By Country 2000-2010



Source: World Bank staff estimates based on UNDP yearly reports (website database)

metal roofs increased from one-third to almost one-half; access to electricity from a grid more than tripled, reaching 37.5 percent in 2011; the use of kerosene lamps for lighting decreased from over one-half to less than one-quarter; and access to sewerage with septic tanks more than doubled. Moreover, improved water source availability increased nearly ten percentage points **(Table 3)**. But the use of firewood as cooking fuel showed a small decrease with almost no improvement in rural areas. For selected indicators, the poorest households in 2011 are better off than the average households in 2004. Households in the poorest quintiles in 2011 show better access to electricity, improved water sources, sanitation, and roofing than households in the third quintile seven years earlier (Figure in **Table 3**).

Durable goods ownership has also increased dramatically from 2004 and 2011. The selected durable goods in Table 4 illustrates that ownership in 2011 was twice what it was seven years earlier. Similar to housing indicators, *the poorest households in 2011 are better off than the average households were in 2004*. With the exception of television sets, more households in the lower quintile in 2011 own durables than households in the middle quintile in 2004 (Figure in **Table 4**).[15]

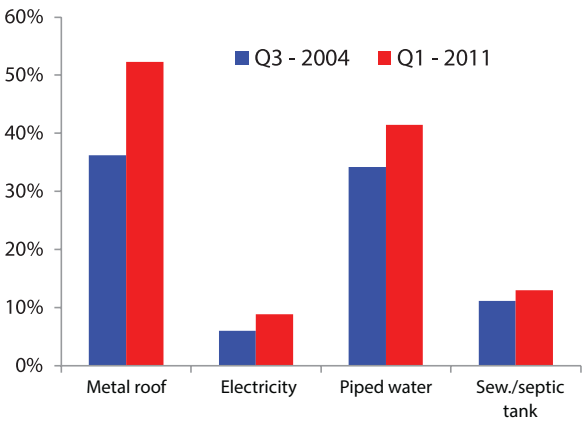
Cambodians are less hungry, feel safer in their neighborhoods, and experience less crime. Another way to measure well-being is to ask people directly questions about their well-being and then compare those answers over time. In 2004 the average household experienced food shortages almost two weeks each year, compared to about half a week in 2011. Additionally, neighborhood safety has improved by more than one-third, reaching nearly 80 percent in 2011, while victims of robberies has decreased from 4 percent in 2004 to 2.6 percent in 2011.

Inequality, Distribution, and Growth

Since 2007, inequality has declined for four consecutive years. From 2004 to 2007, inequality was increasing, becoming a challenging welfare issue for Cambodia. It was expected that inequality would continue increasing, becoming a major impediment for poverty reduction—even with high economic growth. But after 2007, the sources of household growth not only shifted to those favoring the poor but augmented the overall impact of economic growth by increasing the share of consumption of the poorest households. The GINI coefficient, an overall measure of inequality, increased from 0.326 in 2004 to 0.374 in

Table 3: Selected Housing Conditions (% Of Households) By Year And Quintile Cambodia 2004-2011

		year	
		2004	2011
Roof	Metal	34.5%	49.1%
Light source	Connected to grid	12.7%	37.5%
	Battery	24.4%	35.0%
	Kerosene lamp	55.0%	23.4%
Dry seas. water	Piped, well or borehole	37.6%	46.2%
	Pond, river, rainwater	35.7%	35.9%
Sanitation	Sewerage/septic tank	20.8%	42.1%
	None	74.2%	54.0%
Cooking fuel	Liquefied gas LPG	5.9%	12.2%
	Firewood	84.6%	79.8%

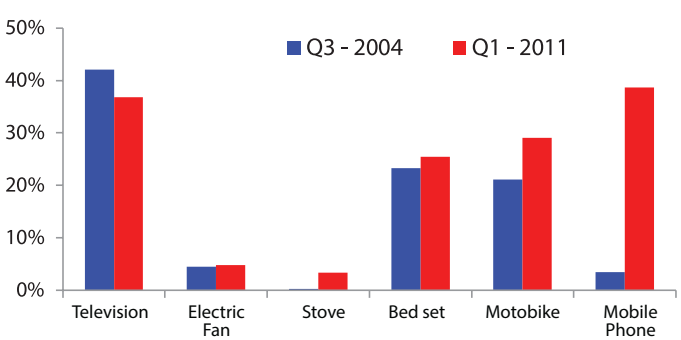


Yellow indicators are positive for household wellbeing. Q3 in 2004 is the middle quintile, Q1 in 2011 is the poorest quintile

Source: World Bank staff estimates based on CSES

Table 4: Selected Durables Own (% Of Households) By Year And Quintile, Cambodia 2004-2011

	2004	2011
Television	46.1%	63.0%
Electric Fan	12.4%	28.6%
Stove	2.9%	24.6%
Bed set	30.4%	44.3%
Dining set	6.8%	13.2%
Water pump	8.3%	14.0%
Motorbike	28.6%	56.5%
Mobile Phone	12.7%	63.0%



Q3 in 2004 is the middle quintile, Q1 in 2011 is the poorest quintile

Source: World Bank staff estimates based on CSES

2007[16]. Since 2007 consumption has become more equitable in Cambodia, and by 2011 the GINI coefficient was 0.282. The same tendency can be observed when comparing the consumption of the poor and the rich: *in 2004 the richest quintile consumed almost five folds as much as the poorest quintile, this then increased to over six fold in 2007. It has subsequently decreased, reaching four folds in 2011* **(Table 5)**.

Inequality within each of the three main regions in Cambodia is decreasing, while inequality between the regions is almost unchanged. The Theil Index, another measure of inequality, can be decomposed between and within regions and help to understand inequality and inequality changes over time. The overall Theil Index shows the same evolution as the GINI coefficient: first increasing in 2007 and then decreasing in the following years **(Table 5)**. While internal differences within regions have decreased over time, reductions in differences between each of the regions in 2011 (0.032) is almost the same as it was in 2004 (0.030) **(Figure 8).**

Average growth depends on individual consumption status. All Cambodians' consumption increased in 2007—with the exception of the poorest quintile (prompting the increase of inequality detected that year). Consumption also increased in 2008 and 2009 for the entire population—with the exception of the richest quintile in 2009 (showing the impact of the financial crisis). In 2010 and 2011, only the two lowest quintiles had increased consumption (fueling a small decrease in poverty), and consumption for the upper two quintiles actually decreased **(Figure 9)**.

Both of the aforementioned factors (distribution and growth) play a role in poverty changes over time. To provide an idea of how each factor influenced poverty, a series of simulations was carried out. The results show a very dynamic composition of growth and distribution as they relate to poverty reduction, with both components helping to reduce poverty some years and hindering improvements in others. In 2004-2007, growth was responsible for all the poverty reduction rates while inequality actually increased poverty. In 2007-2008 both factors helped to reduce poverty. But in 2008-2009, growth was again responsible for poverty reduction while inequality played no significant role whatsoever. Finally, in the last two years (2009-2011) distribution was responsible for all poverty reduction while growth was negative and actually increased poverty. **(Table 6)**

Table 5: Consumption Shares And GINI Values, Cambodia

	2004	2007	2008	2009	2010	2011
Share of poorest 20%	8.4%	7.5%	8.4%	8.5%	9.0%	9.6%
Share richest 20%	42%	46%	41%	41%	40%	38%
Share richest/poorest	4.9	6.1	4.9	4.8	4.4	4.0
GINI * 100	32.6	37.4	32.3	31.9	30.2	28.2
Theil Index * 100	18.6	27.0	18.2	17.9	16.0	13.7

Source: World Bank staff estimates based on CSES

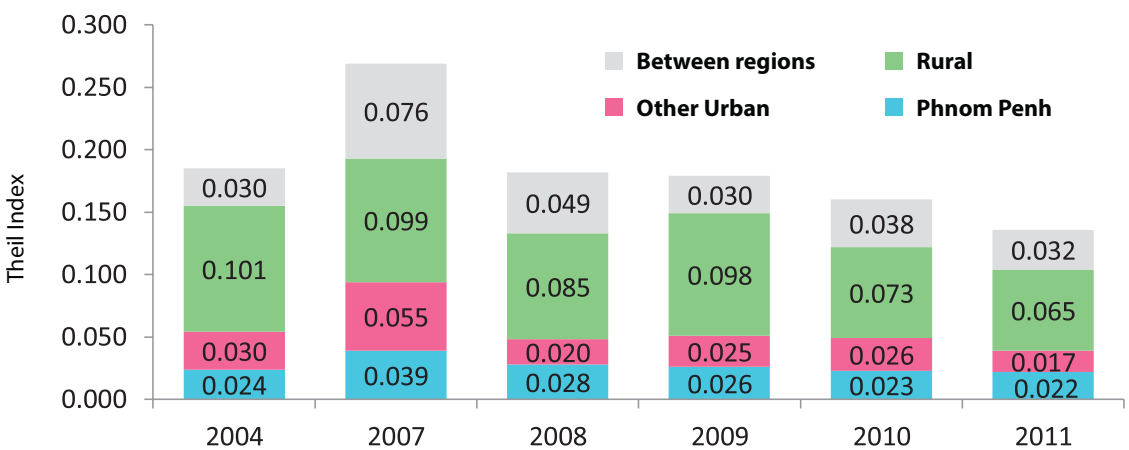
Table 6: Simulated Poverty Impact Of Growth And Distribution (% Points), Cambodia 2004-2011

	Period Year to Year				
	04-07	**07-08**	**08-09**	**09-10**	**10-11**
Observed poverty	-3.2%	-11.3%	-14.8%	-1.9%	-1.5%
Growth (Consumption)	-8.8%	-4.0%	-13.7%	1.9%	2.2%
Distribution (Consumption)	4.8%	-6.3%	-0.2%	-3.2%	-3.9%
Interaction (Growth * Distribution)	-0.9%	0.9%	0.9%	0.5%	-0.2%

Growth = poverty with distribution in year 1 and average consumption in year 2.
Distribution = poverty with average consumption in the year 1 and distribution in year 2

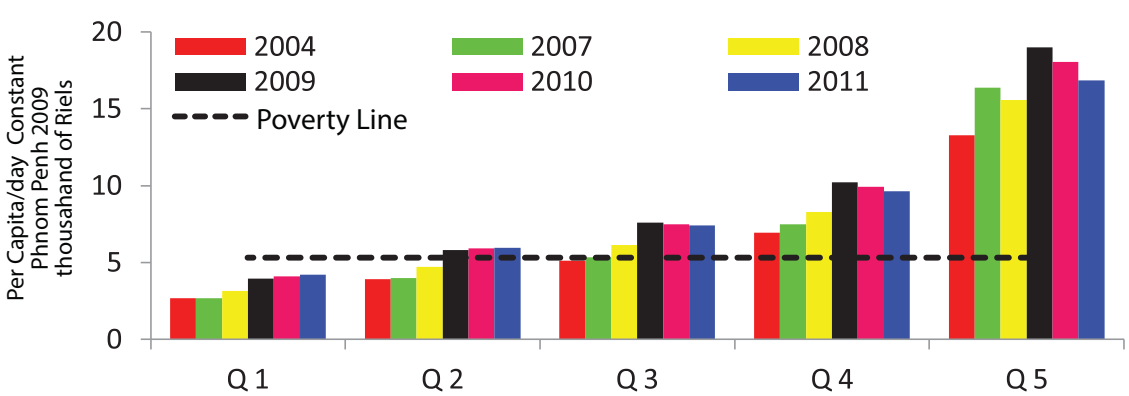
Source: World Bank staff estimates based on CSES

Figure 8: Population, Theil Index Value And , Theil Index Change, Cambodia 2004-2011



Source: World Bank staff estimates based on CSES

Figure 9: Consumption Average By Quintile, Cambodia 2004-2011



Source: World Bank staff estimates based on CSES

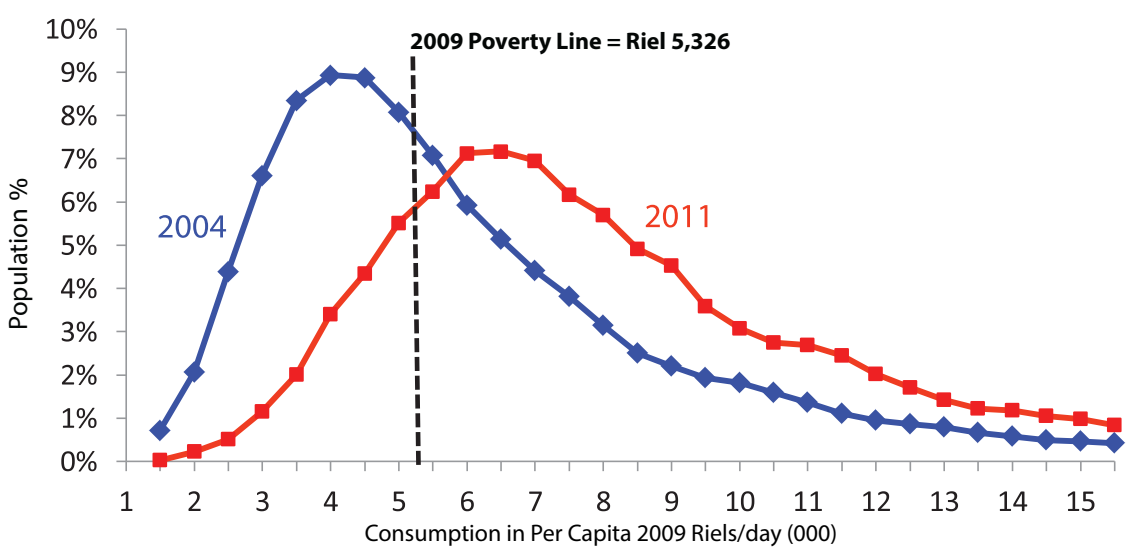
Vulnerability

The impressive poverty reduction from 2004 through 2011 was a much welcome improvement in people's well-being. However, it is important to understand that while the absolute improvements for those escaping poverty were positive, they were not enough to compensate for unexpected or undesirable shocks that would cause many people to fall back into poverty. Poverty classifications divide the population according to their consumption at one specific point, called the poverty line. However, it is vital to understand that how close or how far away a household is from that specific point is not reflected by the poverty rate. To understand poverty and vulnerability in Cambodia, this concept is essential. It is explained further in the following paragraph.

Poverty reduction was augmented substantially by the high concentration of people just below the poverty line in 2004 and people just above the poverty line in 2011. The increased consumption moved the highest number of Cambodians possible out of poverty. Plotting the population shares for consumption levels show the highest concentration of people in 2004 just to the left of the poverty line (poor), whereas in 2011, the highest concentration of people is just to the right of the poverty line (CR 5,326 per capita per day in 2009 Phnom Penh Riels), and therefore not poor **(Figure 10)**. The estimated poverty rate was very sensitive to relatively small changes in consumption.

The impressive poverty reduction was possible because of how consumption was distributed from 2004 through 2009. To illustrate this point, the distance to the poverty line was estimated for the group of households between the 20.5 percent mark (the poverty rate in 2011) and 53.2 percent mark (the poverty rate in 2004).[17] All of these households were poor in 2004, yet none were poor in 2011. This significant group of households' average distance to the poverty line in

Figure 10: Population Share By Consumption Per Capita, Cambodia 2004-2011



Source: World Bank staff estimates based on CSES

2004 was CR 1,072 per day per capita (in 2011 Phnom Penh Riels). In other words, in 2004 these households needed an average of just above one thousand Riels to escape poverty. In 2011 households within the same percentile (20.5-53.2) were no longer poor with an average of CR 1,202 above the poverty line.[18]

Vulnerability of falling back into poverty has substantially increased in Cambodia. Given the high concentration of non-poor households close to the poverty line, small reductions in consumption would bring them back into poverty. For example, a loss of CR 1,192 per capita per day (2011 nominal Riels) would double the poverty rate to 41.0 percent in 2011.[19] In 2011 the implicit poverty elasticity to the poverty line is close to 3.5, compared to 1.1 in 2004.

Cambodia's demographic evolution is expected to continue for an overall positive effect on the economy, but it also threatens to undermine its traditional social protection system. On the one hand, the low fertility rate will further reduce the dependency ratio over the next three decades—contributing to GDP growth, but with lower impetus than in the past 15 years. On the other hand, the lower fertility rate coupled with the longer life expectancy will place an increasing economic burden on families, eroding the traditional protection system for the elderly. This highlights not only the need to focus on worker productivity improvements as an engine of growth, but also the need to promote a formal savings plan for retirement for more workers.

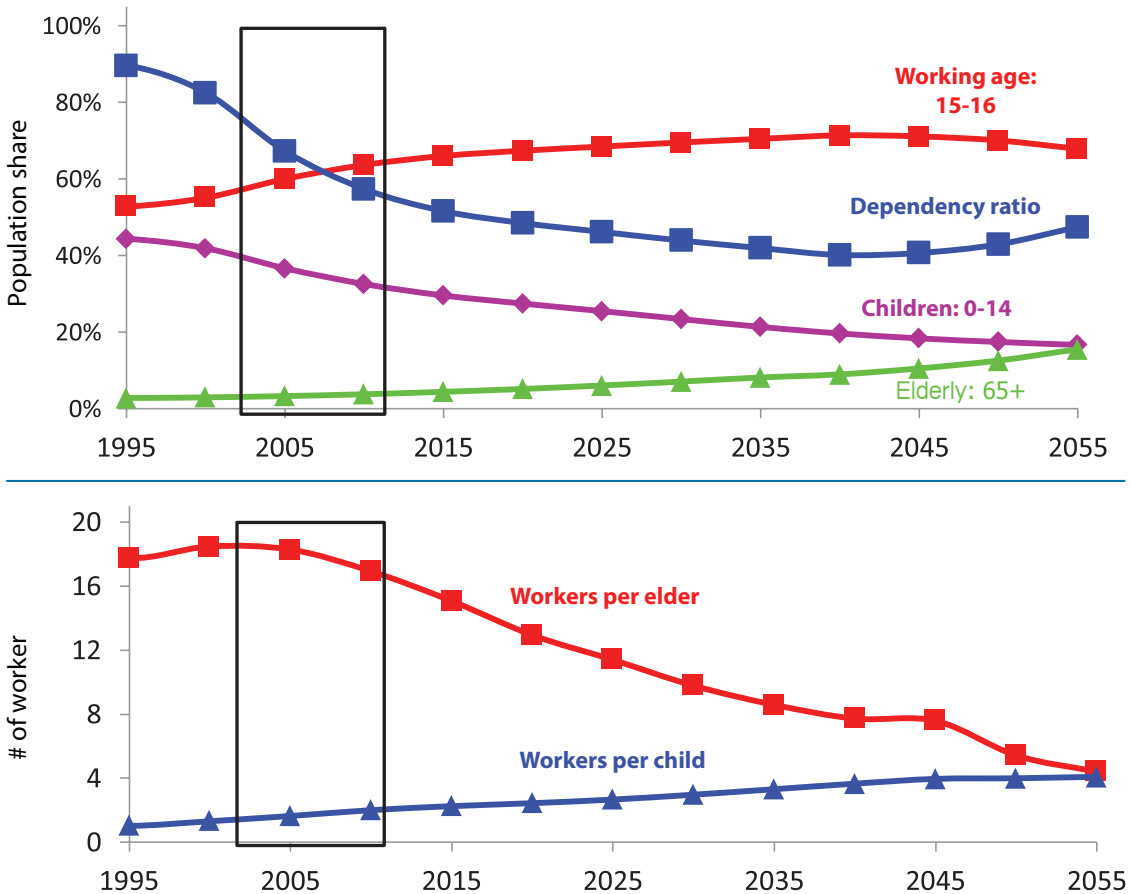
In the long run, taking care of children will become easier and caring for the elderly much harder. The overall dependency ratio is expected to decrease until 2030—the elderly population will then outpace the reduction of children in Cambodia **(Figure 11)**. As a result, the number of potential workers for each child will keep increasing from about two in 2010 to nearly four in 2055, easing burdens on raising children. But the number of potential workers for each elderly person will experience a dramatic decrease at the same time from seventeen in 2010 to four in 2055, thus increasing the burden on caring for older people.

Poor Households and the Correlates of Poverty over Time

The typical poor Cambodian household is rural, has 5.7 family members, uses almost two-thirds of its budget for food, has a house with hard roof material, does not have electricity, owns almost one hectare of land and a bicycle, is headed by a male over 45 years old with a spouse or companion, and the working age adults have an average of 3.3 years of education. Among the poor, one in five live in a household headed by a female and 41 percent receives remittances **(Table 7)**.

From 2004 through 2011, access to housing services and ownership of durable goods by the poor improved although years of education, access to clean water, and household size have remained almost the same. Important increases were reported by the poor in access to sanitation (6.2 to 13.2 percent), and electricity (5.4 to 8.5 percent). Similarly important increases were reported in ownership of mobile telephones (1.4 to 39.1 percent), motorbikes (12.9 to 29.7 percent), and bed sets (17.5 to 26.1 percent). At the same time, poor people reported little change in average years of education for working age adults (3.1 to 3.3 years), access to piped water

Figure 11: Population And Dependency Ratio, Cambodia 1995-2055



Dependency ratio = (Total Children + Elderly)/ Working Age. Values are the 3 period moving average.

Source: Estimates based on United Nations 2011

or a protected well in both the wet and dry seasons (42.7 to 43.5 percent), and household size (5.59 to 5.67 members). **(Table 7)**

The poor and the average households share both similarities and important differences. The poor and the average Cambodian households have very similar household head characteristics (age, gender, and companion), agricultural land size, access to piped water or protected wells in both the wet and dry seasons, remittances (frequency), and bicycle ownership. The differences between the average and poor Cambodian households are as follows: they have one less person than the poor (from 0 to 20 years old), they use 56.1 percent of their budget for food (compared to 63.8 percent for the poor), they have more than triple the access to sanitation (42.6 percent) and electricity (37.7 percent), they have almost two more years of education (for working age adults), they are better connected by mobile telephones (63.0 percent) and motorbikes (56.5 percent), and they had remittance values that were more than double those of poor households **(Table 7)**.

Table 7: Selected Indicators Of The Poor And Average Households, Cambodia 2004, 2011[20]

Indicator	Poor		Average	
	2004	2011	2004	2011
Rural HH	89.8%	92.2%	81.4%	79.3%
Household size	5.59	5.67	4.98	4.53
# 0-6 years old	0.93	1.05	0.70	0.63
# of 7-20 years old	2.19	1.98	1.82	1.36
# of 21-59 years old	2.19	2.31	2.15	2.19
# of 60 years & older	0.28	0.33	0.31	0.35
HH head age	43.7	45.5	44.9	46.6
Female HH head	20.1%	22.0%	21.6%	22.7%
HH head married or living together	80.9%	78.8%	79.4%	77.9%
Food/Total Consumption *	63.3%	63.8%	59.5%	56.1%
House + services/Total Consumption *	21.1%	16.6%	19.5%	18.7%
Transport & Communication/Total Consumption *	1.3%	4.0%	3.0%	6.4%
Roof of hard material: tiles, metal	59.1%	73.1%	71.0%	88.5%
Piped water or protected well in wet & dry season	42.7%	43.5%	46.9%	45.9%
Sewer or septic tank	6.2%	13.2%	20.8%	42.1%
Electricity	5.4%	8.5%	19.7%	37.4%
Average years of education for 20-60 years old	3.1	3.3	3.9	5.1
Agricultural land: hectares	1.04	.96	.98	.97
Rice producing household	75%	69%	65%	59%
Received remittances		40.6%		43.4%
Average remittance value/day/per capita		118		321
Refrigerator	0.0%	0.0%	1.9%	4.7%
Wardrobe/cabinets	5.3%	14.2%	18.2%	44.1%
Mobile	1.4%	39.1%	12.7%	63.0%
Bed sets	17.5%	26.1%	30.4%	44.3%
Motorbike	12.9%	29.7%	28.6%	56.5%
Bicycle	64.1%	67.4%	64.0%	68.0%

* Values are the average of individual household percentages.

Note: numbers are household averages and not population averages

Source: World Bank staff estimates based on CSES

To identify the impact of household characteristics on poverty, a multivariate regression was estimated linking per capita consumption of each household with a series of indicators reflecting geography, household head attributes, household size, education, land ownership, rice production, hours of work, and durables ownership.[21] By considering all variables at the same time, the results help identify the real impact of a single variable after discounting for differences of other variables. The results do not capture the dynamic impact of economic growth and other poverty related changes; they are limited to the variables available for the analysis as well as the range values for each year. Moreover, although several variables can be theoretically linked to poverty changes, the results only ensure the link between variables and consumption (correlation). Also while the selected indicators can impact consumption, it is possible for consumption to impact the indicators (causality can run in both ways), for example, more land can increase household income, but also, households with more income can purchase more land.

Geographic location is one of the most important factors explaining poverty in Cambodia. Even after taking into consideration disparities in assets and household composition, households in rural areas have lower consumption levels, followed by urban households outside Phnom Penh. Households in the plateau and mountain areas have a higher probability of being poor compared with the rest of the country[22] **(Table 8)**.

Female headed households do not have a higher (or lower) probability of being poor. Male and female-headed households have similar levels of consumption in Cambodia. (This was true for all of the three years analyzed: 2004, 2009, and 2011.) *But households headed by a non-Khmer have a higher probability of being poor.* Also, consumption improves if the household heads speaks more than one language; it also improves as both male and female heads of households become older.

Overall consumption is reduced as the size of the household increases, but the negative impact is lower for older household members. Indeed, the negative impact of extra household members is highest for children 6 years and younger, followed by children 7 to 20. Negative consumption impacts are less for working adults and even less for the elderly.

Each year of education for the working age adults is related to higher consumption. For each additional year of education for those household members able to work increases average consumption in the household.

Small land holdings are becoming vital for poverty reduction. In 2004, owning up to two hectares of land was not correlated with household consumption. As net income from agriculture improved, owners of small plots of lands became better off. By 2011, owning even half of a hectare of land improved household consumption. Owning a motorbike, a proxy for assets, is associated with better consumption and a lower probability of being poor.[23]

Farmers have lower consumption levels than other households. Consumption improves with the size of the agricultural land; however, the analysis did not find any difference among households planting rice or other crops (other crops excluded from the table).

Table 8: Correlates Of Poverty In Cambodia, 2004, 2009 And 2011

		2004	2009	2011
Intercept		**8.8 ****	**8.9 ****	**9.2 ****
Geography (Phnom Penh excluded)	Rural Plateau/Mountain	-0.33 **	-0.26 **	-0.34 **
	Rural non Plateau/Mountain	-0.17 **	-0.21 **	-0.30 **
	Other Urban Plateau/Mountain	-0.20 **	-0.16 *	-0.29 **
	Other Urban non Plateau/Mountain	-0.07 *	-0.04 ns	-0.19 **
Household Head (HHH)	Female HHH	-0.02 ns	0.03 ns	0.02 ns
	Non Khmer HHH	-0.05 *	0.05 ns	-0.14 **
	HHH speaks > 1 language	0.16 **	0.16 **	0.10 *
	HHH is with a partner	0.06 **	0.07 **	0.03 ns
	HHH age	0.01 **	0.01 **	0.01 **
	HHH age squared (*100)	-0.01 **	-0.01 **	-0.01 **
Household Size (# of members)	0 to 6 years old	-0.17 **	-0.14 **	-0.17 **
	7 to 20 years old	-0.10 **	-0.10 **	-0.11 **
	21 to 59 years old	-0.06 **	-0.07 **	-0.08 **
	60 and older	-0.04 **	-0.06 **	-0.07 **
	Average years of educ. for 20-60 years old	0.05 **	0.05 **	0.05 **
	Rice producer	-0.14 **	-0.14 **	-0.13 **
Size of agricultural land in hectare	> 50 m2 and up to 1/2 ha.	-0.002 ns	0.01 ns	0.04 ns
	> 0.5 ha and up to 1 ha.	-0.01 ns	0.04 *	0.07 **
	> 1 ha and up to 2 ha.	0.02 ns	0.04 ns	0.09 **
	> 2 ha and up to 4 ha.	0.06 **	0.06 **	0.12 **
	> 4 hectares	0.20 **	0.18 **	0.22 **
	Per capita hours in paid employment	0.003 **	0.002 **	0.001 ns
	Did the HH have a Motorbike last year	0.29 **	0.18 **	0.19 **
	R^2	.46	.40	.507

** significant at $p \leq 0.05$; * significant at $p \leq 0.15$

Source: World Bank staff based on CSES

After discounting by location and land ownership, the rice producer variable is more of a proxy for farmers than anything else, and the results shows that being involved in farming is related with lower consumption levels in Cambodia .[24]

END NOTE

4. The 1993/94 and 1996 surveys were called Socio-Economic Survey of Cambodia (SESC), all others are called Cambodia Socio-Economic Survey (CSES).

5. The larger samples (2004 and 2009) are also representative for five agro-ecological zones: Phnom Penh, Plains, Tonle Sap, Costal and Plateau/Mountains. Another large sample is planned for 2014 (every five years).

6. Recall data is collected by directly asking the households how much have they bought, received, or consumed during the last days. Diary data is a daily written record of actual expenditures and consumption over one month.

7. This concept is applied in other exercises like the Consumer Price Index when the list of products and their relative weight is reviewed and changed to reflect new preferences by Cambodian households over time.

8. The official CPI used in the past was based on information from the capital city Phnom Penh only.

9. Total urban poverty headcount rate (Phnom Penh and Other Urban areas) was 29.9% in 2004 and 8.7% in 2011.

10. Due to large confidence intervals for the non-Khmer estimates: 52.1%-66.3% in 2004 and 19.3-41.3% in 2010.

11. The Poverty Gap Index and the Depth Index measure how far away each individual household's consumption is from the poverty line. Both measures cover only poor households.

12. For a detail explanation of the wealth index, see (World Bank 2013)

13. See, for example, Deon Filmer and Lant H. Pritchett, "Estimating Wealth Effects without Expenditure Data--or Tears: An Application to Educational Enrollments in States of India." Demography 38(1): 115-132 (February 2001).

14. Excluding some small islands in the pacific

15. Other durables were owned by too few households (namely, washing machines), or were too small (namely, cameras), or were highly related to electric fans (namely, radios or video and CD/DVD players), or were used for farming (plows, tools, and the like).

16. GINI coefficient can range from a value of 0 (total equality, everybody with the same consumption) to 1 (total inequality with one person reporting all the consumption in the country). As the GINI coefficient increases, so does inequality.

17. There is no panel data to estimate the actual value of the households that moved out of poverty.

18. 2011 Phnom Penh per capita Riels were

used in this instance to have a better reference to Cambodia purchasing power today. Most of the document uses nominal or 2009 Phnom Penh Riels.

19. 2011 Phnom Penh per capita Riels were used for a better reference to current Cambodia purchasing power.

20. All statistics presented in this table are expanded to the entire population (not the households).

21. The dependent variable was the natural logarithm of per capita consumption.

22. Plateau/Mountain includes one province in the center-south of Cambodia (Kampong Speu) and seven provinces in the North and North East part of the country: Oddar Meanchey, Preah Vihear, Stung Streng, Ratana Kiri, Mondul Kiri, and Kratie

23. The actual variable use was ownership of a motorbike for more than one year.

24. The regression was also run with a dummy for any crop (instead of only rice) and the results were the same.

Chapter 2 Sources of Household Growth

After reviewing the impressive household consumption increase, the inequality reduction, and the poverty reduction, it is only natural to pose the question: *Where did it all come from?* This chapter attempts to answer this question not only by identifying the sources of income growth, but by examining its contributing factors. It first examines the evolution of the salaried urban labor market (including labor force composition, female labor, returns to education, and the like) and identifies main areas for further action. Second, the chapters explores Cambodia's rural sector, starting with the changes in consumption over time and income sources (including agricultural crops, wage labor, self-employment, and so forth). It then identifies priority areas for government interventions.

The chapter concludes with a simulation built from the results of previous sections and from the impact of rice price estimates, which is based on micro-data from both household surveys and government statistics. The simulation identifies the main drivers of poverty reduction and their impact on poverty.

Urban labor

Labor Market and Poverty Reduction Trends

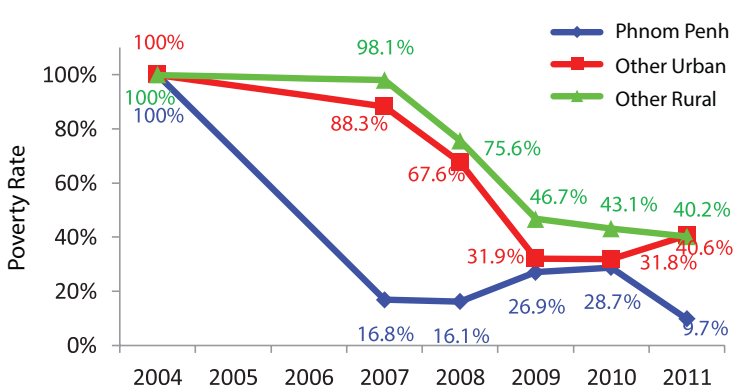
Although the changes in poverty rates involve both rural and urban areas, there have been marked differences in the timing of these changes. Poverty rates in Cambodia fell from 53.3 percent in 2004 to 20.5 percent in 2011. While poverty reduction in rural areas concentrated during 2007-2009 (86 percent), most of the poverty reduction in Phnom Penh poverty took place earlier, from 2004-2007 (92 percent). Changes in other urban areas show similarities to both Phnom Penh and rural areas, but variations over time are closer to that of rural areas (**Figure 12** and **Table 9**).

Salaried employment represents almost one-third of the labor force and over half of the labor force in urban Cambodia. Generally, available employment opportunities are vital determinants of poverty reduction because labor and land represent the main assets of the poor. Cambodia is not an exception to this rule. The labor market in Cambodia underwent a striking transformation in 2004-2011: salaried employment—which generally provides more stable earnings compared to other occupational categories—increased one-third from 22.6 percent in 2004 to 30.3 percent in 2011. In urban areas, salaried employment reached 50.5 percent in 2011 **(Figure 13)**.

The difference in timing suggests that the determinants of poverty reduction in rural and urban areas differ. Indeed, the rapid expansion of salaried employment has occurred mainly in urban areas whereas own account workers increased in rural areas. From 2004 to 2008, the share of salaried employment increased 9.8 percentage points in urban areas, but remained almost unchanged in rural areas (0.9 percentage point increase). From 2008 to 2011, the increase in salaried employment in urban areas was more modest (4.1 percentage points). Own account workers remained almost unchanged in urban areas from 2004 to 2011 (0.3 percentage points increase), but increased 7.4 percentage points in rural areas (see the Role of the Rural Sector for the impact on rural income). In both urban and rural areas, unpaid family workers have significantly decreased **(Figure 13)**.

One of the main factors driving poverty reduction is the increased share of paid employment; this is illustrated by the differences in consumption expenditure across employment categories of the household head. The average per capita consumption for households of which the head of the household is employed in a salaried job was computed; the average consumption for households of which the head is a self-employed worker was also computed. The ratio of the per capita consumption between these two types of households is used to obtain a measure of the "consumption premium" for salaried employment. This consumption premium was calculated for

Figure 12: Poverty By Region (2004=100%), Cambodia 2004-2011



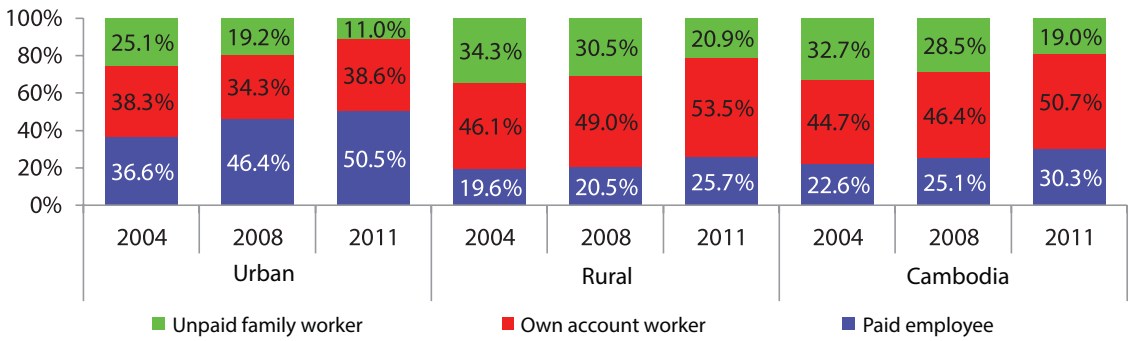
Source: World Bank Staff estimates based on CSES

Table 9: Poverty Rate Changes

Normalized poverty reduction 2004-2011 change = 100%

Period	Phnom Penh	Other Urban	Rural
Actual % points reduction	14.3%	23.6%	35.3%
2004-2011	**100%**	**100%**	**100%**
2004-2007	92%	20%	3%
2007-2009	-11%	95%	86%
2009-2011	19%	-15%	11%

Figure 13: Employment Share By Occupational Categories In Urban And Rural Areas



Note: Spouses classified as unpaid family workers were reclassified to own account workers. Employers representing less than 0.2% of the labor force were classified as paid employees. Others, representing less than 0.5% of the labor force were classified as unpaid family workers.

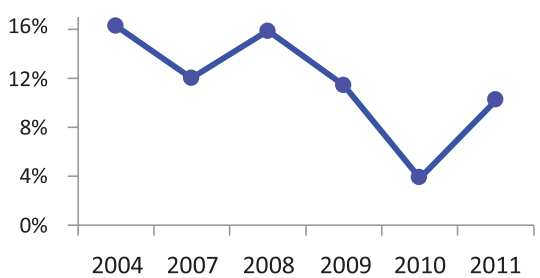
Source: World Bank estimates based on CSES

2004 through 2011 for all years for which there was available data **(Figure 14)**. The findings state that salaried employment is systematically associated with higher welfare than self-employment. For example, in 2004, an average household involved in wage employment experienced 16 percent higher consumption per capita than an average household of self-employment. The consumption premium exceeds 10 percent throughout the entire period (with the exception of 2010, dropping to 4 percent). In 2011, the trend reversed, and the consumption premium reached 10 percent for households involved in wage employment.

Before moving to the next section, which looks at the labor market from a supply side, it should be noted that the labor market faces important challenges in future job creation. The workforce of Cambodia is remarkably young—as of 2010, more than two-thirds of all Cambodians were born after 1993.

Employment Composition: the Role of Gender and Education and Better Jobs

Figure 14: Consumption Premium For Salaried Emplyment, Cambodia, 2004-2011



Source: World Bank estimates based on CSES

Employment participation is lower for women, young adults, mature workers, and people with more education. The employment- to-population ratio is computed by gender, age, and education categories **(Table 10)**. The employment-to-population ratio is a common indicator for developing countries and has several advantages over unemployment rates, which tend to be both very low and unrepresentative of actual employment conditions. Employment participation is higher for males and individuals 25-44 years old; moreover, it is higher at the extremes on either end of the educational attainment

continuum. Lack of employment is not the main concern in labor markets—policy efforts should also focus on the working poor, rather than focusing on only unemployed individuals. **(Table 10)**

Although men are more likely to participate in the labor market, female labor force participation is high compared to other countries at similar levels of development (Figure 15). There is a well-known U-shaped relationship between a country's level of development and its female labor participation rate. A country's initial economic development is generally associated with a transition of the economy from agriculture to manufacturing—this reallocation results in men earning higher wages than women. Moreover, this economic shift is usually not accompanied by the concurrent development of universal childcare services or changes in social norms that would contribute to the full participation of women in the labor market. Consequently, the increase in household income goes hand-in-hand with a reduction in female labor force participation: women stay at home (unpaid) and are in charge of household chores and child rearing. Later economic development usually expands the service sector, which attracts women and contributes to rising female wages. In this process, labor market incentives are accompanied by higher investments in human capital of women, with a consequent increase in female labor force participation. Cambodian female labor force participation is now above average relative to other countries with similar per capita Gross Domestic Product (GDP). **(Figure 15)**

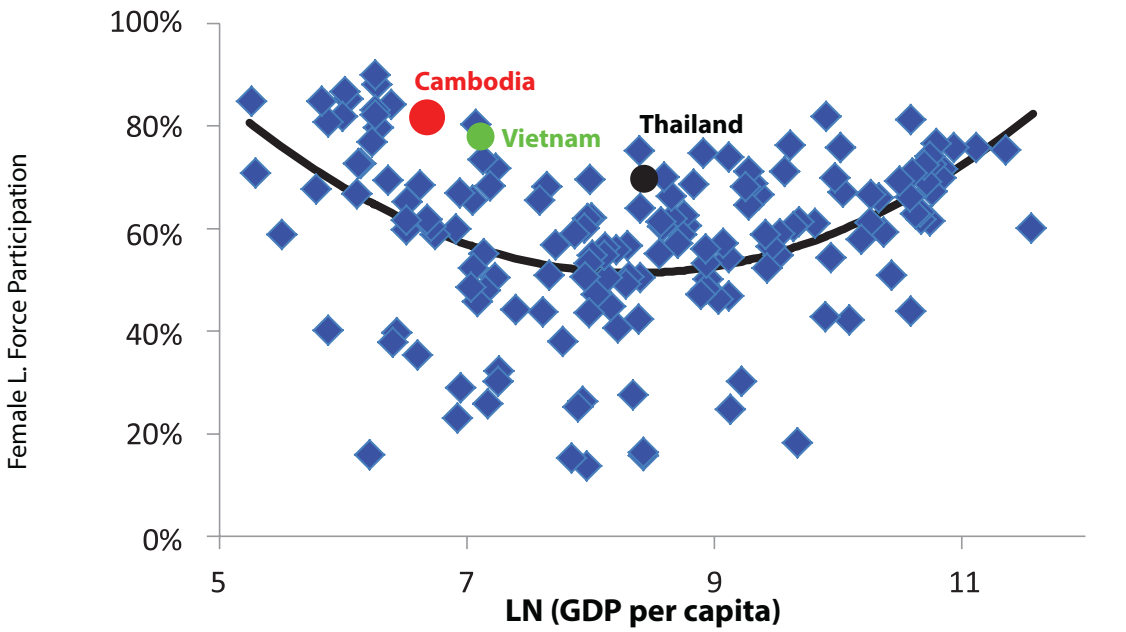
In urban areas, the increase in paid employment has benefited women and men equally. For example, unpaid employment decreased from about 25 percent in 2004 to almost 11 percent in 2011 for females and males; self- employment did not change much for females (-0.7 percentage points) nor for males (1.1 percentage points). The overall reduction in unpaid labor was accompanied by an increase in the share of salaried jobs for women and men in urban areas. The share of female salaried employment increased from 28.9 percent in 2004, to 38.3 percent in 2008, and to 43.5 percent in 2011. This remarkable increase in female salaried employment had important effects on household standards of living. Same as women, a greater percentage of men found salaried employment: an increase from 44.1 percent in 2004, to 53.2 percent in 2008, and 57.4 percent in 2011 **(Figure 16)**.

Table 10: Employment To Population Ratio

Education	2004	2007	2008	2009	2010	2011	Age	2004	2007	2008	2009	2010	2011
None	73%	95%	92%	83%	89%	89%	15–24	76%	78%	76%	76%	78%	78%
Primary	82%	86%	85%	86%	87%	87%	25–34	87%	90%	90%	90%	91%	94%
Lower Sec.	76%	77%	75%	75%	82%	82%	35–44	88%	92%	91%	92%	94%	94%
Higher Sec.	70%	87%	82%	79%	68%	68%	45–54	85%	89%	89%	90%	92%	90%
Male	85%	90%	89%	87%	88%	89%	55–64	72%	80%	78%	78%	81%	83%
Female	74%	77%	75%	77%	80%	81%	65+	43%	45%	42%	43%	46%	50%

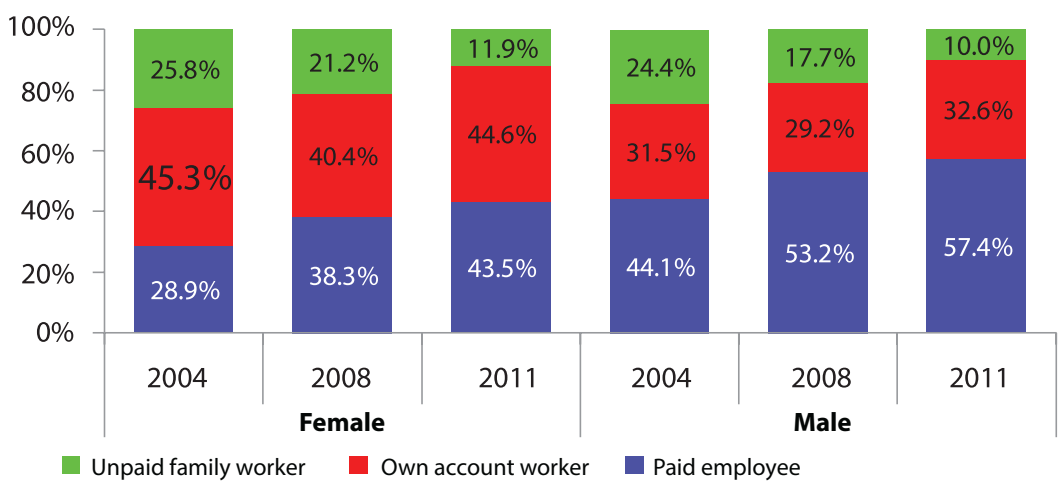
Source: World Bank estimates based on CSES

Figure 15: Female Labor Force Participation And GDP, Latest Year



Source: The World Bank, World Development Report

Figure 16: Urban Male And Female Employment Share



Note: Spouses were reclassified from unpaid family worker to own account worker. Employers were classified as Paid employee. Others was classified as unpaid family worker.

Source: World Bank estimates based on CSES

Self-Employment is more common among low-skilled workers (primary or no education), especially in the urban areas. Although low-skilled workers represent two-thirds of the self-employed in urban areas, their share drops to only 41.5 percent among all paid employees. In rural Cambodia, low-skilled workers have also higher concentration of the self-employed (84.4 percent) than as paid employees (75.9 percent) **(Table 11)**. The workforce of Cambodia is remarkably young, and the labor market might not be able to absorb all new entrants into the salaried employment labor force.

Compared to 2004, educational levels improved for all urban workers, but there was a limited change for any rural workers. From 2004 to 2011, the share of self-employed people in rural areas with lower-secondary education increased from 20.0 to 24.3 percent, and the share of those with secondary education doubled, increasing from 3.0 to 7.7 percent. Likewise, the share of urban salaried workers with complete secondary education increased to 16.4 percent (over double that the self-employed) and university graduates represent almost one-fifth of the urban paid employees (compared to only 1.7 for the self-employed) **(Table 11)**.

Table 11: Employment Share By Education, Residence, And Salary, Cambodia 2004-2011

		Salaried		Self-Employed	
		2004	2011	2004	2011
Urban	No grade	0.1%	0.0%	0.5%	0.0%
	Primary	47.9%	41.5%	76.0%	66.3%
	Lower Secondary	28.2%	24.2%	20.0%	24.3%
	Secondary	13.9%	16.4%	3.0%	7.7%
	University	9.9%	17.9%	0.5%	1.7%
	Total	100%	100%	100%	100%
Rural	No grade	0.3%	0.0%	0.5%	0.4%
	Primary	75.6%	75.9%	87.8%	84.4%
	Lower Secondary	18.4%	16.9%	11.0%	12.1%
	Secondary	4.7%	5.9%	0.7%	3.0%
	University	1.1%	1.3%	0.1%	0.1%
	Total	100%	100%	100%	100%

Source: World Bank estimates based on CSES

The population pyramids from Cambodia represents a challenge for the creation of salaried employment and suggest that self-employment and household enterprises are bound to continue as the main source of employment in the medium term. For instance, Fox and Pave (2012) find that for Sub-Saharan Africa (SSA), household enterprises generate the majority of new non-farm jobs. The authors find that these enterprises are fundamental for inclusive growth because high economic growth rates will not be able to absorb the new entrants that are leaving the farm sector, who also do not possess education levels for a salaried job. The authors also show that a household (controlling for education) can perform just as well by adding a household enterprise as primary employment as by adding a wage income. The authors conclude that *"With 40-50 percent of households engaged in non-farm enterprises on average, and the share increasing in many countries, any investments which result in more household having a viable HE (household enterprise) or higher incomes for even half of the HEs would have a substantial impact on Gross Domestic Product (GDP) and poverty."*

To estimate the returns to education for salaried workers 15 to 65 years old, two multivariate regressions were constructed. Both regressions used a logarithm of monthly wages in constant Riels as the dependent variable. The independent variables—factors that explain increases or decreases in

wages—were educational completion: for the first regression, completed years of education were used. For the second regression, completion of primary, lower secondary, secondary or tertiary education were used (each person was assigned a value of one for the highest completed level of education and a 0 for all other education levels). Also, to make sure that the results are not combining the importance of education with other household characteristics, an extra set of variables were used.

Workers with more education earn higher wages—with the biggest premium for university graduates. By 2011, each year of education increases wages by 5.6 percent. Even compared to workers with completed primary education, finishing lower-secondary school increases wages by 16.1 percent, and completing upper-secondary school adds another 8.4 percent to wages. Finishing university is associated with wages 84.5 percent higher than those with only primary education **(Table 12)**.

Returns to education have been declining in Cambodia since 2008. Results from the first regression show a clear decline to returns to education after 2008. Returns to each year of education declined a total of 1.8 percentage points from 7.4 percent in 2008 to 5.6 percent in 2011. Compared to completed primary school, the returns to secondary education (lower and upper) were reduced from one-third to almost one-half from 2009-2011. Reductions in returns to tertiary education have been more modest.

Investing in education pays off in the Cambodia labor market, but there is a mismatch in skills. The observed decline in the returns to education, together with the findings from a recent World Bank study (World Bank, 2012), suggests that the Cambodia labor market might be experiencing a mismatch between the demand and supply of skills. Despite large returns to education, the majority of the employed population has a only primary education.

Table 12: Returns To Education By Year And Level Completed, Cambodia 2004-2011

	2004	2007	2008	2009	2010	2011
Regression 1: returns to each year of education completed						
Years of education	0.069	0.070	0.074	0.062	0.053	0.056
Regression 2: returns to completed education level: primary excluded (Raw coefficients)						
No grade	0.451	-0.591	-0.689	-0.316	*	*
Lower secondary	0.282	0.192	0.220	0.239	0.132	0.161
Higher secondary	0.598	0.438	0.402	0.447	0.226	0.245
Tertiary	0.992	0.958	1.147	0.877	0.867	0.846

In 2010 and 2011 there were no individuals in the "No grade" educational category.

The percentage of firms reporting skills as a major constraint to growth in the 2007 is about 15.5 percent. Similarly, 22 percent of Cambodia's foreign firms identified skills as a "severe" or a "very severe" constraint to their businesses (World Bank, 2012). An example of the skills mismatch has also been found in one of the main exporting sectors: the garment sector. Apparel technicians and supervisors from China are dispatched to apparel factories in Cambodia through Chinese human resource agencies (Natusuda , Toto, and Thoburn, 2009). Even among graduates, there appears to be a disconnection between fields of study and market needs, with an oversupply of college graduates that have difficulty acquiring a job in their field of study because too many students are enrolled in business-related disciplines and law, while too few are enrolled in engineering (World Bank, 2012).

Cambodia has a shortage of senior management with the appropriate skills and soft skills, which needs to be improved among all employees. According to the World Bank 2012 skills report, "…the HRINC 2011 survey, over 70 percent of employers reported a major shortage in management skills, 36 percent in middle management and supervisory skills, and 34 percent in professional staff skills. Among the most deficient soft skills, 52 percent of employers identified work attitudes in unskilled workers; 45 percent cited decision-making skills in semi-skilled workers; and 64 percent mentioned analytical skills in skilled workers. Furthermore, employers complained about difficulties in finding employees with not only specific vocational skills but also basic skills such as literacy and numeracy."

Other findings from the same report include both a relative shortage of vocational training graduates compared to university graduates, as well as difficulties in accessing good training providers for formal training to address skills gaps.

There is a substantial gender wage gap among salaried workers. In 2009, the average salary of men was 30 percent higher than the average salary of women. The Oaxaca decomposition was applied to understand this raw wage differential: it attributed the gender wage differential to the following two rationales: (i) differences in endowments (for example, gender disparities in education); and (ii) an unexplained component, which includes distinctions in the returns to the endowments (for example, variances in the monetary returns to education). The findings suggest that the gender distinctions in returns to endowments explain the largest part of the unconditional gap **(Table 13)**. In particular, women, compared to men, face a penalty not only from marriage but from living in urban areas. Examining the dissimilarities in endowments (which are more prone to be affected by policies), it was found that disparities in the average years of education are particularly important—and increases inequality.

The Textile Sector

Compared to other sectors, the textile sector has a much larger share of female workers. Because more than 80 percent of textile workers are female, this sector could represent a laboratory for expanding economic opportunity to women **(Table 14)**. Policies aimed at expanding benefits and working conditions in industries with a large prevalence of female labor participation are more likely to transmit improvements into several welfare dimensions: children, education, and health.

Table 13: Oaxaca Decomposition Of Gender Wage Differential, Cambodia 2009

	Endowments (Inequality Of Opportunities)	Returns to Endowment (Penalty)
Against Women	University /0.025*** Lower secondary /0.013*** Higher secondary /0.007***	Married /0.064*** Urban /0.052***
Neutral	Urban /0.001 Age /0.000	Lower secondary /0.001 Higher secondary /0.001 University /-0.001 Constant: 0.088
Favor Women	Sector (all) /-0.091	Sector (all) /-0.067 Age /-0.019
Total effect	**Slightly in favor / -0.040**	**Slightly against / 0.120**

Source: World Bank Staff Estimates based on CSES

Table 14: Female Labor Participation Across Sectors, Cambodia 2004-2011

	Agriculture	Forestry	Food Services	Textiles Apparel	Wood	Other Manuf.	Construction	Sales	Transport	Public Admin	Social Services	Other services
2004	50.0%	48.6%	45.8%	81.3%	61.8%	28.9%	12.4%	68.1%	7.1%	13.3%	36.9%	44.0%
2011	50.8%	66.6%	45.1%	84.2%	25.8%	33.4%	8.8%	68.8%	4.4%	11.8%	44.6%	50.1%

Source: World Bank Staff Estimates based on CSES

Other sectors with high female participation by 2011 are sales (68.8 percent) and forestry (66.6 percent), and female labor participation in agriculture and other services is close to 50 percent.

Women in the garment industry are comparatively better off than women employed in other industries. Within the entire economy, the gender wage gap has remained constant over the period with a slight widening after 2009. Controlling for education and other demographic characteristics, women earned an average of 20 percent less than men in 2009, and this gap widened to almost 30 percent in 2011. This gender wage gap is consistent with previous studies on Cambodia's labor market (Savchenko, et al. 2011).

The apparel sectors benefits women. The interaction term of the wage regressions shows a positive premium for women employed in the apparel sector **(Figure 17).** After 2009, a positive trend begins in the magnitude of this gender-industry premium—this might reflect the favorable conditions implemented through the Better Work Program on female employment in the garment industry overall. Similarly, the minimum wage laws

implemented in the garment industry might also be partly responsible for creating the aforementioned favorable conditions. **(Figure 17)**

The garment industry experienced major changes after the end of the Multi-fiber Agreement in 2004. The major achievement in proactive policies in Cambodia's garment factories in the post-Multi-fiber Agreement (MFA) period was the Better Work program, which grew out of a trade agreement between Cambodia and the United States. Under this agreement, the United States allowed Cambodia better access to United States markets in exchange for improved working conditions in the garment sector. This program has put in place an institutional structure that creates opportunities for collaboration amid the government, industry associations, firms, and trade unions. The Better Factories Cambodia program is managed by the International Labor Organization (ILO) and supported by the government, by the Garment Manufactures Association of Cambodia GMAC, and by the unions.

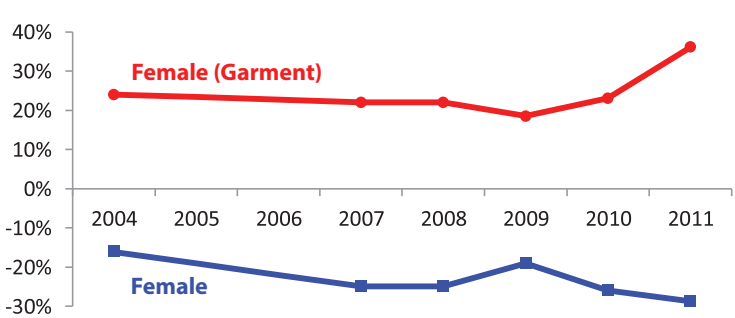
The program works closely with other stakeholders, including international buyers. It not only monitors and reports on working conditions in Cambodia's garment factories according to national and international standards but also helps factories to improve working conditions and productivity. Several studies evaluated the impact of the Better Work Program on factories—with a special emphasis on how working conditions change over time. The studies consider factors affecting the decisions of firms to improve working conditions or to regress and retrogress (to pre-program working conditions). The studies also explore the link between working conditions and plant closures and whether or not a business reason exists for improving working conditions. The main conclusion from the empirical studies demonstrates that improving working conditions and labor compliance did not undermine the competitiveness of Cambodian factories; on the contrary, the improvements helped Cambodian factories to maintain a position in the global economy. The following summarizes the main findings:

- Improvements in working conditions do not increase the probability of plant closure; moreover, in several cases, improvements may actually increase chances that a plant will not close.

- Reputation sensitivity is vital. Thus ending the public disclosure requirements of the Better Work Program lowered compliance with labor standards.

- Once firms switch to better working conditions, they rarely go back and reverse the gains entirely. The pattern is similar to the forward direction of technological adoption. This finding supports the idea that these improvements do not undermine the management and productivity of factories.

Figure 17: Coefficients On Wage Regressions



All coefficients are statistically significant at 1%.
Source: CSES 2004 - 2011

An argument against attempts to improve working conditions in factories states the following: improvements raise costs and is therefore non-competitive. The actual results of studies, however, find little support for this argument. On the contrary, these studies' results suggest that improving working conditions may improve factory competitiveness (including profitability). Currently, research is being conducted to formally evaluate this hypothesis by comparing improvements in working conditions with productivity.

There is an unfriendly business environment for small firms in Cambodia. While salaried employment dominates the urban labor force, a full third of it is engaged in self-employment, mostly in small businesses. Small and micro enterprises represent 99.6 percent Cambodian firms (2011 Cambodia Economic Census). Still, Cambodia ranks 133 out of 185 countries in the Ease of Doing Business Index (World Bank Series). Most of the worst indicators for Cambodia are related to the rule of law (enforcement and application): they include resolving insolvency, dealing with construction permits, enforcing contracts, and trading across borders. Amid the infrastructure bottlenecks, the cost of electricity and transport are highlighted as two of the four main obstacles by firms (ICA 2012 survey).

Policy Recommendations

Salaried jobs are better suited to take full advantage of many Cambodians labor by increasing their productivity and by providing a more stable source of income. To get the most of salaried jobs, the following four recommendations are needed to increase the number of salaried jobs, to increase productivity, and to promote best practices from some sectors into other sectors.

Future growth will not come from only agriculture. While Cambodia remains predominately rural, sustained medium and long term income growth has to be supported by non-agricultural activities. For those that do not have the option to start their own businesses, salaried labor is the best option. Therefore, the government should be ready to step-up efforts to promote not only industry but other non-agricultural sectors that provide salaried jobs. This study is not designed to provide recommendations related to economic development and industrial policy, but it recognizes their importance in improving well-being and reducing vulnerability.

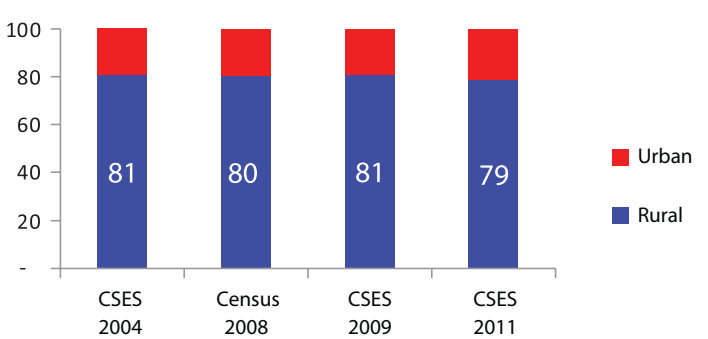
The skill mismatch between supply and demand must be reduced to increase labor productivity within existing salaried jobs. Overall improvement of the formal education sector is one way to help, but more specific actions should include the following: (i) mainstream good technical and vocational education and training programs; (ii) upgrade a small number of skills providers, including non-formal training centers, in collaboration with local industries; (iii) consider methods that encourage employers to invest in training their workforce; and (iv) explore a variety of financing tools to promote incentives for skills providers that deliver good results, including higher education institutions. (World Bank 2012 Matching Aspirations)

Best practices already used in Cambodia should be promoted to improve employee working environments and stability. Policies and practices already under implementation in the apparel sector are the best example for a set of conditions that benefit the working environment. Consequently, the government can take actions on two fronts: (i) create opportunities for knowledge sharing

among companies that have already adopted good practices for improving working conditions. These companies can then showcase these strategies, and (ii) expand labor regulations into other sectors of the economy such as food, entertainment, and tourism related businesses (the minimum wage and other benefits associated with the Better Factories Cambodia Strategy can be used as model for these other sectors).

The government should also consider interventions to help household enterprises and micro-firms to expand their businesses. Both of these self-employment activities should be viewed as a major source of employment, but they also need to be restructured to give workers an eventual, viable entry point into the labor market. Recent research on self-employment recognizes that "developing and promoting self-employment is therefore not a coping strategy, but a growth strategy" (Fox and Pave-Sohnesen, 2011). Improvement in laws commonly regulating small and micro enterprises is among the most needed actions. Distribution, reduced electricity costs, and improved transport infrastructure also need to be prioritized to improve Cambodia's business environment.

Figure 18: Share Of Rural And Urban Population



Sources: NIS(2009) and WB Staff Estimates using CSES

The Role of the Rural Sector

Rural Population

Cambodia remains predominately a rural country. Rural Cambodia makes up 90 percent of the country's 1,621 communes. Moreover, the bulk of the population lives within this 90 percent, and this has changed very little over time. According to the Cambodia Socio-Economic Survey, the rural population has decreased only two percentage points from 81 percent in 2004 to 79 percent in 2011. Looking farther back and using results from the population census, the rural population decreased by only 1.2 percentage points in ten years (from 81.7 percent in 1998 to 80.5 percent in 2008). By 2011, 21 percent of all Cambodians (or about 3 million people) live in urban areas. Phnom Penh accounts for about half of this amount, while the other half lives spread across 25 cities and district towns throughout the country.

There are two main reasons why urbanization remains low in Cambodia. First, although 3.5 million Cambodians were migrants in 2008, most were moving from rural areas to other rural areas. Moreover, much of this took place during the eighties and first part of the nineties. After discounting for different population growth rates, the urban share increased from 18.3 percent in 1998 to only 19.5 percent in 2008. **(Figure 18)**

Second, it is still easy for urban migrants—either short term or long-term migrants—to return to their rural homes if a shock occurs, suggesting that rural areas provide a safety net during crises. This was clearly evident in 2009 when the global financial crisis affected the garment and footwear, construction,

and service industries. Many of these laid-off workers returned to their families in rural areas, waiting for an opportunity to return to the cities. This caused a temporary increase of 1 percent in the rural population in 2009.

Evolution of Rural Poverty 2004 to 2011

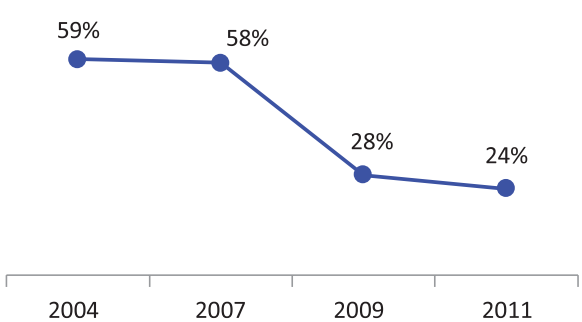
Rural poverty remained high in 2007, but fell sharply in 2009 before leveling off again in 2011. Poverty estimates using the Cambodia Socio-Economic Survey showed that the proportion of people living below the rural poverty line fell from 59 percent in 2004 to 58 percent in 2007. The proportion dropped sharply to 28 percent in 2009 before leveling off to 24 percent in 2011.

Poverty reduction in rural areas exhibited three clear trends from 2004 to 2011. At first, it declined slowly at 0.4 percentage points each year from 2004-2007, but then began to accelerate substantially at 15.2 percentage points every year from 2007-2009. The third trend slowed to 1.9 percentage points every year for 2009-2011. **(Figure 19)**

In comparison, trends for other urban areas were similar, if not as extreme. The pace of poverty reduction in other urban areas was 1.5 percentage points for every year in 2004-2007; 11.2 percentage points for every year in 2007-2009, and then 1.7 percentage points for every year in 2009-2011. However, the pace in Phnom Penh was different. Poverty reduced 4.4 percentage points for every year in 2004-2007; 0.8 percentage points for every year in 2007-2009; and 1.4 percentage points for every year in 2009-2011. **(Figure 20)**

Because about 80 percent of the population and 90 percent of the poor live in Cambodia's rural areas, rural poverty reduction has driven most of the overall poverty reduction in

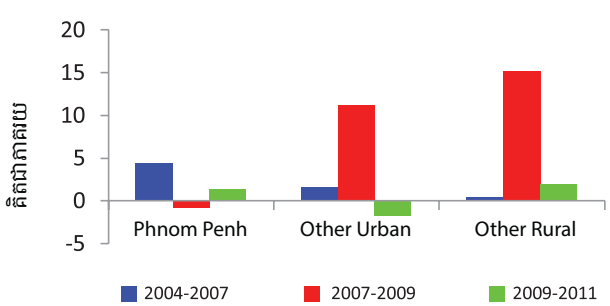
Figure 19: Poverty In Rural Cambodia



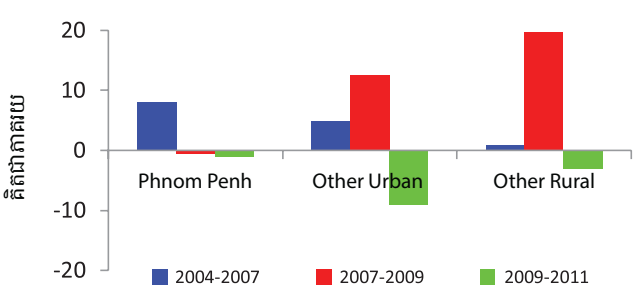
Source: WB Staff Estimates using CSES

Figure 20: Pace Of Poverty Reduction And Per Capita Daily Consumption Changes 2004-2011

(a) Poverty reduction per year



(b) Per capita daily consumption changes per year



Source: WB Staff Estimates using CSES

Cambodia. Total poverty reduction for all of Cambodia parallels poverty reduction for its rural areas: slowly in 2004-2007, very quickly in 2007-2009, and again slowly for 2009-2011. Cambodia's overall poverty reduction pace was 1.1 percentage points for 2004-2007; 13.1 percentage points for 2007-2009; and 1.7 percentages points for 2009-2011.

Migration had almost no effect in the poverty reduction. To account for the impact of net rural to urban migration, the Ravallion-Huppi decomposition was estimated using poverty results from 2004 and 2011. The results of the decomposition analysis indicates that population shifts account for only 0.5 percent of poverty reduction.

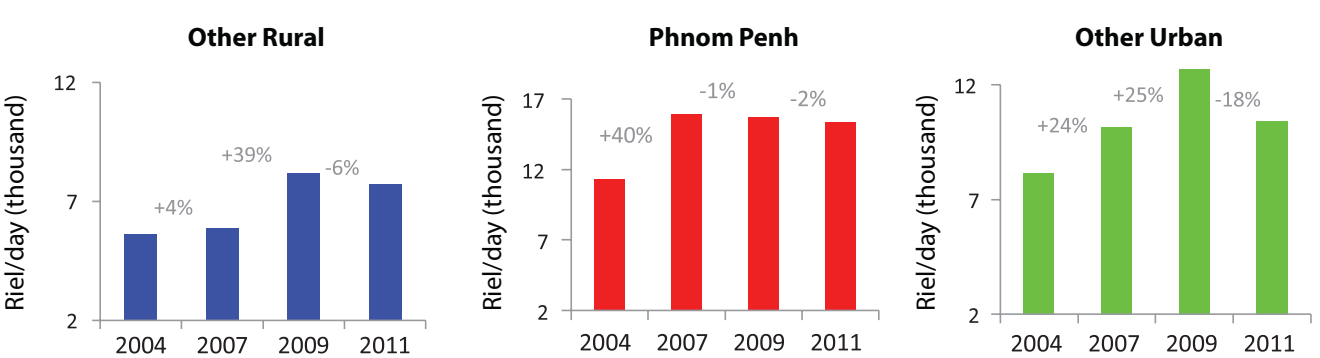
Consumption

Poverty reduction trends are reflected by per capita consumption. Comparable estimates from the Cambodia Socio-Economic Survey (CSES) indicated that the average per capita daily consumption of people living in rural areas (adjusted for inflation) increased from CR 5,641 in 2004 to CR 5,875 in 2007, representing an increase of 4 percent in five years, or by a mere 1.3 percentage points for each year. In comparison, per capita daily consumption of people living in Phnom Penh and other urban areas during the same period increased by 40 percent and 24 percent, respectively—from CR 11,330 to CR 15,886 and from CR 8,183 to CR 10,163, respectively.

By 2009, the average per capita daily consumption of people living in rural areas (adjusted for inflation) increased dramatically to Riel 8,183—an increase of 39 percent in two years, or 19.5 percentage points each year. This is very impressive compared to the changes in per capita daily consumption of people living not only in Phnom Penh—where consumption decreased by 1 percent in two years, but also of people living in other urban areas—where the consumption increased by 25 percent or 12.5 percentage each year.

By 2011, the average per capita daily consumption of people living in rural areas (adjusted for inflation) declined to CR 8,815—a drop of 6 percent in two years, or 3 percentage points each year. *Despite these declines in average consumption, the drop in the rural poverty level was possible because of redistribution of consumption that favored poorer segments of the population.* **(Figure 21)**

Figure 21: Per Capita Daily Consumption Of People Living In Three Main Regions 2004-2011



Source: WB Staff Estimates using CSES

Housing Conditions and Consumer Durables in Rural Households

The changes in the living standards of the rural population were reflected through not only the increase in consumption, but also the improvements in housing and ownership of consumer durables. Estimates of housing ownership from the CSES showed that the number of rural households with thatched-roofs declined from 24 percent in 2004 to 14 percent in 2011. Many rural households now have permanent roofs made of galvanized-iron and concrete or fibrous cement. The number of households with galvanized-iron roofs increased from 31 percent in 2004 to 48 percent in 2011. Households with concrete or fibrous cement roofs increased from 5 percent in 2004 to 10 percent in 2011.

Ownership of key durables such as televisions, mobile phones, and motorbikes also increased considerably. In 2011, 61 percent of rural households reported that they had a television; 85 percent a cellphone; and 64 percent a motorbike. This represents an increase of 16 percentage points from 2004 for televisions; 77 percentage points for cellphones; and 37 percentage points for motorbikes—a substantial increase in the ownership of consumer durables; thus, an important change in the living standards of the poor

Rural Income

In rural areas, the changes in living standards and poverty reduction can be explained by household income and sources of income. An alternative way of measuring living standards is by looking at not only the incomes of households but at the varied sources of such incomes. Rural households typically make their living from multiple sources; this could help to identify main income sources that rural people use to cover parts of their consumption. Estimates of household income from CSES suggested a trend broadly consistent with consumption trends. The estimates showed that the average per capita daily income (adjusted for inflation) of people living in rural areas rose from CR 4,100 in 2004 to CR 5,884 in 2009—a rise of 44 percent in five years or 8.7 percent for each year. By 2011, the income continued to increase to CR 6,144, although the growth rate was 4 percent over the same two years.

Income from Agricultural Crops

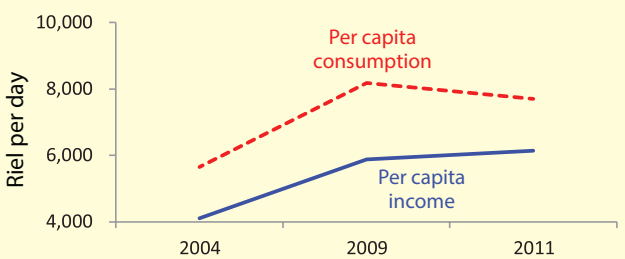
Agricultural crops were the main contributor to the sharp rise in the total household income. Economic activities and livelihoods in rural Cambodia rely heavily on agricultural activities. Estimates from CSES indicated that real average per capita daily income of people living in rural areas from agricultural crops more than doubled within five years—from CR 507 in 2004 to CR 1,101 in 2009. This represents an increase of 117 percent from 2004 to 2009, or 23 percentage points each year. Since 2009, the per capita daily income from agricultural crops continued to rise by 12 percent to CR 1,232 in 2011. **(Box 2)**

The rise in income from agricultural crops is mostly from rice. Cambodia is a net exporter of rice, and rice is grown on 84 percent of the country's nearly 3 million hectares of cultivated land. Of all people living in rural areas, 85 percent are rice farmers. With this dominance of rice, the country is estimated to have a paddy surplus of 3-4 million tons, beginning in 2008 (1.5-2 million tons in milled rice equivalent). Prior to 2008, the

Box 2: Household Income vs. Household Consumption

In many developing countries, including Cambodia, it is common for estimates of household income to be lower than consumption. This paradox stems from a number of reasons: First, parts of household consumption, particularly food, are produced at home or by in-kind transactions.

Per capita daily consumption and income 2004-2011



Source: CDRI (2013) using CSES

The second reason is that a large number of the population is self-employed on farms or in small family business—many of them do not have regular income, nor do they have proper records of income, which makes data gathering very difficult. Third, people generally underreported their income because of privacy concerns.

Comparisons of income with consumption can create paradoxical results, and such comparisons should treated with caution. Because income tends to fluctuate substantially—even within a short time period—for comparison purposes is better to use longer periods of time. In this report, comparisons of income and consumption trends were done for the periods 2004-2009 and 2009-2011.

paddy surplus was estimated at 2 million, 2.2 million, and 2.6 million tons in 2005, 2006, and 2007, respectively. At an average price of US$250 per ton of paddy, the paddy surplus translates into US$750 million to 1 billion for the rural economy beginning in 2008. **(Table 15)**

Of these rural households, 37 percent are net rice producers; 17-41 percent are net consumers; and the remaining is neutral. To feed human consumption for a household of five (consuming approximately 709 kilograms of milled rice or 1.4 tons in paddy equivalent a year according to the estimates from the CSES's 2009), calculations suggest that households must harvest slightly over 0.5 hectares of farm land at an average yield of 2.7 tons per hectare. But, to meet all consumption needs—including human and animal consumption, seeds, and crop losses—the household must farm somewhere between 0.5 to 1 hectare of farm land. **(Table 16)**

In 2009, estimates from CSES showed that about 37 percent of rural households operated agricultural land in excess of one hectare; hence, they have a rice surplus. The survey also found that 21 percent of rural households have agricultural land ranging from 0.51-1 hectare, which may produce enough rice for consumption only. The net consumers make up between 17-41 percent, which also comprises the 17 percent of rural people that do not operate any agricultural land, and the 24 percent that operate less than half of a hectare of land. Therefore, rising rice prices benefited roughly over one-third of rural households, about another one-third had no effect, and the remaining one-third experienced negative effects.

Table 15: Income Composition And Changes

	Income (Riel per day)			% Changes	
	2004	2009	2011	04-'09	09-'11
Wage labor	918	1,355	1,835	48%	35%
Agricultural crops	507	1,101	1,232	117%	12%
Livestock	377	295	317	-22%	8%
Fishing	201	219	151	9%	-31%
Forestry & hunting	286	319	324	12%	2%
Non-farm self-emp.	856	1,398	1,211	63%	-13%
Remittances & transfers	957	1,197	1,073	25%	-10%
Total	4,100	5,884	6,144	44%	4%

Source: CDRI (2013) using CSES

Table 16: Agricultural Land (% Rural Households)

Hectares	CDRI 2002	CSES		
		2004	2009	2011
None	20	21	17	16
0.01-0.5	25	25	24	26
0.51-1.0	20	21	21	22
ha 1.0 <	35	33	37	36
1.5 1.01-	-	11	11	11
1.51-2.0	-	8	9	9
2.0 <	-	13	17	16
Total	**100**	**100**	**100**	**100**

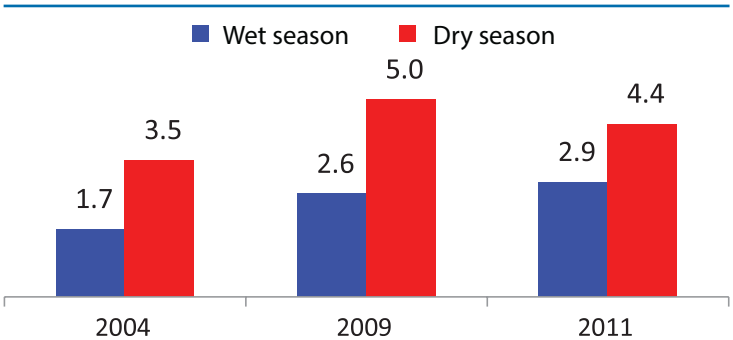
Source: Helmers et. al. (2004) and WB Staff CSES

The gains in rice are mainly from higher prices and from increased yield. Although the country's total cultivated rice area has expanded from 2.3 million in 2004 to 2.6 in 2007, and to 3 million in 2011 for both wet and dry seasons (resulting from land that has been cleared from degraded forests or demining), the average farm size in rural areas remains generally unchanged. This situation stems, in part, because new households have been expanding and because large farms typically belong to commercial farmers. Estimates from CSES showed that the average farm size for rural households remained at 1.2-1.4 hectares. **(Figure 22)**

But the rise in prices allowed farmers to boost income substantially. From 2004 to 2009, international prices of rice increased by 134 percent in Thailand and 88 percent in Vietnam.

Similarly, during the same period, local prices of rice in Phnom Penh's retail markets increased by 119 percent. The main input of rice farming in Cambodia is labor; therefore, the increase in accompanying fertilizer and fuel prices had a minimal effect on farmer's profit margins. Thus farmers began to gain substantially from the rise in prices beginning in early 2008 because farmers began to harvest 2006/2007 crops in December. The increase in yield has also contributed to this gain. For wet season rice, the yield increased from an average of 1.7 tons per hectare in 2004 to an average of 2.6 tons per hectare in 2009—rising by 52 percent. For dry season rice, the yield increased from 3.5 tons per hectare in 2004 to 5 tons per hectare in 2009—rising by 44 percent. **(Box 3)**

Figure 22: Average Paddy Yield Per Hectare



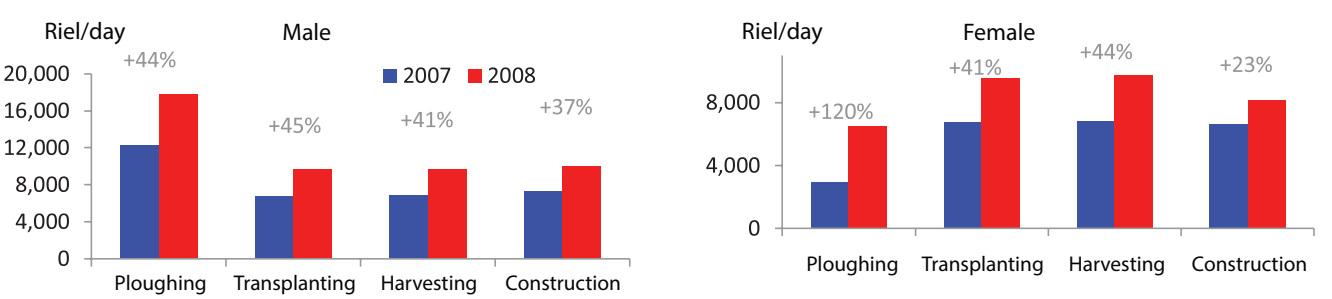
Source: MAFF's Annual Reports

Income from Wage Labor

Wage labor is the second source of incomes' increases in rural households. The increase in labor wages is because of the upsurge in the number of working people from each household, because of working longer hours, and because of increasing wage rates. The average per capita daily income of people living in rural areas from wage labor rose by 48 percent from 2004 to 2009, or 9.5 percent each year—from CR 918 in 2004 to CR 1,355 in 2009—it continued to increase to CR 1,835 in 2011. The rural people of Cambodia are now working longer hours, as well as working more than one job. A decomposition analysis found that the bottom 20 percent of the rural population had an increase of 69 percent in wages. These increases in household earnings were 54 percent from the number of paid employees and 9 percent from the escalation of the number of hours worked. The remaining 6 percent stems from factors such as household size, hourly rate, and the interaction amid these factors. **(Figure 23)**

Daily wage rates in rural areas more than doubled from 2007 to 2012. From 2007 to 2008, the daily nominal wage rate increased sharply. In some cases, these increases exceeded

Figure 23: Increases In Average Daily Wage Rates In 2007 And 2008



Source: Knowles (2010) using CSES

Box 3: Two Stories From The Ground On The Effects Of High Rice Prices

High rice prices helped Battambang to reclaim its renown as Cambodia's rice basket

Before the 1970s, Battambang province was known as Cambodia's rice basket. However, after the Khmer Rouge lost power in the capital, civil war continued to rage in the 1980s and 1990s, preventing Battambang from reclaiming its legitimate place in the Cambodian economy. Instead, Kampong Cham province was much more prosperous due to its role as a trade gateway with Vietnam.

Visits to Battambang from 2003 to 2005 gave the impression of a quiet town, with old French style buildings. But this changed with the increases in the prices of rice in 2007—which then doubled in 2008. The Cambodian Rice Millers Association and Vietnamese rice traders have become competitors with Thai rice traders, benefiting farmers with multiple buyers and subsequent higher prices. Farmers, formerly disconnected with the world market, have now shifted from subsistence farming to commercial farming.

In Kandal Province, high rice prices and developments of infrastructure created incentives for people to invest in their farms

This story comes from Rokarchunloeung commune in Kandal province. Before 2011, the only access to the commune was crossing the Mekong River with ferries. And it was expensive, costing more than US$1 (CR 5000); moreover, the trip took over an hour. In 2011, a new bridge was built crossing the river, making the trip much faster, cheaper, and easier. Furthermore, roads that connect the commune—as well as road within the commune—were improved significantly with the rehabilitation of National Road 8 and the building of new commune and village roads.

Before the doubling of rice prices, farmers did not seek extension services and focused only on local rice varieties. But when they began to get higher prices, they began competing for water, seeking extension services, putting in more efforts to double their yields, and choosing rice varieties in demand by the market.

Source: Extract from Hang Chuon Naron's Written Comments for Decision Meeting of Cambodia Poverty Assessment 2013 on May 2, 2013

adjustments for inflation, rising by 57 percent from 2007 to 2008 in rural Cambodia. This has helped many workers—particularly the landless in rural areas—to partly offset the impact of high food prices. Estimates from CSES showed that daily wage rates for many types of work in rural areas rose suddenly; moreover, the rise was observed for both male and female workers. From 2007 to 2008, male workers daily wage rates for plowing surged by 44 percent to CR 18,000 a day; transplanting by 45 percent to CR 10,000; harvesting by 41 percent to CR 10,000; and construction by 37 percent to CR 10,000. Female workers daily wage rates for plowing surged by 120 percent to CR 6,000 a day; transplanting by 41 percent to CR 10,000; harvesting by 44 percent to CR 10,000; and construction by 23 percent to CR 8,000.

In 2012, the daily wage rates continued to rise dramatically, not only because of rising costs of living in the country, but also because of costs of labor in neighboring countries. For

instance, in rural Cambodia, the daily wage rates for plowing increased to CR 20,000-25,000 a day; transplanting to CR 12,000-15,000; and construction to CR 20,000-25,000. **(Figure 24)**

Income from Non-Farm Self-Employment

The third contributor was income from non-farm self-employment. One-third of rural households engaged in non-farm businesses in 2009—either as their primary or their secondary job. Estimates from CSES showed that average per capita daily income from non-farm, self-employment rose by 63 percent over five years, or 12.7 percent each year—from CR 856 in 2004 to CR 1,398 in 2009. However, in 2011, the income from non-farm, self-employment declined to CR 1,211, or by 13 percent from 2009.

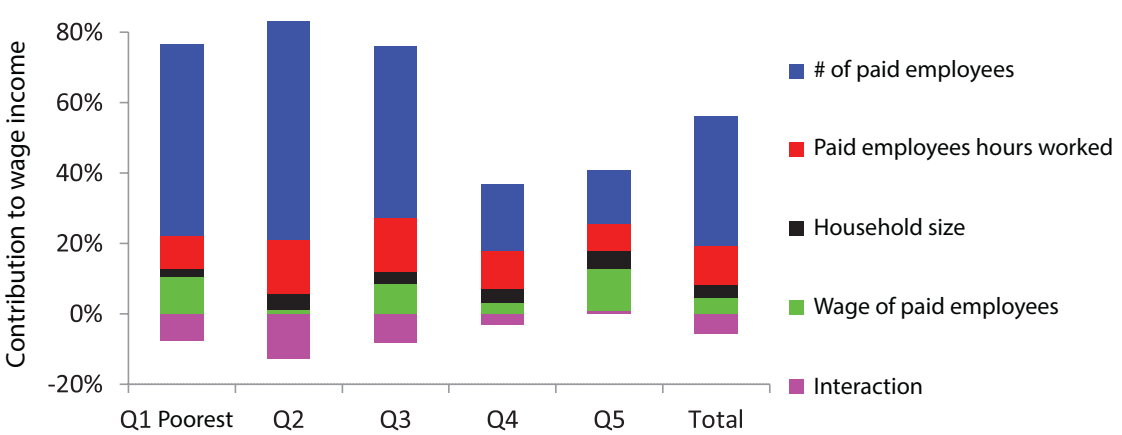
Income from Remittances and Transfers

Income from remittances and transfers is by far the smallest contributor to the increase in household income from 2004 to 2009. International experience shows interviewees in household surveys—the recipients of remittances—tend to underreport cash received from relatives; in addition, Cambodia does not have a sizeable internal cash transfer program. Estimates from CSES showed that average per capita daily income from remittances and transfers increased by 25 percent over five years, or 5 percent each year from 2004 to 2009. Compared to the growth of other income sources from agricultural crops, wage labor, and non-farm self-employment, the contribution of remittances and transfers to household income is small.

Perceptions from Rural Households

Rural people perceive that they can attain higher income from land and labor than other assets. A rural survey conducted in October of 2012 (interviewing 1,560 households in 78 villages in 14 provinces) revealed that people were generally optimistic about the rise in income sources from farms and wages. Of 1,535 households (98 percent of all people interviewed) that engaged primarily in agricultural activities, 30 percent thought that their income from agricultural activities

Figure 24: Decomposition Of Factors Contributing To Wage Labor Income, Cambodia 2009



Source: Knowles (2012) using CSES

would increase in next three years because they thought productivity and prices would increase. About 37 percent thought that it would stay the same, and 24 percent thought their income would decline. The perception of declining income stems from concerns about bad weather and crop diseases, as well as increases in costs. The perceptions of agriculture income appear to concur with both net rice producer and consumer estimates: 37 percent of rural households are net rice producers; 17-24 percent net consumers; and the remaining the neutral.

Wages from labor showed a somewhat similar trend: of 1,126 respondents (72 percent of all people interviewed) who engaged in waged employment, 40 percent thought their income from would rise; 34 percent thought it would remain the same; and 16 percent thought it would decline.

Characteristics of the Rice Sector

Most Cambodian farmers plant rice only once a year. In many farm plots across various parts of the country, rice is grown once a year—mostly during rainy season. This is because of a lack of water during the dry season and the continued use of traditional technology. As a result, rice production and yield is far from its full potential. Neighboring Thailand and Vietnam grow more than once per year and their yields are much higher.

Rice milling capacity is improving, but remains limited in Cambodia. Most of Cambodian rice flows to neighboring countries in paddy form. Despite rapid modernization in recent years, local mills are unable to meet demand because of cash-flow limitations, lack of storage capacity, and inability to meet quality standard by international buyers. As a result, many informal rice traders buy paddy rice from Cambodian farmers and sell it to Vietnamese and Thai traders. They then add value by further processing—including milling, packaging, and commercialization. **(Table 17)**

Policies of the Royal Government of Cambodia

The remarkable gain in rural areas is due, in part, to the effects of agricultural prices—and rice prices in particular; however, policies of the Government have also played an important role. During the 2008 global food crisis, the government did not make any price interventions. Instead, it took an open approach to price and trade control, allowing for greater competition. Since 2008, there has been strong competition among local traders and international traders in buying paddy at the farm gates from neighboring countries. As a result, many farmers do not have to transport their paddy to markets—this has proven to be more helpful than harmful.

Moreover, the government's development priorities—focusing on infrastructure, agriculture, and rural development, which are articulated in the National Strategic Development Plan—have been maintained. Government capital spending

Table 17: Rice Milling Capacity (Tons Of Paddy Per Hour), Cambodia

	Milling	Polishing
Mid 2009	96	72
Mid 2010	245	201
Mid 2011	322	305

Source: Tom Slayton and Sok Moniroth (2012)

from the Ministry of Agriculture, Fisheries, and Forestry (MAFF), the Ministry of Water Resources and Meteorology (MOWRAM), and the Ministry of Rural Development (MRD) focused on developing agriculture and rural infrastructure. Their capital spending increased from CR 88 billion in 2004 to CR 228 billion in 2008 and to CR 612 billion in 2010, before decreasing to CR 216 billion in 2011. This represents an increase from 4.1 percent of the government's total spending in 2004 to 4.7 percent in 2008 and to 9.5 percent in 2010 before decreasing to 2.8 percent in 2011.

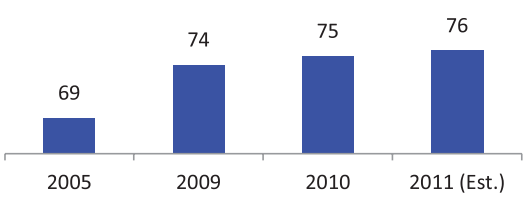
The Government's investment has not only shown results, but also improved living conditions. By 2011, about 76 percent of the country's rural roads were rehabilitated from 69 percent in 2005, which helped improve access for rural people to basic services and markets. Irrigation facilities were reconstructed, resulting in 42 percent of rice crops with pumped water in 2010, compared with only 25 percent in 2005. The percentage of rural households with access to improved drinking water increased from 40 percent in 2000 to 58 percent in 2010; the percentage of rural households with electricity increased from 2 percent in 2004 to 24 percent in 2011. **(Figure 25)**

Remaining Challenges

Despite remarkable gains, the living conditions of people in rural areas still require attention—and the task may be more demanding. This dramatic improvement stems from a relatively low level—the task of poverty reduction is not over. In some

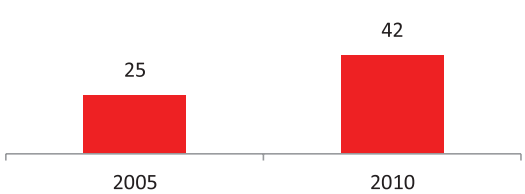
Figure 25: Improvements Of Key Rural Infrastructure In Rural Areas

(a) % of rural roads rehabilitated



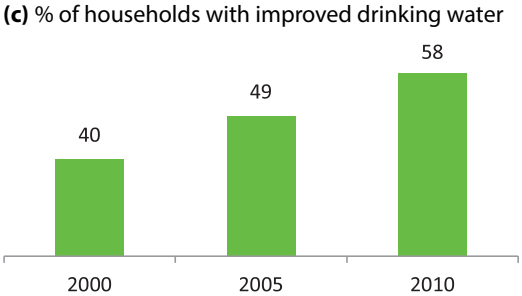
Source: RGC (2012)

(b) % of rice crop covered by irrigation facilities



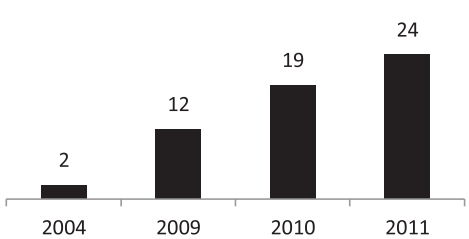
Source: NGO Forum on Cambodia (2011)

(c) % of households with improved drinking water



Source: WHO/UNICEF's JMP

(d) % of rural households use electricity for lightning



Source: WB Staff Estimates using CSES

respects, the task has become even more difficult. Poverty is still mostly a rural phenomenon with 90 percent of the poor living in rural areas. But the poor today are different from the poor in 1990s: they seem to have not only higher expectations, but also greater aspirations. Ten years ago, the sole priority was enough food for the family. Currently, priorities—in addition to food—consist of motorbikes, TVs, mobile phones, children's education, and quality healthcare.

The sluggish pace of poverty reduction in 2011 is a good reflection of the fact that poverty reduction is far from complete. The fast poverty reduction in 2009 could have been a one-time event, based, in part, on taking advantage of serendipitous factors. Recently, it has been proven difficult to endure. Estimates show that the pace of poverty reduction in rural areas has slowed to an annualized rate of less than one percentage point. When compared to 15.2 percentage points for each year from 2007 to 2009, it is clear that more needs to be done.

Drivers of Poverty Reduction

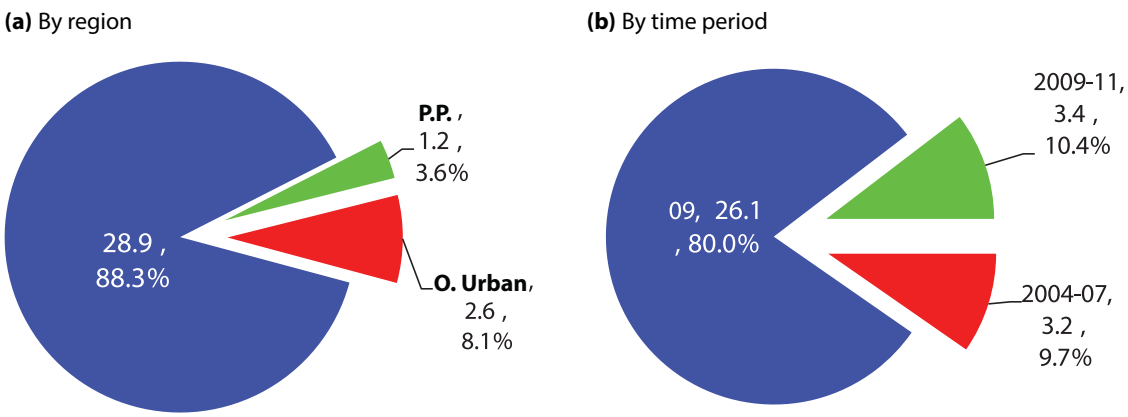
Based on results illustrated in this chapter, on results from the Cambodia Socio-Economic Surveys (CSES), and on results from government statistics, this section provides a link between poverty reduction and household characteristics (labor force, commodity market, agricultural production, and self-employment) from 2004 through 2011.

The CSES household survey (Living Standards Measurement Survey or LSMS type) is a cross sectional survey: it does not have panel data. Because of this limitation, it is difficult to establish a direct relationship between poverty reduction and changes in household characteristics. Moreover, income information is also limited. But its results are good indicators of changes over time although it should be interpreted with care. To understand the drivers of poverty reduction, a simulation was created using many of the parameters from the survey (micro-data) and results from the labor and rural analysis. This simulation identifies characteristics that are linked to poverty reduction over specific time periods and regions (Phnom Penh, other urban, and rural). Special care was given to identify characteristics that were exclusive to each time-region combination.

From 2004-2011, most of the poverty reduction in Cambodia came from improving rural household conditions, as well as changes that were time-specific from 2007 through 2009. From all poverty reduction over the seven year period, 3.6 percent was from Phnom Penh, 8.1 percent was from other urban areas, and the remaining 88.3 percent was from rural Cambodia **(Figure 26a)**. Furthermore, most of the poverty reduction (80.0 percent) occurred from 2007 through 2009. The remaining reductions were evenly divided from 2004-2007 (9.7 percent) and from 2009-2011 (10.4 percent) **(Figure 26b)**.

Households from 'other urban' areas present characteristics that are similar to both Phnom Penh and the rural areas of Cambodia. For example, in many of the other urban areas, rice fields and other agriculture exist within a very short distance from the center of town (often less than a kilometer). At the same time, many of the indicators from other urban households are closer to those in Phnom Penh than to those in rural households. This includes access to services, education levels, income per capita, and the like. Disentangling the drivers of growth between urban and rural for the "other urban"

Figure 26: Contribution To Poverty Reduction In Cambodia 2004-2011



Total poverty reduction = 32.7 percentage points (first number) = 100% (second number)
Source: World Bank staff estimates based on CSES

households was not possible. Therefore, this analysis treats "other urban" households as a combination of the two other regions: Phnom Penh and rural.

Urban Households 2004-2007

Industrial activity is linked mainly to urban households in Cambodia. From 2004 to 2007, per capita industrial Gross Domestic Product (GDP) grew 40.8 percent. This was followed by a decrease in 2008 through 2009, but it began recuperating in 2010, again reaching the levels of 2007. In contrast, per capita agricultural GDP growth from 2007 to 2008 was 6.1 percent. The increased availability of salaried jobs in urban areas has fueled the dramatic drop in poverty rates in the past decade. Almost all of the poverty reduction in Phnom Penh was observed from 2004 to 2007, a period with a fast increase in salaried jobs (10 percentage points). This was in stark contrast to rural areas: poverty decreased only 1.1 percentage points, and the share of salary earners increased by less than one percentage point.

When examining variations of consumption expenditures across employment categories of household heads, the increase in the share of paid employment is the main factor driving poverty reduction (Urban Labor Section). Changes in urban poverty in 2004-2007 contributed to a national poverty reduction of 1.4 percentage points.

Rural Households Income 2004 to 2009

The first factor explaining the increase in consumption for rural households from 2004 to 2009 is the price of rice. Households improved their income because of improved rice prices from 2004 to 2009. Better prices had two direct effects on household income: first, the value per unit of production increased, and second, total production increased owing to more planted area and increased use of inputs.

To estimate the impact of the rice price increase, a simulation based on information from the CSES and other government statistics was performed **(Annex 3)**. The simulation's

main results are based on an examination of a reference group of households that were poor in 2007 but not poor in 2009. The simulation presented in Annex 3 estimates the income effect of the increased rice prices to be CR 683.72; it estimates the impact of increased productivity and area harvested at CR 661.94 per day per person at 2009 Phnom Penh CR.

The second factor explaining the increase in consumption is income from wages in agriculture. Because of data limitations, it was not possible to differentiate the sources of wages between different agricultural activities, but there is no doubt that an important share of the wages was related to rice. For example, rice represents about 80 percent of the total planted area in Cambodia, and about 80 percent of rural households reported growing rice. Moreover, rice experienced the highest price increase from 2007 to 2009 compared to all other locally produced food products (reported in the Consumption Price Index Basket). As rice prices increased by 39 percent, other product price increases were as follows: beef 25 percent, chicken 24 percent, fish and seafood 24 percent, fresh eggs 14 percent, fresh fruits 27 percent, and vegetables 22 percent.

From 2004 to 2009, agricultural income from wage labor increased 49.0 percent, equivalent to CR 450. However, from 2009 to 2011, wages from agricultural activities in the reference group did not increase **(Figure 27)**.

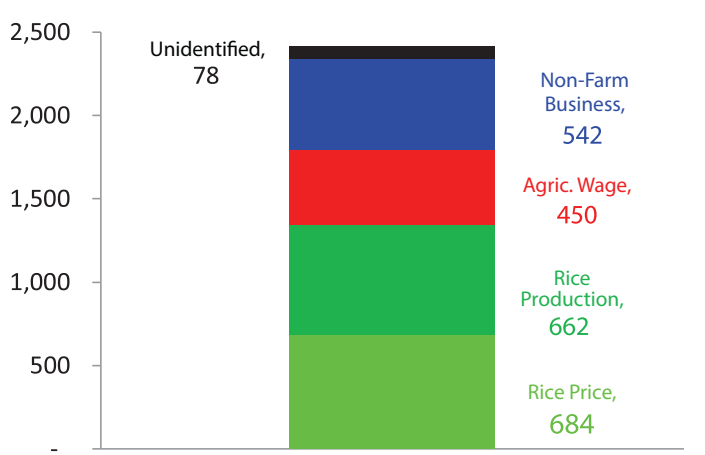
The third factor that explains the increase in consumption is higher income from small businesses. Non-agricultural, self-employment income was available in the surveys for all rural households in the CSES from 2004 to 2009 and from 2009 to 2011. Using the average income increase for all rural households (not only the reference group) yields an estimate of general changes in the entire rural sector associated with overall growth. Income from non-agricultural, self-employment increased CR 542 per day per person from 2004 to 2009 (but 2009 2011 showed a decrease). The rural section illustrates this explanation of income changes over time for rural households. **(Figure 27)**

Drivers of Poverty Reduction in 2004-2011

To estimate the impact of the drivers of poverty reduction in 2004 through 2011 in rural Cambodia, the increases in sources of income identified in **Figure 27** were equated to poverty reduction. Poverty reduction in Phnom Penh in 2004 through 2007 was driven by increase of salaried jobs.

Poverty reduction in urban households outside of Phnom Penh is a combination of urban and rural characteristics, and the drivers of poverty reduction are divided between them. Half the poverty reduction in urban households outside Phnom Penh was due to the same drivers of growth identified for rural households; the other half was due to increase in salaried jobs.

Figure 27: Income Increases In Reference Group 2004-2009



The main drivers of poverty reduction in 2004 to 2011 were higher rice prices (7.8 percentage points), increased rice production (7.6 percentage points), higher agricultural wages (5.2 percentage points), and non-farm businesses (6.2 percentage points). No drivers were assigned to the remaining 4.4 percentage points in poverty reduction (Figure 28).

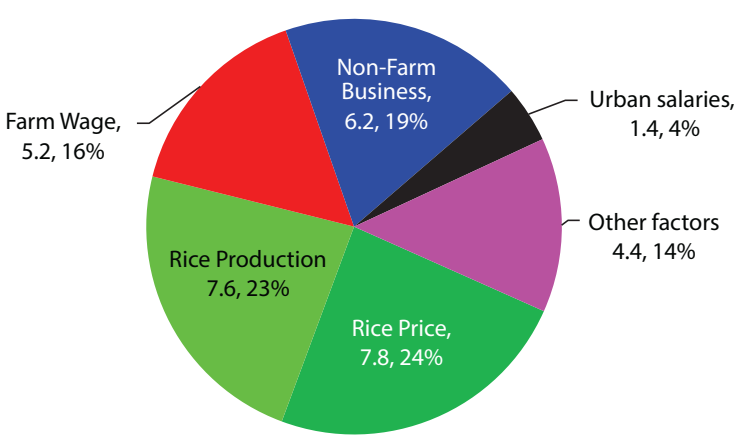
The direct impact of higher rice prices and the increase in rice production was responsible for almost half the reduction in poverty. Agricultural wages—also closely related to rice—contributed to 16 percent of the total reduction in poverty; at the same time, improved income from non-farm business was responsible for one-fifth of all poverty reduction. Increases in salaried employment in urban areas accounted for 4 percent of the decline in poverty. Finally, the simulation does not explain the remaining 14% percent of the reduction, but it occurred in 2009-2011. **(Figure 28)**

Policy Recommendations

Maintain policies of low intervention in commodity markets. Some of the most important reasons farmers were able to take advantage of increased rice prices was the lack of policies that distort prices (most notably price controls or price subsides). Moreover, the lack of any tax on rice production benefitted farmers greatly. Maintaining these same policies in the future would allow for a better flow of resources—both in and out of the agricultural sector—at the same time, it would allow for improved allocation of farmers' assets.

Continue improvement to rural infrastructure, while using poverty to help set priorities for future projects. Overall rural infrastructure projects, roads, communications, and electrification allowed the poor to take advantage of improved economic conditions from 2004 through 2011. It is recommended not only to continue expanding rural infrastructure, but to give priority to regions like the Plateau-Mountains, which are associated with higher poverty rates. Similar application of poverty considerations should be used to select the type of projects that would have a greatest impact on the poor.

Figure 28: Drivers Of Poverty Reduction In Cambodia 2004-2011



Note: First number is the percentage points reduction (total 32.7 percentage points), second number is the percent of total poverty reduction (total = 100 percent)

Increased profit margins from rice production were possible due to improved productivity. Because a big share of the poor and vulnerable are involved in rice production, policies that increase productivity would be pro-poor. This recommendation's objective is not to increase total production alone, but to so in a way that improves farmers' net income without increasing risks. Thus the following three recommendations should be undertaken: (i) improve access to higher quality rice seeds, (ii) continue investing in water management projects to promote more than one crop a year and to reduce the risk of flooding, and (iv) augment extension services and research efforts to improve agricultural practices for farmers with less than two hectares of land. The recommendations should be accompanied by improved access to credit programs.

Promote diversification of the agricultural sector. While rice production has been one of the major drivers of poverty reduction, rural households—and especially the poor—will benefit from a more diverse range of agricultural products. This would first require finding good matches between the agricultural activity (crops, animals, and the like) and the agro-ecological conditions in different parts of the country (for example maize and soya in the uplands). Second, a wider selection of foods for local consumption will improve both nutrition and health. Third, diversification provides some protection against product-specific shocks.

Increase the value added to agricultural outputs already being produced in the country. Wage labor has been the second most important driver of poverty reduction. Rural communities have the potential to retain more value from their agricultural production by engaging in other parts of the commodities value chain. Value added activities include processing, packaging, distribution, and marketing. Increasing the milling capacity of the country would help, but it should go much further. For example, black pepper from Kampot province is produced, processed, packaged and commercialized within Cambodia, and it has international recognition as "Kampot Pepper". Each step in the value chain ladder provides jobs and investment opportunities for Cambodians, as well as for foreign direct investment.

Agriculture has lifted many rural people out of poverty, but relying solely on agriculture for future improvements is not realistic. For medium and long-term growth, non-agricultural activities are vital for sustained economic and wellbeing improvements in Cambodia. The country should be ready to boost efforts to promote both industrial development in urban areas and other non-agricultural sectors in rural areas. To achieve these economic and social goals, the future policies of Cambodia must expand agriculture for short and medium growth; it then must shift to industry and service growth for medium and long-term growth.

END NOTE

25. The consumption premium presented in Figure 13 should be interpreted with caution. The premium is not only generated for being salaried employed but also by several workers' characteristics that also explain the earnings profile. Yet the welfare premium (in Figure 13) suggests that salaried employment is an efficient vehicle to lift households out of poverty.

26. For example, several developing countries report official unemployment rates of 1 and 2 percent (See Jobs Trend, Winter

2012. The World Bank.)

27. We do not include the category "University and more". The sample size for individuals in this category is small; in 2009, this category included only 1.5 percent of individuals between 15 and 65 years old.

28. Completion of primary education was excluded from the second regression every year and no education was excluded in 2010 and 2011. This is necessary to avoid multicollinearity. Because primary was excluded, the results obtained for other levels are in reference to primary education students. For example, wages for people with lower secondary are 16.1 percent higher than those with only primary education in 2011.

29. This extra set is also known as the covariates and included gender, economic sector, region, marital status, age, and age squared. All the covariates from the extra set were highly significant at 1% ($p \leq 0.01$).

30. All regressions control for education, sector of employment, region, marital status, age, and age square. The coefficients presented in Figure 16 are statistically significant at 1 percent.

31. World Bank (2011) the Poverty and Social Impacts of the Global Economic Crises.

32. Additional explanations of redistribution that make poverty continue declining despite a drop in average consumption could be found in chapter 2.

33. This is also true for poor households. The average farm size among rural poor was 1.5 hectares (WB, 2009). For rural Cambodia as a whole, the average farm size is 1.4 hectares.

34. The 2008 was a rapid inflation year and it was the year of global food and fuel crisis.

35. Wage data collected by World Food Program in 12 provinces since 2010, where it has its regional offices also suggested a trend of rapid rising in wage rates. For example, agricultural wage in rural areas increased by 15 percent from 2010 to 2011 and continued to increase by 16 percent from 2011 to 2012; non-agricultural wage in rural areas increased by 16 percent from 2010 to 2011 and by 13 percent from 2011 to 2012. In urban areas, agricultural wage increased by 14 percent from 2010 to 2011 and by 18 percent from 2011 to 2012; non-agricultural wage increased by 8 percent from 2010 to 2011 and by 12 percent from 2011 to 2012.

36. It is common that rural household have multiple jobs because relying on one job is not sufficient to support living standard.

37. In addition to this, other priorities in National Strategic Development Plan 2006-2010 are health and education; the plan was subsequently updated to 2009-2013 to align with national election cycle, but priorities were maintained.

38. This figure includes all the poverty reduction in Phnom Penh and half the reduction in other urban areas.

39. Wage includes any income from agricultural paid jobs (daily wages or salary earnings). Actual earnings were in reference to last month.

Chapter 3 Reaching The Poor And Vulnerable

Cambodia has made important strides both in primary education investment and in access. Primary education is now nearly universal—even in the more remote areas of the country. But major challenges persist. These problems include late entry into school, dropouts (especially at the secondary level), and poor quality of education—all of which are new challenges for the government. Secondary education and health facilities are not nearly as accessible as primary education. Basic coverage (proximity) and access (cost) reduce the usage of many of these services, explaining some of the low outcomes indicators. Nevertheless, improvements have been detected throughout all sectors—with the noticeable exception of nutrition, which has shown no observed progress over the last five years.

Social protection—a relatively new concept in Cambodia—lags even further behind. With the exception of scholarship programs targeting women and subsidized healthcare targeting the poor, only small programs like food distribution and flood assistance are either administered or funded by the government (See Box 5). In order to meet the new demands and challengers, the government has to continue investing in the three main social pillars: health, education, and social protection.

Education

Education Sector Background

Cambodia's education system is mostly public, regulated by the following six government institutions: The first is the Ministry of Education, Youth and Sport (MoEYS)—which is the overarching national institution for education. It provides education services, monitors quality and access at all educational levels, and ensures that basic conditions are met. The second is the Public Higher Education Institutes (HEIs), which are under the jurisdiction of 14 Ministries and entities.[40] It provides tertiary education services offering bachelor, master, and doctor degrees. The third are the various private institutions that receive no state subsidies. The fourth is the Ministry of Labour

and Vocational Training, charged with providing vocational training services at the secondary and tertiary levels. The fifth is the National Early Child Development Committee (ECD); it coordinates public and community-based, early childhood education in conjunction with MoEYS, the Ministry of Interior, the Ministry of Health, and the Ministry of Women Affairs. The sixth is the Accreditation Committee in Cambodia (ACC), which operates under the Council of Ministers and is directly supervised by the Prime Minister's Office: it is responsible for the accreditation of both public and private higher education institutions.

The various levels of Cambodian education are organized into the following series of cycles: (i) home-based child care for children under six years old, (ii) preschool for children from three to five years old, (iii) primary education for children six to eleven years old, (iv) secondary education that is divided into lower-secondary and upper-secondary for 12 to 17 year-olds, and (v) tertiary or higher education for pupils above 17 years old. In parallel to the general stream, students can select technical or vocational training at the upper-secondary level. This is available for 15 to 17 year olds, tertiary students, and all students older than 17 years **(Table 18)**. The Ministry of Education, Youth, and Sport (MOEYS) is also responsible for not only non-formal education (equivalency programs, literacy, and community learning centers), but also teacher training.

Government Education Policy

Since the mid-1990s, development policy in Cambodia has been guided by five year plans, originally named the *Economic Development Plans* and later, the National Strategic Development Plans (NSDP). In 2001 in response to these national plans, MoEYS developed the first, five-year Education Strategic Plan (ESP). To date, this plan has been substantially revised twice (ESP 2006-2010 and ESP 2009-2013).[41]

The policy development process began in 2001 with the adoption of the first Education Strategic Plan 2001-2005, the Education Sector Support Program 2001-2005, and the development of the National Education for All Action Plan in 2003. These three programs outlined a number of educational goals for all Cambodian children by 2015. The first Education Strategic Plan (ESP) set the government's goal and mid-term vision for 2001-2005 as follows: "… to develop an inclusive, easily accessible and high quality service which is available to all, independent of wealth, gender, ethnicity, and physical and mental well-being" (page 7, MoEYS 2001). In addition, a work plan was created to outline specific areas of engagement.

The second version (Education Strategic Plan 2006-2010) set out to achieve its goals through implementing the following three

Table 18: Formal Education Ages, Levels, And Grades In Cambodia

Children age	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 +
Education level	Preschool						Primary						Secondary: lower			Secondary: Upper & Technical/ Vocational			Tertiary or Higher educ.		
Education grade	Child care						1	2	3	4	5	6	1	2	3	4	5	6	1	2	3 +

national policies: (i) achieving equitable access to education services, (ii) improving the quality and efficiency of education, and (iii) strengthening institutional capacity to deliver education. Subsequently, the third version (Education Strategic Plan 2009-2013) aimed to accelerate efforts within the sector to meet the Cambodian Millennium Development Goals and the Education for All National Plan 2003-2015. The three priority areas of the second education plan remained intact, for the post part in the Education Strategic Plan 2009-2013, but it placed a special emphasis on expanding early childhood education; secondary education; and non-formal, technical and vocational education.

Private Sector Education in Cambodia

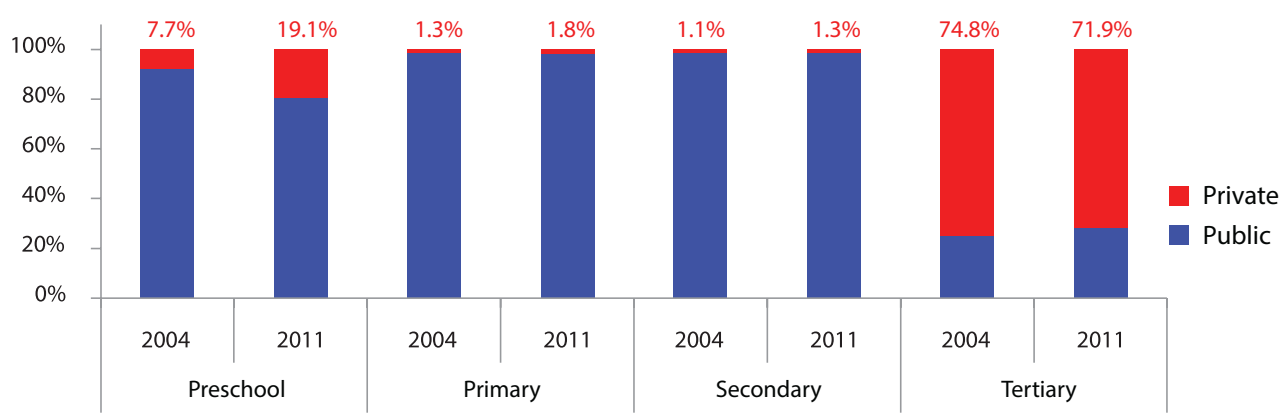
The private sector is increasing its role in preschool while dominating tertiary education. Traditionally, the public education sector played the lead role in Cambodia's education system. However, private education is increasingly growing in importance, especially in pre-primary (it has more than doubled from 7.7 percent in 2004 to 19.1 percent in 2011). Currently, private tertiary education dominates, accounting for 71.9 percent of all students in 2011 **(Figure 29).** Over the past decade, enrollment of private tertiary students increased by a factor of ten from 8,419 students in 2001-2002 to 146,834 in 2011-2012. Primary and secondary education (accounting for about 92 percent of all Cambodian students in 2011) remains almost entirely public with only marginal increases in private enrollment.

Education Outcomes

Literacy

Literacy has increased, regardless of age, gender, location, or residence of Cambodians. Literacy rates have been steadily improving from 64.2 percent in 2004, to 70.6 percent in 2011. Improvements in literacy rates from 10 to 12 percent were reported in all age groups, urban, and rural households. This further includes men and women, as well as both the richest and the poorest quintile of the population **(Table 19)**. The largest literacy increases were in those of the elderly in urban areas and in the richest quintile (25.6 and 17.1 percentage points, respectively). For young people, the largest improvements were for women and for the poorest quintile (about 15 percentage points each). There is a strong

Figure 29: Public Private School Enrolment Distribution, Cambodia 2004-2011



Source: CSES 2004 and 2011

correlation between increasing levels of education (including literacy) and decreasing levels of poverty (World Bank 2007).

By 2011, there was no longer a literacy gender gap for people from 15 to 24 years old. Indeed, female gender literacy has not only improved from 76.8 percent in 2004 to 91.3 in 2011, but reduced the gap to less than 1 percentage point from the original 7.4 percentage points. The gap for young people—the group reflecting more recent education policies— has also reduced amid both urban and rural and the richest and the poorest **(Table 19)**.

Education Attainment

Although education attainment has improved for Cambodians who are 25 years and older, significant education disparities remain an issue. Adults' education level is a product of past performance and improvements—both of which require many years to have any impact on the entire group. Nevertheless, today's labor productivity is linked to the human capital stock and should be considered when evaluating Cambodian's potential. Therefore, it is important to note the lower education attainment by women, rural residents, and the poor **(Figure 30)**. Among rural and poor households, disparities increase after grade three. For example, the completion of grade six by rural people is less than half that of urban people; among the poorest quintile, completion of grade six is less than one-third of that of the richest quintile.[42]

Table 19: Literacy Rate By Age Groups, Urban-Rural, Gender, And Poverty, Cambodia 2004, 2011

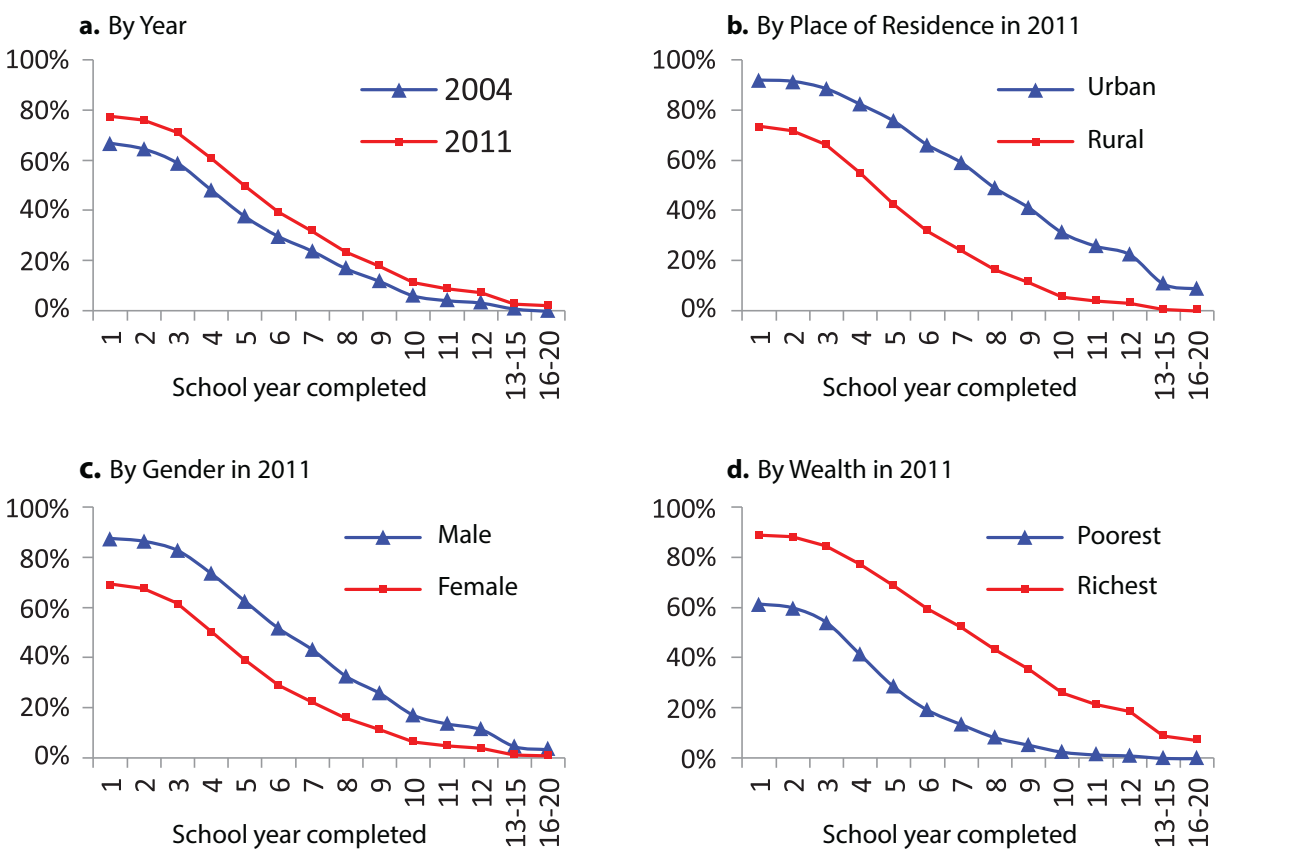
Groups	Youth (15-24 years old)			Adults (15 years and older)			Elderly (65 years and older)		
	2004	2011	Change	2004	2011	Change	2004	2011	Change
Urban	89.7%	96.9%	7.2%	81.7%	92.3%	10.6%	45.5%	71.0%	25.6%
Rural	78.5%	90.2%	11.6%	66.5%	75.7%	9.2%	31.7%	41.8%	10.0%
GAP	**11.2%**	**6.8%**	**-4.4%**	**15.2%**	**16.5%**	**1.4%**	**13.7%**	**29.2%**	**15.5%**
Male	84.2%	91.9%	7.7%	80.2%	87.6%	7.4%	63.7%	75.8%	12.1%
Female	76.8%	91.3%	14.5%	59.4%	72.1%	12.7%	13.1%	26.0%	12.9%
GAP	**7.4%**	**0.6%**	**-6.8%**	**20.9%**	**15.5%**	**-5.3%**	**50.6%**	**49.8%**	**-0.8%**
Richest	93.8%	97.5%	3.7%	84.5%	90.3%	5.8%	44.4%	61.5%	17.1%
Poorest	65.5%	80.6%	15.2%	53.6%	64.6%	11.0%	22.4%	32.2%	9.8%
GAP	**28.3%**	**16.9%**	**-11.4%**	**30.8%**	**25.7%**	**-5.1%**	**22.0%**	**29.3%**	**7.3%**
All	80.5%	91.6%	**11.1%**	69.0%	79.3%	**10.3%**	33.8%	45.9%	**12.1%**

Source: World Bank staff estimates based on 2004 and 2011 CSES

Government policies to promote girls' education levels successfully achieved parity with that of boys' levels. Scholarships and other education programs targeting girls over the years have improved girls' school enrollment and completion to the point that by 2011,no difference in the level of education remains amid young men and women from 15 and 20 years old **(Figure 31)**.

Education attainment for young adults has improved for all groups and disparities have been reduced. Young adults from 15 and 20 years old have shown remarkable improvements in education; for example, 96 percent have completed first grade (76 percent for older adults), 75 percent have completed sixth grade (38 percent for older adults), and 36 percent have completed lower-secondary school (17 percent for older adults). Differences according to place of residence (for the most part, urban and rural) have reduced for the first seven years of education for an average of 17 percentage points, but there has been no change amid later grades. The education gap between the poorest and richest has also been reduced by 17 percentage points—but only for the first five years of education. The richest students have increased their participation in grades 6 to 12 much more than

Figure 30: Education Attainment By 25 Years And Older



Source: World Bank staff estimates based on CSES

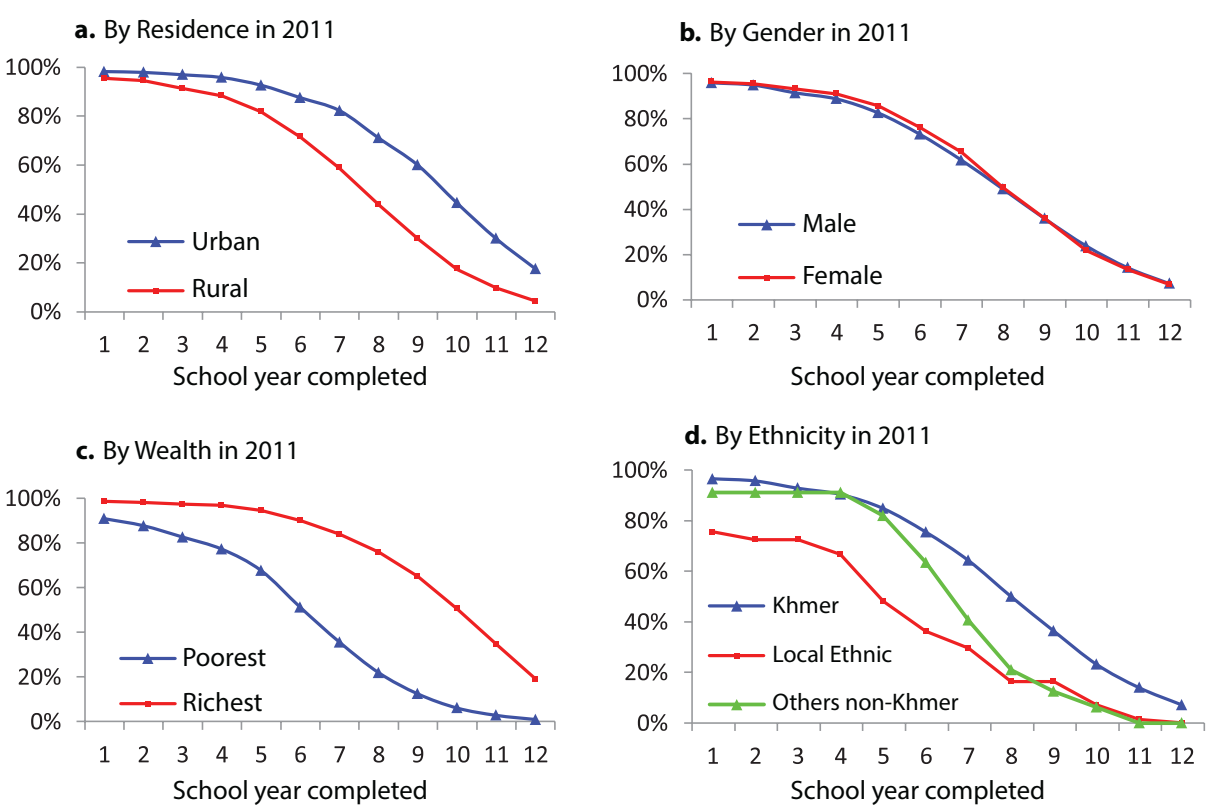
the poorest students. In fact, the gap has actually increased by an average of 14 percentage points **(Figure 31)**.

Young children from local ethnic groups have exhibited lower education attainment at all grades from grades 1 through 12. There is a distinct disadvantage for kids from local ethnic minorities in Cambodia. This starts from first grade with attainment levels of only 75.5 percent, which is substantially lower than children from even the poorest households (90.8 percent attainment). The problem extends to all levels of primary education for ethnic minority children; they have lower education attainment than the poorest children in all six grades (an average of 14.2 percentage points lower than the poorest children in Cambodia). Children from other ethnic groups show no difference than average Cambodian children in primary education attainment, but they show much lower secondary attainment.

Enrollment Rates

The two most common measures of education enrollment are gross enrollment and net enrollment rates. The gross enrollment rate is defined as the proportion of students attending school (of any age) divided by those that should be in school—according to age. The net enrolment rate is defined as the proportion of students of the appropriate age (not all students) divided by those that should be

Figure 31: Education Attainment By 15-20 Years Old, Cambodia 2011



Source: World Bank staff estimates based on CSES

in school—according to age. Gross enrollment rates can be interpreted as a measure of the total number of people going to school; the net enrollment rate is a a measure of student going to school at their appropriate grade level.[43] Moreover, there are two possible ways to define net enrollment rates for an entire primary or secondary level. For this study, the strict definiton of individual grade net enrollment rates **(Box 4)** was chosen because it is more sensitive to not only late entry and, but also repetition—both problematic in Cambodian education.

Net enrollment rates in Cambodia (using the strict definition) have substantially improved for all grades. From 2004 to 2011, the net enrollment rate for primary students increased by over half (from 30.6 to 48.8 percent); secondary net enrollment rates have more than doubled (from 8.1 to 20.0 percent). While improvement has been observed in all grades, dropout from grades four to five and five to six have nearly been eliminated. Similalr to all countries expanding their education coverage, Cambodia's gross enrollment rates are difficult to interpret. For example, more children in school would increase the enrollment rates, but grade repetion and late entry would also increase gross enrollment rates. On the other hand, more children starting school at the appropriate age would decrease gross enrollment for first grade.

Because of low rates in the past, the above-mentioned improvements are not enough and net enrolment rates remain low. Cambodia is improving net enrolment rates quickly—in both primary and secondary education over the last seven years (an average of 2.7 percentage points each year for primary and 1.7 percentage points each year for secondary). However, net enrollment rates remain low in Cambodia in 2011—with values below 40 percent after grade three and below 25 percent after grade six **(Figure 32)**.

Over 30 percent of children do not enter grade 1 at the appropriate age; furthermore, significantly low promotion rates prevail at the lower primary level—combined, this leads to very low net enrolment rates (37.4 percent) at grade 6 (Figure 32). The passage from grade 6 to grade 7 creates two challenges for students: the first is the need to pass the national exam at the end of grade 6; the second is that education facilities for secondary schools are more limited than those of primary schools. The enrollment reduction between grade 6 and 7 (one out of three students) is thus a consequence of supply and demand factors. But this is not the case within primary education: there is no specific requirement to move from one grade to the next—and normally, access to all grades of primary school is the same. Nevertheless, in 2011, four out of ten students in grade 1 do not attend grade 4. Factors contributing to these statistics include repetition and dropouts after achieving basic reading and writing skills. However, a clear reason for this attrition rate is not clear.[44] Dropout rates and repetition trends are not captured in the Education Management information System (EMIS).[45] **(Figure 32)**

Primary and secondary net enrollment rates for all grades have improved—regardless of place of residence, gender, or wealth. Also females have had a slightly higher net enrollment rate than males since 2007—both in primary and in secondary education.

Children from the poorest households are being left behind at the beginning of their education. There is a clear relationship between wealth and education—in Cambodia,

Box 4: Measuring Net Enrollment Rates

Net enrollment rates can vary significantly depending on the definition used. The strict definition of net enrollment rate is defined as follows: the proportion of students attending the correct education grade according to their age.[a]

$$\text{1st. grade Net enrollment rate } (NER^{1st}) = \frac{\text{\# of students 6 years old and attending first grade}}{\text{\# of children 6 years old at the begining of the year}} *100$$

To estimate the primary net enrollment rate, the weighted average of grades one through six is computed.[b]

Primary Net Enrollment rate (strict) = Average(NER^{1st}, NER^{2nd}, NER^{3rd}, NER^{4th}, NER^{5th}, NER^{6th})

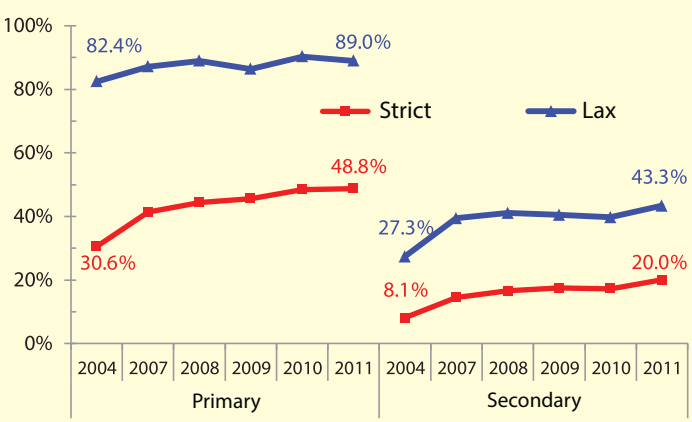
A more lax definition—using the education level (primary or secondary) as the unit of measurement—is sometimes used:

$$\text{Primary Net enrollment rate (lax)} = \frac{\text{\# of students 6 to 11 years old and attending primary}}{\text{\# of children 6 to 11 at the begining of the year}} *100$$

The strict net enrollment rate using the grade as the measurement unit captures repetition rates and late enrollment rates more accurately. Net enrolment rates using primary or secondary levels as the unit of measurement do not accurately capture repetition rates until the student turns 12 (for primary). Moreover, it fails to identify late enrollment once a child has enrolled in school.

Some governments use the more lax definition to report net enrollment rates. Rates reported by international institutions suggest the use of the education level—and not the grade—as the unit of measurement. Both measures are reported for comparison and to relate them to official government statistics. All other net enrollment rates reported in the document are derived using the "strict" definition.

Primary And Secondary Net Enrollment Rates Using The "Strict" And "Lax" Definitions, Cambodia, 2004-2011



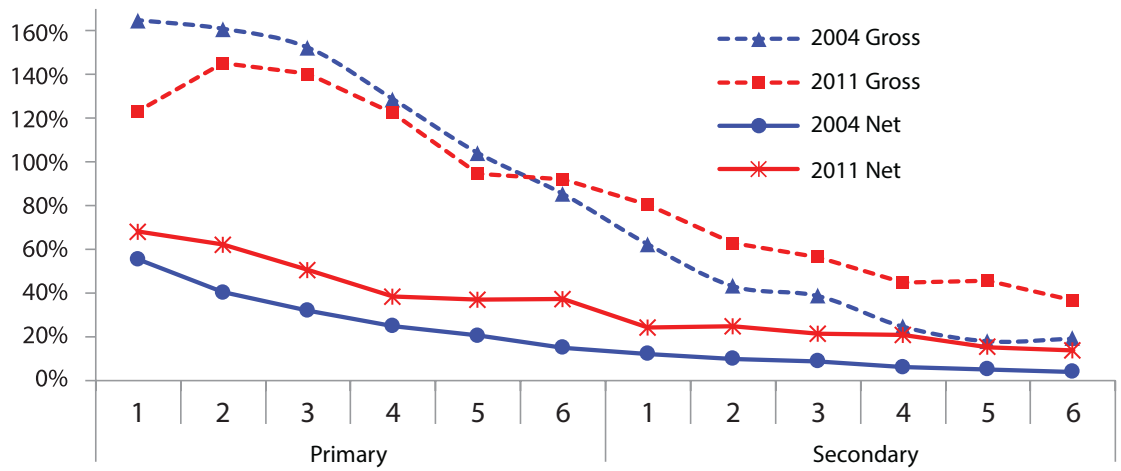
a. Age at the beginning of the school year as defined by the Ministry of Education.

b. Weighted by the number of kids

the biggest difference in primary net enrollment rate is among the poorest children. With only a 34.4 percent net enrollment rate, the poorest children are the only group below the national average. Even children in the next wealthiest group (quintile 2) have primary net enrollment rates above the national average **(Table 20)**.

With the exception of gender, secondary net enrollment rates show important disparities. Attrition and repetition are

Figure 32: Net And Gross Enrollment Rates In Cambodia 2004 And 2011



Source: World Bank staff estimates based on CSES

Table 20: Net Enrollment Rates For Primary And Secondary, Cambodia 2011

	Place of residence			Gender		Wealth by quintile					National
	P.P.	O. Urban	Rural	Male	Female	Poorest	Q 2	Q 3	Q 4	Richest	
Primary	67.3%	58.0%	48.8%	47.3%	50.4%	34.4%	49.6%	50.4%	58.3%	62.9%	48.8%
Secondary (all)	50.2%	28.3%	15.4%	18.8%	21.2%	5.6%	13.7%	14.8%	27.7%	45.4%	20.0%
Grade 9	*60.0%*	*30.6%*	*17.4%*	*17.7%*	*25.5%*	*4.2%*	*15.7%*	*20.1%*	*26.7%*	*51.5%*	*21.5%*
Grade 12	*43.6%*	*16.6%*	*9.1%*	*13.9%*	*14.0%*	*5.3%*	*5.7%*	*9.4%*	*11.1%*	*35.5%*	*14.0%*

Source: World Bank staff estimates based on CSES

much greater amid the rural, the poor, and the middle class. In 2011, secondary net enrollment rates in Phnom Penh were over three times higher than those of rural households (compared to only one-third for primary). Moreover, children in the richest quintile had secondary enrollment rates at over 8 times of those of the poorest quintile (but less than 2 times in primary) and over 3 times of those in the middle quintile (but only one-fourth in primary).

Education Characteristics

Enrollment by Age

There is a strong relationship between enrollment and wealth—starting at age eleven. Although the enrollment gap between the poorest and richest children from 7-11 years old is less than 10 percentage points, at age 12 the gap increases to 18 percentage points. At 18 years of age, the gap widens to

57 percentage points **(Figure 33d)**. (Similar tendencies are found throughout all wealth quintiles.) There is no difference in attendance rates among males and females. Differences between urban and rural households are relatively small—until age 13 (less than 8 percentage points). The difference increases significantly at age 15 to almost 20 percentage points—with only small changes for older children **(Figure 33b and c)**.

Improvements in attendance have been mostly from young children. Overall attendance has improved for children 6-7 years old by around 13 percentage points and for children 8 10 by an average of four percentage points. But no real improvement in attendance was reported for children from 11 through15 years old.

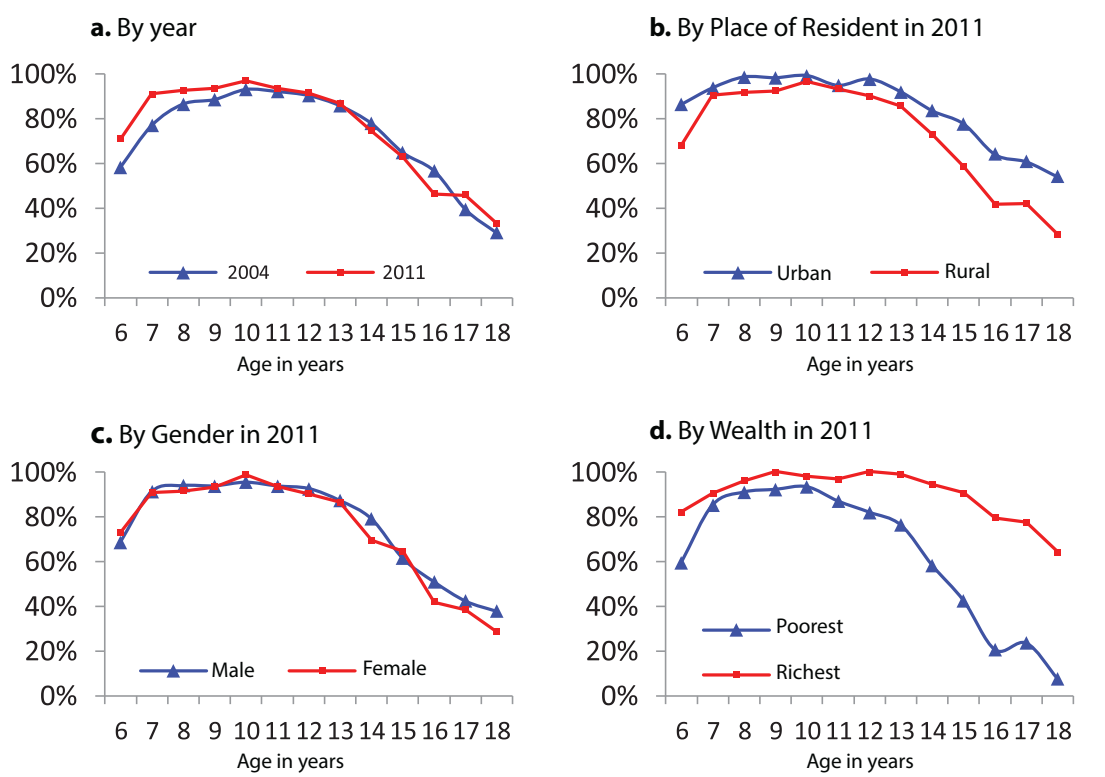
Dropouts and Children Who Have Never Gone to School

The rate of children that have never gone to school is improving in Cambodia. Children from 11 to 18 years old that have never attended school has reduced from 8.5 percent in 2004 to 3.6 percent in 2011, with

Reasons For Not Entering School

Reason	2004	2011
Cost/work	31.6%	57.1%
Household Chores	35.4%	13.5%
Motivation/grades	26.1%	22.2%
Other	6.8%	7.2%

Figure 33: School Attendance (Any Grade) By Age, Cambodia



Source: World Bank staff estimates based on CSES

almost no incidence in Phnom Penh (0.8 percent) or other urban areas (1.7 percent). Nevertheless, 9.7 percent of children from the poorest households never go to school—a number very close to the national average seven year ago **(Table 21)**.[46] Economic considerations (the need to work or education costs) have become the main reasons for children never enrolling in school. This was mentioned in over half of such cases (from less than one-third in 2004). Household chores are no longer the main reason for never attending school, dropping significantly from 35.4 percent in 2004 to only 13.5 percent in 2011.

The reasons for dropping out of school are very similar to the reasons for never entering school. This is true for both primary and secondary education. Among primary and secondary education students, economic reasons have increased from about one-third to more than one-half of all dropouts. Secondary education requires more expenses for the household: transportation, materials, and so forth; at the same time, secondary age students are older and able to earn money. It is therefore not surprising that economic reasons are mentioned more frequently for dropping out of secondary school (61.1 percent) than from primary school (53.3 percent).

Household chores are no longer the main reason for dropping out of primary or secondary school. Dropping out of school because of household chores reduced from the mid to high thirties in 2004 to about 13 percent in 2011. Lack of interest and low grades are more commonly cited as a reason for dropping out of primary education (28.1 percent) than dropping out of secondary education (18.0 percent) in 2011 **(Table 22)**.

As a reason to drop out of school, household chores are as important for males as they are for females. Household chores were mentioned almost 14 percent of the time as the reason not to return to school by both males and females. Because household chores are not restricted to traditionally housekeeping activities, males and females report activities associated with helping the household at the same rate. The current primary factor affecting dropout rates—regardless of location, gender, or wealth—is economic reasons. This is followed by a lack of motivation, low grades, and household chores. Other reasons, including supply side factors, are always a minor factor related to dropping out of school. **(Table 22)**

Overage

Overage is defined as attending a lower education grade according to official age for first grade and assuming no repetition. Late entry and repetition are the two major factors contributing to the overage in school enrollment.

Table 21: Percentage Of Children 12-17 Years Old Never In School, Cambodia 2014-2011

	Place of residence			Gender		Wealth by quintile				National
Year	P.P.	O. Urban	Rural	Male	Female	Poorest	Q 2	Q 3	Q 4	Richest	
2004	1.8%	6.1%	8.3%	7.2%	7.9%	14.9%	8.6%	6.8%	4.1%	2.0%	7.5%
2011	0.4%	1.3%	3.6%	3.7%	2.4%	7.7%	1.7%	3.1%	1.2%	0.4%	3.1%

Source: World Bank staff estimates based on CSES

The impact of late entry is twofold: The first stems from forgoing education at a young age—a critical period in child cognitive development is missed, making learning more difficult in the future. The second is late entry into the first grade, as well as repetition. This increases the age of children in latter grades—pressuring them to leave school to work, either doing household chores or working outside the home for money. Regardless of the reason, overage results in a diminished capacity for learning and a higher dropout rate in secondary education.

On average, late entry (overage in first grade) seems to be a much smaller problem in 2011 than it was seven years earlier. Estimates of late entry into school have substantially decreased from 1.3 years in 2004 to 0.4 years in 2011. But it is important to understand that total overage rates increase with repetition of school grades. In 2011, it was 0.8 years for third graders and 1.1 years for sixth graders (compared to 2.2 years in 2004). The average reduction for overage for all six primary school grades was one full year. But overage in Cambodia varies significantly: a large proportion of students report much greater overage values. Of the 40 percent of students with the highest overage, late entry in 2011 was a full two years; overage was 2.7 years for third graders and 3.1 years for six graders **(Figure 34)**.[48]

Overage can be directly linked to the dropout rate of students in Cambodia—especially in the latter grades. For example, four out of ten students would finish sixth grade at age 15 instead of at age 12, thus

Table 22: Dropout Of 12-17 Year Olds, By Year And Main Groups, 2011 Cambodia

		Year					In 2011[47]
	Reason	**2004**	**2011**	**Rural**	**Male**	**Female**	**Q1 and Q2**
Primary	Cost/work	30.2%	53.3%	52.8%	48.8%	58.0%	60.4%
	Household Chores	34.5%	12.5%	12.2%	11.4%	13.5%	13.2%
	Motivation/grades	27.7%	28.1%	29.0%	33.6%	22.4%	22.5%
	Other	7.7%	6.1%	6.0%	6.2%	6.1%	3.8%
Secondary	Cost/work	34.8%	61.1%	61.3%	48.7%	68.8%	64.9%
	Household Chores	39.5%	13.2%	13.1%	17.4%	10.6%	12.6%
	Motivation/grades	22.7%	18.0%	16.9%	23.4%	14.7%	13.9%
	Other	3.1%	7.7%	8.7%	10.5%	5.9%	8.6%
Total	Cost/work	31.4%	56.4%	56.2%	49.2%	62.4%	61.1%
	Household Chores	35.6%	13.7%	13.4%	13.8%	13.6%	14.1%
	Motivation/grades	26.0%	23.0%	23.1%	29.1%	17.9%	19.5%
	Other	6.9%	6.9%	7.3%	7.9%	6.1%	5.2%

Source: World Bank staff estimates based on CSES

increasing the pressure to drop out to engage in labor or family activities. Currently, a full 39.5 percent of students are not receiving formal education until eight years of age (instead of six years). **(Figure 34)**

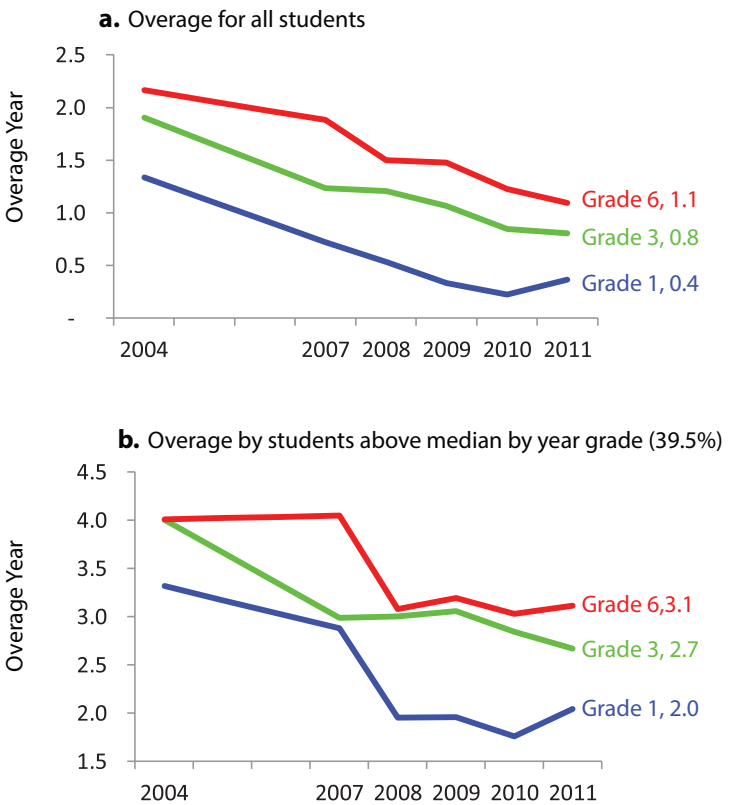
The official education policy in Cambodia—the Education Strategic Plan—has been silent on the issue of overage enrollment although Cambodia faces serious overage rates for at least 40 percent of students from grade 1 to grade 6. Even though the causes of overage enrollment rates are late school entry or repetition or both, policy discourse has focused, almost exclusively, on repetition and dropout only. The analysis of this study suggests that proper-age enrollment has real effects on future attendance and progression into later grades.

Education Quality and Finance

To get a full picture of the Cambodian public education system and its ability to provide citizens with the skills they need to secure professional jobs and to attract foreign investment, it is necessary to look beyond simply getting children into the classroom and keeping them there. The quality of teaching must be addressed. However, at present, such indicators to measure the progress of student learning are not available.

Previous research identified improved learning achievements as the essential factor for measuring the quality of education. Several recent studies show countries that have higher student achievement on international exams also have higher rates of economic growth (E. Hanushek & Woessmann, 2009; Pritchett & Viarengo, 2009). Other studies have extended this by showing that countries

Figure 34: Overage By Grade Over Time, Cambodia 2004-2011



Source: World Bank staff estimates based on CSES

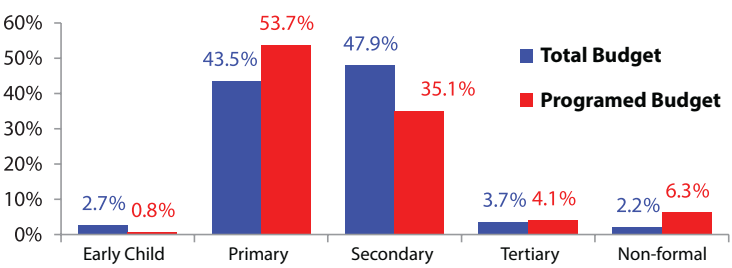
with students with higher cognitive skills have more consolidated democracies (Barro, 1999; Campante & Glaeser, 2009). These previous studies clearly show the significance of paying attention to students' learning outcomes as a key indicator on education quality. In practice, standardized national assessment is an effective policy and practical tool to gather and evaluate information on student learning and their cognitive development. It is also necessary to make informed decisions about the next steps in the educational process (Clarke, 2012).

Almost 90 percent of MoEYS budget is allocated for primary and secondary education, while the remaining 10 percent is budgeted

across the remaining sub-sectors: Early Child Education (ECE), tertiary, and Non-Formal Education (NFE) **(Figure 35)**.

The education budget trends have been increasing for some time, reaching a peak of 19.2 percent of MoEYS budget in 2007. Recently, however, there has been a downward decline following the 2007 apex **(Figure 36).** Although the percentage of recurrent budget share shows a declining trend, the amount actually allocated has been increasing. In fact, the unit expensed cost for education has increased from $46.10 for each student in 2008 to $72.43 for each student in 2012. However, most of the increase in cost for each student is the result of increases in teachers' salaries, which have been growing by about 10 percent every year. In contrast to this, the growth rate of the Program Budget for each student has been smaller. **(Table 23)**

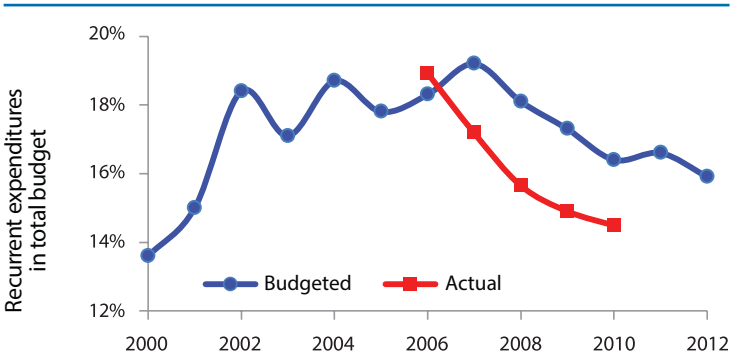
Figure 35: Total And Programed Education Budget By Sub-Sector, 2010



Source: World Bank Staff Estimated

Non-program program budget figures based on salary allocations for public employed teachers/staff and their different salary level across each sub-sector. Program budget is based on actual budgeted amount excluding Youth and Sports.

Figure 36: Budgeted And Actual Recurrent Expenditures, Cambodia



Source: World Bank Staff based on figures provided by MoEYS and European Union

Budget formulation and execution is a serious issue that impacts all education sector activities. A greater cause for concern is that the budget has been significantly underspent over the past few years. In 2010, it was underspent by more than US$30 million—a figure as large as the total program budget for that year. Although low teacher salary has been a recurrent issue, the largest under-spent item is remuneration (budget items under Chapter 64). In 2010, it was underspent by over US$20 million, still just for budget items under Chapter 64. This suggests that although the education budget's absolute amount increased, these increases were not spent effectively—resulting in a smaller budget ratio for education amid the total national budget for the following fiscal year.

Policy Recommendations

Further expansion of non-formal education (alphabetization campaigns) targeting poor

Table 23: MoEYS Yearly Cost Per Student

Year	Program Budget	Non-Program Budget	Total (US$)
2008	$ 7.07	$ 39.03	$ 46.10
2009	$ 8.59	$ 46.06	$ 54.65
2010	$ 8.93	$ 47.41	$ 56.34
2011	$ 9.89	$ 52.94	$ 62.83
2012	$ 9.82	$ 62.61	$ 72.43

Source: WB Staff based on MoEYS's EMIS data

adults is necessary to cover the remaining 8.4 percent of illiterate youth and the 20.7 percent of illiterate adults. Better coverage of primary education and the promotion of non-formal education have decreased illiteracy rates in Cambodia. But illiteracy rates remain high for the poorest Cambodians (19.4 percent) and for adults 15-64 years old (20.7 percent). Alphabetization campaigns can be an option to reach them. Such programs should concentrate efforts in rural areas and in the poorest households and toward adult females.

The most important recommendation to improve primary education outcomes is promoting enrollment in first grade for all children older than 5 years, especially among the rural poor. While the average overage enrollment for first graders (late entry) stands at a reasonable 0.4 years in 2011, a full 38 percent of students enters school—on average—two years late. The loss of this critical time in children's development is an impediment for future learning that decreases the benefits of education and increases the chances of dropouts in later years.

The second most important option to improve primary education outcomes is to reduce repetition. Repetition from grade one to grade six adds another 0.7 years overage by grade six. Similar to late entry, repetition adds 1.1 years of overage for an important share of students in grade six (four out of ten). When combined with late entry, it adds a total 3.1 years of overage by grade six.

Any effort to remedy these two problems must address two issues: identifying the group of children that are entering first grade late or falling grades and providing the right incentives to change both attitudes and practices. Scholarships and school feeding programs have been found to be an effective means to counter this phenomenon—not only in Cambodia but also internationally. Their coverage should be expanded.

Programs like targeted cash programs and other targeted transfer schemes are well suited to improve secondary education in Cambodia. Improvements of secondary education outcomes require improvements in primary completion rates. The most important reason for dropout rates is economic; thus any program that aims at keeping more students in secondary school must take this into consideration. Economic reasons for repetition and dropouts are more commonly cited from young women and from the poorest 40 percent of the students. Rigorous evaluations of the Cambodia Education Sector Support Project (CESSP) scholarship program have shown this program to significantly increase enrollment rates among children from poor households, especially girls (Filmer and Schady, 2009). Such coverage should be expanded.

International experience strongly suggests that standardized national assessments are effective tools to make an informed decision about the educational process. The Ministry's Quality Assurance Department has been conducting official national assessment tests for grade 3 for the first time, which is a positive trend, but it is likely to improve quality only if it is made systematic and routine.

As a portion of total budget share in recent years, education expenditure has declined; it has also been significantly

under-spent for many years. The education budget showed a progressively upward trend throughout much of the past decade or more, reaching 19.2 percent in 2007. Yet the more immediate trend has been downward since 2007, reaching 15.9 percent in 2012. However, the greater concern is that these budget outlays have been significantly underspent for many years. Budget formulation and execution thus becomes an urgent issue necessary for improving overall financing and capacity across all education sector activities.

More resources should be allocated to early child education to meet rising demand. However, any increases in the Early Child Education budget should be achieved by increasing the overall education budget, rather than by reducing allocations in other sub-sectors. Almost 90 percent of MoEYS budget is allocated for primary and secondary education; the remaining 10 percent is budgeted across the following sub-sectors: Early Child Education (ECE), tertiary, and Non-Formal Education (NFE) **(Figure 35)**. **(Box 5)**

Health

Cambodia has made significant progress in reestablishing its health system in the decades following genocide and civil conflict. Cambodia lost up to 90 percent of their trained health staff during the Khmer Rouge regime; moreover, the subsequent civil conflict that lasted until 1998 made provision of health service difficult. Since then, Cambodia has made substantial progress in rebuilding its health system. The public health system currently consists of the central Ministry of Health (MOH), 26 Provincial Health Departments, and 77 Health Operational Districts, which typically have one district or provincial hospital, and 10-15 health centers. There are currently 6 national hospitals, 83 referral hospitals, and 1024 health centers and 121 health posts throughout the country. The Ministry of Health employs 19,700 staff; including 3,200 doctors; 9,000 nurses; and 4,600 midwives. It has achieved its objective of ensuring at least one primary midwife in each health center, and it is now seeking to increase coverage of secondary midwives.

Health is a priority sector for the government. The government's Rectangular Strategy prioritizes the construction of referral hospitals and health centers, the provision of free health care for the poor, and the continued prevention and treatment programs for communicable diseases. Other interventions include the promotion of maternal and child health, and the adoption and enforcement of health laws and regulations. The Strategy's policy statements are further elaborated upon in the Second Health Strategic Plan (HSP2) for 2008-2015. The Plan focuses on the development of health systems to improve health outcomes; it has established the five following sector-wide strategies to achieve these goals: (i) health service delivery; (ii) health care financing; (iii) human resources for health; (iv) health information systems; and (v) health system governance. National health financing strategies and policies are further specified in the National Charter on Health Financing (1996) and the Strategic Framework for Health Financing (2008-2015).

Cambodia has made remarkable progress toward the health Millennium Development Goal. Concurrent with progress in economic conditions, key health indicators have also improved. From 2000 to 2010, the maternal mortality rate (MMR)[50] dropped from 437 to 288 (per 100,000 live births) and the under-five (U5) mortality rate1

Box 5: Social Protection System In Cambodia

Cambodia's recent achievements in poverty reduction are remarkable. Nevertheless, one in five people remain poor, and an additional one in five people risk falling into poverty from a very small shock. The fast pace of poverty reduction experienced thus far might not continue in the future because the smaller proportion of the population living below the poverty line is more difficult to reach and economic growth could slow down as a byproduct of increased development.

Poverty and vulnerability to shocks call for a social protection system that helps households exit poverty, cope with shocks, and invest in human development. Development and urbanization have brought about an erosion of traditional family based safety net systems, which have historically helped the population cope with destitution and risk[49]. This erosion of former safety nets leaves households vulnerable to shock; in addition, it leaves them with a limited ability to exit poverty. In the 2011 CSES, 98 percent of the population reported not receiving any form of pension or scholarship from the government. Moreover, 80 percent of the poor does not have access to free or subsidized health treatment even at primary level, implying that they need to borrow (28%) or sell assets (9%) to pay for health care. High levels of child malnutrition among the poor are especially worrying because of the negative effects malnutrition has on cognitive development, as well as its large human and economic costs at both the individual and aggregate levels.

The Royal Government of Cambodia has recently recognized the need to introduce an integrated social protection system; it has created the National Social Protection Strategy (NSPS) for 2011-2015, signed by the Prime Minister in 2011. This strategy aims at accomplishing the following: (i) protect the poorest and most disadvantaged who cannot help themselves, (ii) mitigate risks that could lead to negative coping strategies and further impoverishment, and (iii) promote the poor to move out of poverty by building human capital and expanding opportunities. From 2012-2013, the government worked with development organizations on the preparation of three pilot programs to experiment with program design and delivery mechanisms for safety nets. Implementation of these pilots is starting in 2013.

Remarkably, since 2007, the government has developed and implemented (with financial and technical support from GIZ and AusAID) an official poverty targeting system—the IDPoor—which is available to any program. This targeting mechanism is based on household assessments through a proxy means test from a survey questionnaire combined with village-level discussions. Households identified as extreme poor or poor are classified as IDPoor 1 and 2, respectively, and receive an IDPoor card. In 2012, the IDPoor program covered almost all rural areas with at least one survey round; survey waves are repeated in each province every three years. The development of an urban poverty targeting system is planned for 2013. The IDPoor system unfortunately does not allow for post-identification, thus requiring programs to set up their own redress mechanism for targeting (notably, the health equity funds.

Despite government commitment and availability of a targeting mechanism, the coverage of safety nets remains at only 2 percent of the poorest quintile of the population, compared to an average of 53 percent in East Asia and 49.3 percent among other developing countries. Until 2013, the government has been funding three main safety net programs: welfare payments

for specific vulnerable groups (elderly people, orphans, veterans) through the Ministry of Social Affairs; scholarships for poor children in lower-secondary schools through the Ministry of Education, and the Health Equity Funds (HEFs) through the Ministry of Health—all with co-financing from development partners. Unfortunately, no information is available on the beneficiaries, coverage, or transfer amounts of the welfare payments by the Ministry of Social Affairs; thus no benefit incidence analysis can be done (ILO 2012). An impact evaluation by the World Bank has found that the scholarship program significantly increases enrollment among beneficiaries, though no information is available on the accuracy of the poverty targeting system employed (Filmer and Schady, 2009). The health section in this chapter finds that targeting accuracy and usage among the poor of HEF in accessing medical treatment are limited, with about 80 percent of the poor without access to an HEF or IDPoor card. The other existing safety net programs are funded and often directly implemented by development partners and NGOs, and their coverage is limited (ILO, 2012 and RGC, 2010). The most notable interventions among these are labor-intensive public work programs, implemented in a few provinces under separate programs by the Ministry of Economy and Finance and the Ministry of Interior—although financed by the Asian Development Bank and the World Food Program/AusAID. With the exception of Health Equity Funds, social insurance mechanisms do not cover the poor because they are limited to civil servants, veterans, and formal sector employees through the National Social Security Fund for Civil Servants (NSSFC), the National Fund for Veterans (NFV), and the National Social Security Fund for private sector employees (NSSF), respectively (ILO, 2012).

Given the nascent nature of the social protection sector in Cambodia, and its relatively low level of coverage, the following are key recommendations to reduce poverty and vulnerability, and to foster investment in human development among the poor:

1) **Increase the amount of government resources allocated to social protection.** This will ensure the financial and institutional sustainability for these programs. As Cambodia develops toward middle income status, donor funding will decrease. Government resources are thus a paramount necessity if the country is to establish a social protection system.

2) **Strengthening the IDPoor targeting mechanism.** This can be achieved by improving accuracy and allowing re-redress and post-identification, as well as by developing methods to identify those at risk of falling into poverty (vulnerability targeting).

3) **Expanding coverage and improving targeting of demand-side instruments.** This will incentivize the use of key services among the poor. This includes expanding scholarship programs for children from poor households and improving not only targeting but also promoting usage of Health Equity Funds (HEFs) among the poor, as well as testing new interventions to cover demand side gaps in key services (such as in nutrition and sanitation).

Promote programs open to the near poor. Programs cannot be open to only the poor: vulnerability needs to be decreased across the population. Such programs could consist of an expanded and self-targeted public works program open to anyone to get an income case of unemployment, as well as community-based social health insurance for which the near poor pay contributions.

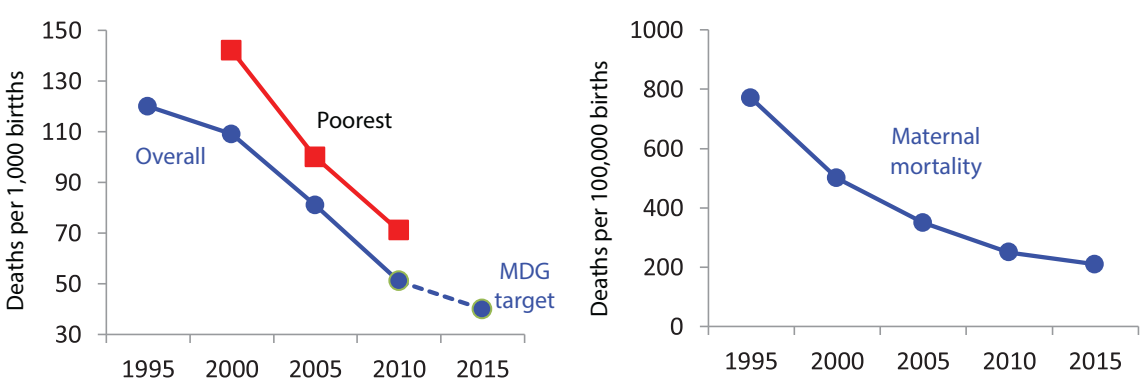
dropped from 124 to 54 (per 1000 live births) **(Figure 37)**. Overall, the under-five morality rate decreased to a point in 2000 when 1 in 8 children born in Cambodia did not survive their fifth birthday. But by 2010, the rate improved to just 1 in 19 children. Cambodia is now on target to meet these two Millennium Development Goals (MDG).

Child Mortality

Child mortality is highly correlated with wealth, especially for children 1-12 months old. Inequality is an intrinsic problem of most developing countries and Cambodia is no exception. Aside from the moral dilemma that this poses, inequality generates inefficiency and delays in development. Despite significant declines in child mortality (children under 5 years), the reduction in child mortality since 2005[51] was twice as high in urban areas compared to rural, and higher for the richest income quintiles compared to the poorest. Child mortality has remained unchanged at 3.3 times higher for the poorest quintile compared to the wealthiest since 2005 **(Figure 38)**, and three times higher for rural children compared to urban children. Education of the mother is also an independent predictor for under-five mortality. Children born to mothers with no education are twice as likely to die compared to those whose mothers received secondary education or higher. Yet the poorest girls are twice and five times less likely to attend primary and secondary education, respectively, compared to the wealthiest quintile. **(Figure 37)**

Inequities have increased for mortality of children aged one month to one year and neonatal mortality has shown limited improvement, particularly for the poor and rural populations. Underfive mortality can be seperated into several components: neonatal mortality (deaths of children from birth to one month), post-neonatal mortality (deaths from 1 – 12 months), and child mortality (death from 1 – 5 years). A review of components of child mortality reveals several trends: First, deaths of children aged 1-5 have declined sharply across all quintiles, and declined by almost half for the poorest from 2005-2010—although poor children of this age are still three times more likely to die than the highest quintile. Second, post-neonatal mortality shows the highest levels of inequities. While post-neonatal mortality for the poor has declined by half

Figure 37: Cambodia Is On Target To Meet Under-Five And Maternal Mortality MDGs



Source: CDHS 2000, 2005, 2010

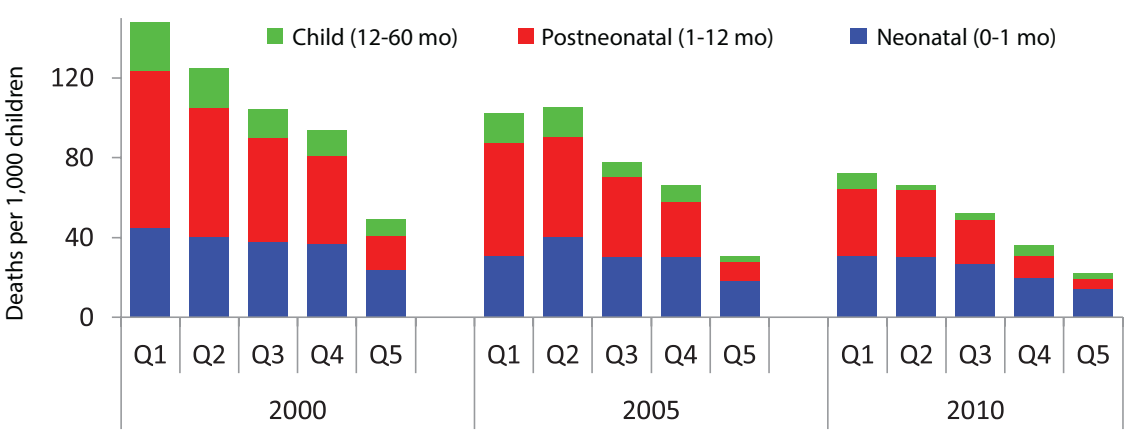
in the past decade, mortality rates are six times that of the poorest compared to the wealthiest quintile. Third, neonatal mortality has seen the least impovement across all income groups—dropping from 37 for each 1,000 live births in 2000 to 28 in 2005, but declining only to 27 in 2010: neonatal mortality is now the predominant source of child mortality for both the rich and the poor **(Figure 38)**. While neonatal mortality declined in urban areas from 2005-2010, it showed no improvement either in rural areas or among the poorest people **(Figure 42)**

Reductions in child mortality reflect improvements in preventive services and improved socioeconomic status, while neonatal mortality is strongly influenced by quality of care. The significant reductions in child mortality likely reflect improvements in overall socioeconomic status and increased coverage of preventive interventions, such as immunizations. The growing disparity in post-neonatal mortality likely reflects a range of factors including continued disparities in socioeconomic status, maternal education, environmental health and sanitation, malnutrition, and inadequate access to quality preventive and curative health services. Neonatal mortality is strongly influenced by the quality of maternal and child care—including prenatal, delivery, and post-delivery. **(Figure 38)**

Insufficient coverage and equity of primary health interventions account for much of Cambodia's child mortality. In 2010, the ten most prevalent causes of under-five death were from complications during birth (asphyxia, prematurity, and sepsis), from diseases that can be prevented by vaccines (pneumonia and measles), or from a lack of access to water and good sanitation (diarrhea) **(Figure 39)**. Insufficient coverage and equity disparities along the continuum of care still exist (for example, antenatal care and quality of birth delivery and post-natal care); moreover, a lack of vaccinations and access to potable water and good sanitation are still accountable for a large fraction of the under-five death toll.

Communicable diseases such as malaria have experienced a substantial reduction, however, mainly because of the up-scaling of not only insecticide-treated nets but also the promotion of prompt access to treatment. The country now approaches the pre-elimination

Figure 38: Mortality Rates For Children Aged 0 5 Years By Year, Cambodia



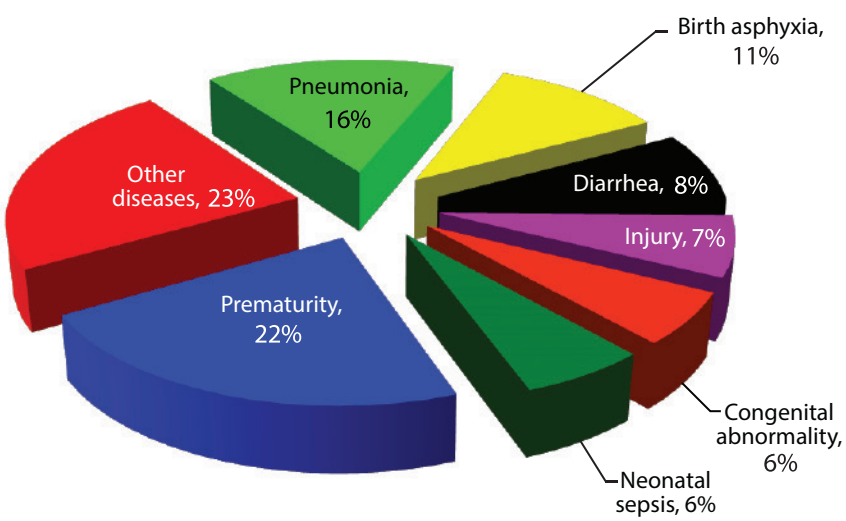
Source: CDHS 2000, 2005, 2010

stages, although the threat of drug resistance is still a concern.

There are indications of increased risk of death when births were attended by unskilled personnel. What explains the slow progress on neonatal mortality? The fact that 23 percent and 17 percent of all under-five deaths **(Figure 39)** are due to prematurity and neonatal sepsis or birth asphyxia, respectively, is an indication of health system failures along the continuum of care (antenatal care, delivery, and post-natal care). Neonatal mortality has also dropped substantially less in rural areas, which accounts for the largest segments of the population—as well as among the poorest people **(Figure 40)**. Regression analysis of the Demographic and Health Survey (DHS) data supports this suggestion, indicating that the risk of death increased when births were attended by traditional birth attendants, nurses, and midwives compared to births attended by qualified doctors. Similarly, regression analysis controlling by relevant covariates showed a greater chance of death if birth took place in a public hospital compared to a birth at home and that the risk was reduced for deliveries in private hospitals. These results were not statistically significant, however, due to the small sample size. Higher risks at public hospitals could be partly attributable to more high-risk deliveries, but shortcomings in quality of care may also be a factor.

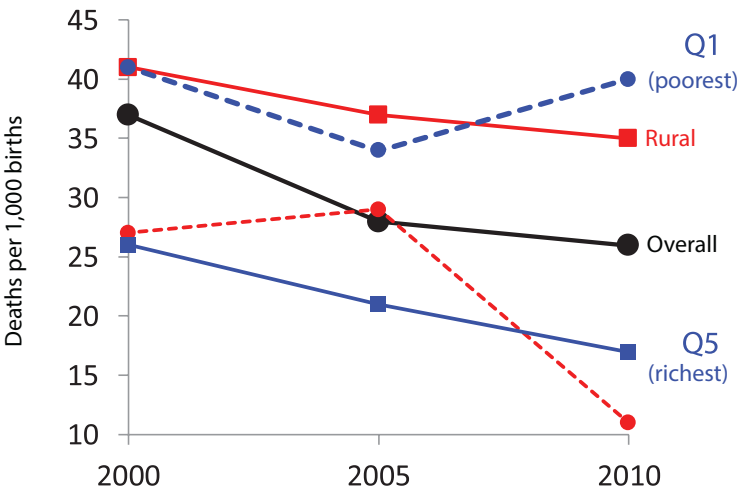
The growing burden of non-communicable diseases will increasingly affect the poor as well as the better off. Cambodia faces a dual burden of both communicable and non-com municable diseases. The burden of non-communicable diseases already exceeds that of communicable diseases. According to the World Health Organization, 832 deaths for each 100,000 people in 2004 were due to non-communicable diseases whereas 660 deaths were due to communicable diseases. As the country industrializes and life expectancy

Figure 39: Most Prevalent Causes Of Under Five Mortality, Cambodia 2010



Note: Malaria HIV and Measles were ≤2 % each.
Source: Child Health Epidemiology Reference Group (CHERG) 2012

Figure 40: Neonatal Mortality By Residence And Wealth, Cambodia 2000-2010



Source: CDHS 2000, 2005, 2010

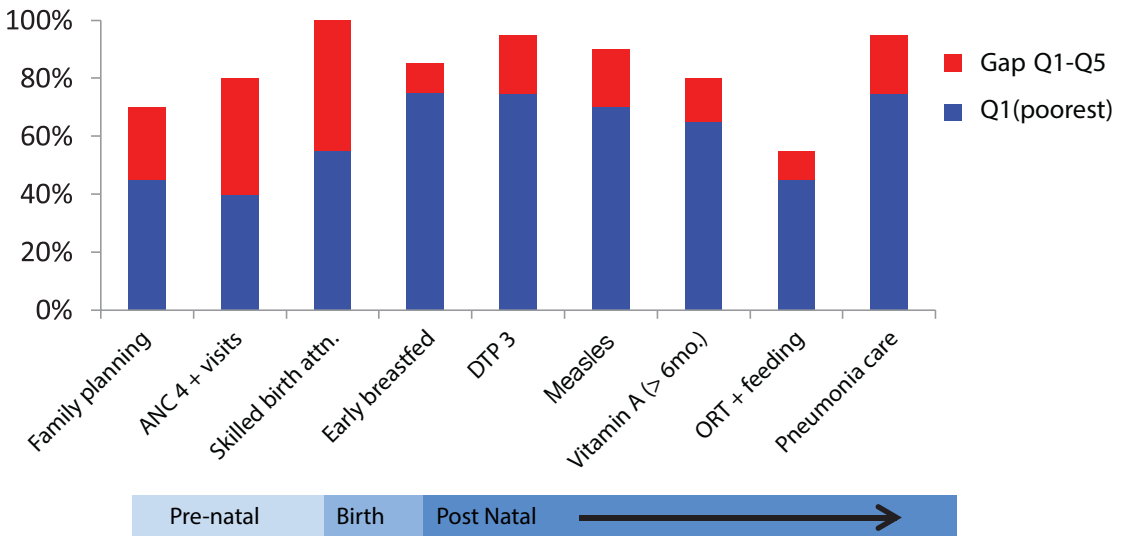
prolongs, it is expected that non-communicable diseases will dominate the overall burden of disease in the forthcoming years. Chronic diseases and conditions such as hypertension, diabetes, and cancer will increasingly affect the poor, with major consequences for health outcomes—furthermore, it will put more people at risk of impoverishment because of health spending. A focus on primary prevention and treatment will be necessary to reduce the disease burden and to reduce costs for not only the people, but also the health system—with appropriate referral services and financial protection for more severe cases.

Equity in the Provision and Use of Health Services

Although coverage of some preventive interventions and health behaviors has achieved good levels of equity, coverage remains highly inequitable for others (Figure 41). Overall, equity is better for services that require a single contact than for those that require follow-up treatment and continuity of services. For example, while 89 percent of the poorest women had at least one antenatal visit in 2010, only 40 percent of poor mothers attended the recommended four antenatal care visits compared to 80 percent amid the richest. This leads to having less access to essential nutritional support (for example, folic acid and iron supplementation) and subsequent quality of birth delivery. Consequently, an increased risk of neonatal and maternal mortality exists. Skilled birth attendance has improved dramatically in the past decade, but still shows high gaps between the wealthiest and the poorest. Women in rural areas are more than three times as likely to give birth at home compared to urban women (CDHS 2010). The poor are more likely to live farther from a public health center and to face greater financial and opportunity costs for follow up visits or transportation for delivery. In contrast, service provided through outreach (such as vitamin A distribution) has achieved relatively equitable coverage, but it could be improved.

Despite significant improvements in immunization, the poorest still suffer from substantially lower coverage rates. Vaccination coverage for most diseases has dramatically increased over the last two decades from 40 percent of children vaccinated for measles, diphtheria, whooping cough and tetanus (DTP), and Bacillus Calmette–Guerin (BCG) in 1990 to over 90 percent in 2010. These relatively high rates of coverage have contributed to reductions in child illnesses and deaths. But only 65 percent of the poor are fully immunized, compared to 88 percent of the wealthiest quintile. Ensuring high vaccination coverage for the poor and remote communities could further reduce sickness and mortality from diseases like pneumonia

Figure 41: Access To Key Health Interventions, Q1 And Gap With Q5, Cambodia 2010



Note: ORT + feeding refer to treatment of diarrhea
Source: DHS 2010.

and measles, ranking third and tenth among the top causes of under-five mortality, respectively. The ultimate consequence of differential coverage in preventive disease measures and health care practices is disparities in mortality across wealth quintiles.

Over 90 percent of the poor seek medical care when sick, but the majority seeks care through unlicensed drug shops and markets. The percentage of the poor seeking some sort of health care when ill increased from 62 percent in 2004 to 92 percent in 2011. This is an encouraging trend. The percentage of the poor seeking care in the public sector increased steadily from 2004 to 2009, but subsequently declined from 26 percent in 2009 to only 16 percent in 2011—with 35 percent seeking care in the private sector, and 48 percent seeking care through drug shops and the nonmedical sector. In 2011, the most frequent sources of curative care for the poor were unlicensed drug shops and markets (47 percent), health centers (13 percent), private pharmacies (13 percent), and other private medical providers (9 percent). In addition, the use of provincial and district hospitals by the poor declined by half from 2007 to 2011 (to only 1.4 percent and 0.6 percent, respectively). The wealthiest sought care nearly three-quarters of the time in the private sector, but they were also more than twice as likely as the poor to use district, provincial, or national hospitals **(Table 24)**. Residents of Phnom Penh are the most frequent users of national hospitals (5 percent of the time), but nearly 70 percent of Phnom Penh residents purchased medicines directly through private pharmacies when sick. The percentage of rural residents seeking care through home visits to or by trained health workers is the same as those visiting health centers (9 percent)—indicating a continued prevalence of dual practice in rural areas.

Health seeking behavior is influenced by cost relative to wealth, perceptions of quality, accessibility, and perceived severity of the illness. It is important to differentiate between seeking healthcare for primary and secondary care. The poor have a preference for informal drug sellers and private providers at the primary care level, where prices across sectors are comparatively low: this appears to be driven by convenience (for example, proximity, waiting time, and so forth). From 2009 to 2011, the average spending by the poor at drugs shops was about US$2, while private pharmacies were only slightly more expensive at an average of US$5 **(Table 24).** But drug shops and pharmacies tended to be closer with less waiting time. However, for secondary care (in-patient), where costs are substantially higher, the poor—as well as the average population—preferred the public sector and social schemes aimed at reducing costs, such as Health Equity Funds (HEFs), which have increased the demand for public facilities among the poor.

Table 24: Health Delivery Providers Used And Average Costs, Cambodia, 2007-2011

	% seeking 2007 Poorest	Percentage seeking care in 2011				Average costs '09-'11	
		Poorest	Wealthiest	Rural	Phnom Penh	All	Poorest
National hospital (NH)	0.7%	0.9%	2.2%	1.3%	5.0%	$84	$4
Provincial hospital (RH)	3.4%	1.4%	2.9%	1.6%	0.8%	$63	$9
District hospital (DH)	1.9%	0.6%	3.3%	2.5%	0.0%	$34	$8
Health center/Health Post	19.6%	13.4%	3.5%	8.8%	0.5%	$71	$11
TOTAL PUBLIC	25.6%	16.3%	11.9%	14.2%	6.3%	$39	$6
Private hospital	1.5%	0.7%	2.8%	1.6%	1.5%	$51	$18
Private clinic	9.0%	6.9%	19.4%	13.3%	11.1%	$43	$10
Trained health worker anywhere	19.9%	5.8%	8.4%	9.1%	4.3%	$18	$17
Private pharmacy	6.9%	12.7%	39.2%	16.2%	68.2%	$8	$5
TOTAL private medical	37.3%	26.1%	69.8%	40.2%	85.1%	$20	$7
Shop selling drugs/market	37.4%	46.9%	14.1%	35.9%	7.6%	$4	$2
Other private	2.6%	9.3%	3.0%	7.9%	0.0%	$16	$5
Kru Khmer/Monk	0.4%	0.9%	0.8%	1.0%	0.6%	$26	$24
TOTAL private non-medical	40.4%	57.1%	17.9%	44.8%	8.2%	$7	$3
Grand Total	**100%**	**99%**	**100%**	**99%**	**99%**	**$18**	**$5**

*** Notes:** values correspond only for those seeking care in each provider type. Totals are weighted by frequency use. Table reports the first place care was sought, among those who sought care. Average costs reflect total health costs for the past 30 days, which may include visits to other facilities and are expressed in constant 2009 Phnom Penh dollars (US$1=4,044 Cambodian Riels)

Source: World Bank Staff Estimates based on CSES 2007, 2009, 2010, 2011.

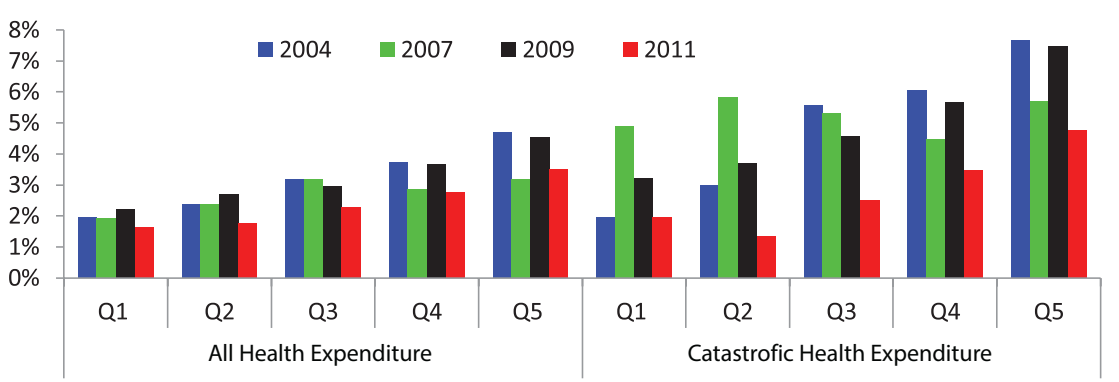
Equity of Health Spending

Health spending (as a percentage of income) and catastrophic health spending has declined since 2009, owing to rising incomes and the increased use of low-cost services. Health spending can be an important source of impoverishment. As a percentage of total income, health spending has declined from 3.3 percent in 2007 to 2.5 percent in 2011 for all Cambodians and from 2 percent to 1.5 percent for the poor **(Figure 42)**. Rural people currently spend 2.8 percent of their income on health, however, compared to only 1 percent for residents of Phnom Penh. Catastrophic health expenditures (defined as a household spending more than 40 percent of their annual nonfood expenditure on health) averaged almost 5 percent in 2004, 2007, and 2009. It fell to 3.6 percent in 2010 and fell again to 2.8 percent in 2011. This overall decline in health spending as a percentage of income and catastrophic spending appears to be due to a combination of rising incomes and a shift to lower costs services through private pharmacies and drug shops. In Cambodia, like in most countries, health spending tends to increase disproportionately with income, reflecting greater disposable incomes and access to savings.

…but health spending remains an important source of debt and impoverishment for the poor and near-poor, and for the chronically ill. Despite these improvements, an estimated 2 percent of Cambodians fell into poverty in 2011 because of health costs, only a slight decline from 3 percent in 2004. Health spending remains a significant burden on the poor, with 18 percent of the poor incurring debt because of health expenses. Health spending is also a significant burden for the 9.4 percent of Cambodians households that reported at least one family member being ill for over a year in 2011 (owing to chronic illness or injury). Poor families spent 25 percent of per capita monthly income for long-term illness. But in rural areas, the average health spending for chronically ill persons was 125 percent of per capita income, suggesting a significant burden and incurred debt for the entire household.

Health Equity Funds (HEFs) and other exemption schemes for the poor reduce health expenditure and debt, while increasing the likelihood of using public services. Health Equity Funds (HEFs) were first established by NGOs in the late 1990s to pay user fees for inpatient services on behalf of the poor. They have since expanded to 44 of

Figure 42: Health Spending As % Of Total Income



Catastrophic spending is defined as spending more than 40 percent of nonfood consumption on health.

Source: CSES 2004, 2007, 2009, 2011 and World Bank calculations.

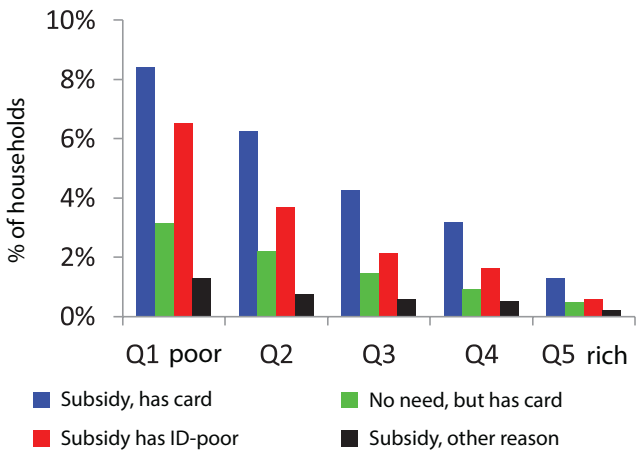
Cambodia's 77 operational districts in 2013. An estimated two-thirds of the poor are covered geographically, and the government has committed to achieving national coverage by 2015. Coverage is also expanding from inpatient care to outpatient services, with over 300 of the Cambodia's 1,100 health centers eligible for HEFs. These funds have emerged as an important source of flexible income for public facilities, with 60 percent of revenue used for staff incentives, and the balance for operating costs. The poor are identified by the national ID Poor system, managed by the Ministry of Planning who issues HEF cards. But Health Equity Fund Operators (HEFOs, usually NGOs) also use a "post-ID" system to provide free services to poor people that do not have cards. These fund operators are also responsible for monitoring quality of care for the poor and ensuring that no additional payments are made. A recent impact evaluation found that HEF schemes managed by third party operators reduced, but did not eliminate out-of-pocket health expenditures by the poor and reduced indebtedness. The evaluation also found positive synergies between HEFs and supply-side interventions such as health service contracting (Flores, et.al, 2011).

Coverage and use of Health Equity Funds remains low, however, because of incomplete coverage of the ID Poor system, and possibly gaps in distributing cards, as well as the low use of public services. Despite the high theoretical coverage of HEFs and other voucher schemes, a majority of the poor do not have HEF cards, and those with cards sometimes did not use them. In the 2011 CSES, about only 10 percent of the poor reported using an HEF or other cards to receive free or subsidized treatment, another 10 percent reported using their ID Poor card, but 4 percent had an HEF card but did not use it. Thus about 80 percent of the poor did not access free or subsidized treatment. About 5 percent of households in the 3rd and 4th wealthiest quintiles report using ID Poor or other subsidized cards to get treatment, suggesting inclusion errors in the ID Poor system **(Figure 43)**.

The 2010 Cambodian Demographic and Health Survey (CDHS) also found low usage rates of not only HEF but also Community Based Health Insurance by the poor: only 4 percent of the poorest quintile reported having services paid for by HEFs (and 1 percent by Community Based Health Insurance). Moreover, 18 percent of the poor borrowed with interest; 10 percent borrowed without interest; and 9 percent sold assets to pay for healthcare **(Figure 44)**. In contrast, the wealthiest quintile rarely borrowed or sold assets to finance health care. In addition, a recent study (GIZ, 2011 and Ir, 2008) showed that between 30 and 50 percent of the poor or ultra-poor families continue facing financial barriers to curative care.

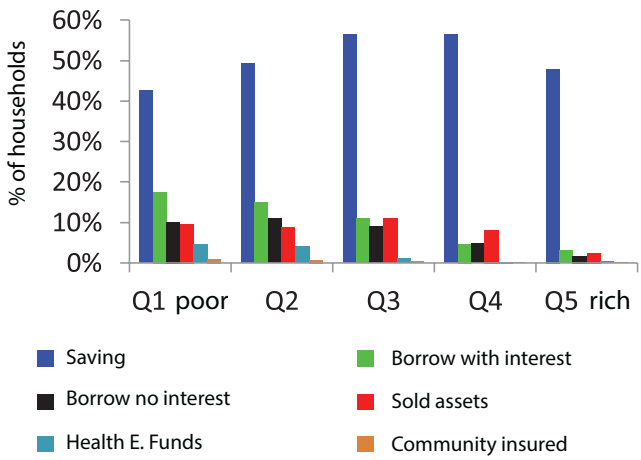
Government health spending is generally pro-poor, but the equity and efficiency of public spending could be increased, and the reliance on out-of-pocket payments reduced. Out of pocket spending is the major source of health financing in Cambodia. Government spending on health rose from about 0.8 percent of GDP in 2000 to about 1.4 percent of GDP in 2010 (about 11 percent of the national budget), which accounts for one-fifth of overall health outlays in Cambodia. External donor financing represents about 0.8 percent of GDP, but provides the majority of support for many critical health programs and interventions for the poor, including the Health Equity Funds. A recent public expenditure review

Figure 43: Use Of Subsidized Treatment, 2011



Source: CSES 2011

Figure 44: Source Of Health Care Financing, 2011



Source: CDHS 2010

highlighted several relevant findings (World Bank 2011). First, government spending on primary care and preventive services is pro-poor, since the poor benefit disproportionately from these services. Conversely, the better off are more likely to benefit from government subsidies to national or provincial hospitals. Second, the equity and efficiency of resource allocations among provinces could be made more transparent, including using poverty as allocation criteria. Third, 70 percent of all resources of the Ministry of Health are managed centrally (including the purchasing of drugs and equipment), and more resources need to be delegated to health centers and hospitals. Finally, the Ministry of Health spends over half its budget on pharmaceuticals—significant savings could be obtained through more efficient purchasing of pharmaceuticals and equipment. These savings could be used to scale up and deepen coverage of other priority equity enhancing interventions, including health equity funds.

Maternal and Child Nutrition

Women continue to have high rates of both malnutrition and anemia. Among women aged 15–49 years, one of the remaining challenges is the high prevalence of a low body mass index (BMI), which has remained unchanged from 2000 to 2010 at about 20 percent **(Figure 45)**. This is of great concern given the adverse consequences for their children—such as low birth weight. On the positive side, considerable improvements were observed in maternal anemia prevalence. However, anemia is still more prevalent among women who are of high parity (more than four children), have little or no education, are pregnant, and live in poor households and in rural areas.

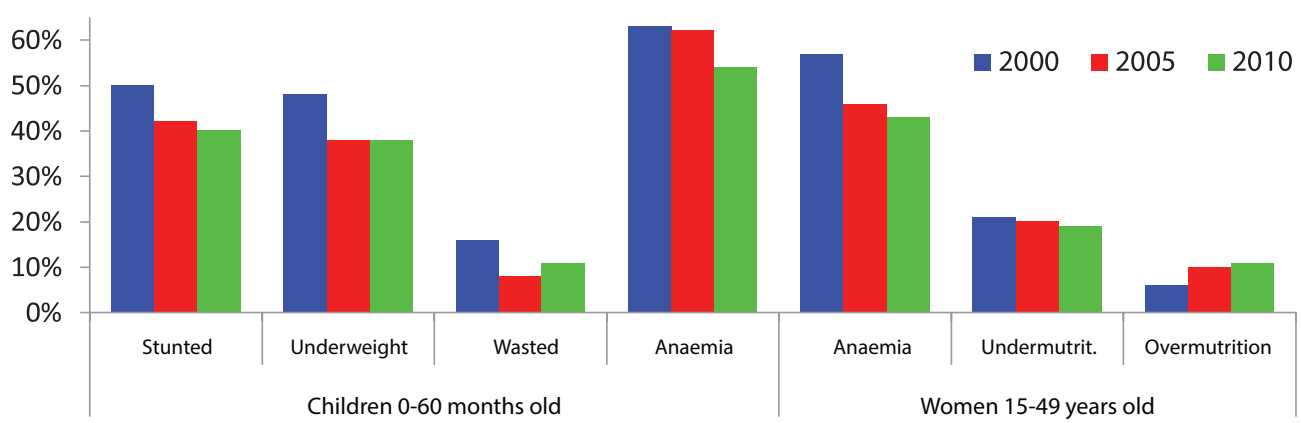
Adequate maternal support through nutrition and education has important benefits for both mothers and their children. For example, iron supplements for women during pregnancy protect not only

mothers but infants against anemia, and it is estimated that one-fifth of perinatal mortality and one-tenth of maternal mortality are attributable world-wide to iron deficiency anemia (Brabin, 2001). Moreover, anemia results in an increased risk of premature delivery and low birth weight **(Figure 45)**. In 2010, just over 45 percent of women reported that they had received vitamin A and iron and folic acid supplements in the six-week period following the delivery of their last-born child, which may reflect the fact that only over 60 percent of women received comprehensive antenatal care or post-natal care. There is thus the potential to reduce maternal (and childhood) malnutrition by strengthening these existing delivery mechanisms and to incorporate additional strategies. Such could include cash transfers to poor, pregnant women encouraged to earlier antenatal and postnatal care, and the promotion of education or availability of fortified foods.

Despite some gains from 2000, improvements in child malnutrition has stagnated and wasting has increased from 2005, with significant implications for human capital development and well-being (Figure 45). In 2010, the prevalence of stunting, underweight children, and wasting was 40 percent, 28 percent, and 11 percent, respectively, and anemia is at epidemic proportions at 55 percent for children under 5. Child malnutrition contributes to an estimated 6400 child deaths annually. Cambodia is estimated to lose over US$146 million in GDP to vitamin and mineral deficiencies every year. The long-term consequences of child malnutrition are severe—leading to poorer cognitive development—which affects both human capital formation and economic growth. Adults who were malnourished when they were children not only die younger but also have higher rates of chronic diseases. Moreover, girls who do not receive adequate nutrition in the first few years of their lives have children who are more likely to die, thus creating a vicious cycle (Barker, 1993).

Child malnutrition is correlated with socioeconomic status, but other key determinants are maternal malnutrition, breastfeeding and child feeding practice, and access to sanitation. Regression analysis using the Cambodian Demographic and Health Survey (CDHS) data shows that children are more likely to be stunted or underweight

Figure 45: Maternal And Child Nutrition Issues, Cambodia, 2000, 2005 And 2010

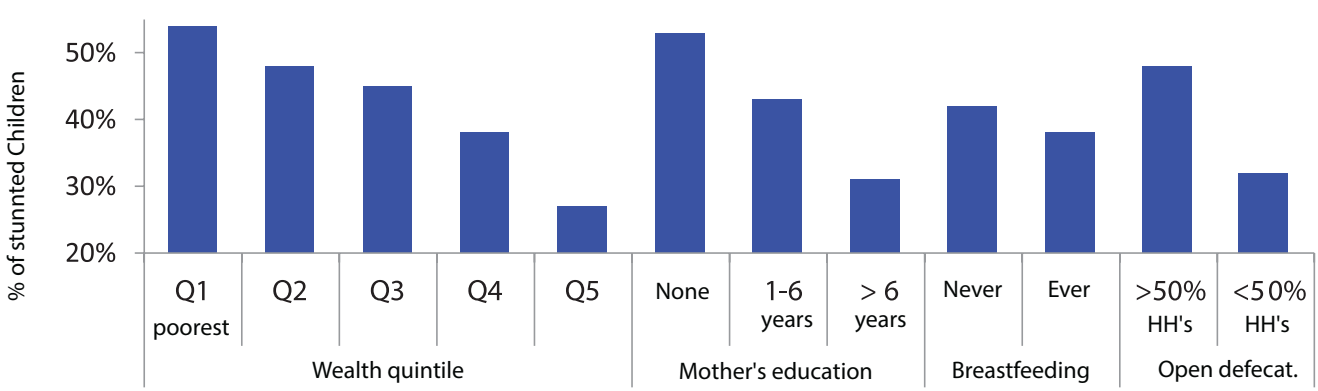


Source: CDHS 2000, 2005, 2010

if their families are poor, if open defecation is common practice in their communities, if their mothers are uneducated, and if they were not breastfed **(Figure 46)**. This analysis further shows that stunted women are more likely to have malnourished children after controlling by socioeconomic status, education of the mother, open defecation, and feeding practices. This indicates that malnutrition has inter-generational effects, and emphasizes the importance of investing in early childhood nutrition, especially in girls. Complementary and enhanced feeding after the age of six months reduces the prevalence of underweight children. This highlights the importance of not only food diversification but also the correct timing of weaning.[52] (Caulfield, 1996) The results are consistent with the international literature (Bhutta, 2008) and emphasize the importance of treating mother and child health in an integrated manner.

Cambodia has experienced important progress in promoting exclusive breastfeeding and reducing open defecation, among other advancements—but further attention is needed. In 2010, 70 percent of communities still defecated in the open and only 50 percent of the households in Cambodia had access to potable water. In the same year, only 1 in 4 girls enrolled in secondary education, which is a risk factor for future generations born to these future mothers, perpetuating the problem. Thirty percent of mothers did not practice exclusive feeding, 20 percent were underweight, and 45 were percent anemic, which highlights the need to improve maternal health to reduce low birth weight **(Table 25)**. In addition, 76 percent of children did not receive a minimum acceptable diet, and on the therapeutic side, only 1 percent of an estimated 80,000 severely malnourished children received specialized treatment with emergency food (UNICEF). A number of interventions to reduce malnutrition have successfully been tested elsewhere, and there is international recognition that interventions such as food fortification can tackle micronutrient deficiency. Community identification of severe malnutrition or promoting supplementary and diversified feeding through multi-sector community-based programs represents cost-effective strategies to reduce malnutrition. Yet in Cambodia, iodized salt (that now reaches

Figure 46: Children Stunted by Wealth, Mother Education and Breastfeeding And Open Defecation



Source: DHS 2000, 2005, 2010

83 percent of houses) is the only fortified food produced at scale (UNICEF).

Conclusions and Policy Recommendations

Health outcomes have improved dramatically, but a significant gap between the poor and the better off still exists—reflecting not only gaps in coverage of lifesaving interventions but also gaps in quality of care. A fundamental barrier for reaching the most vulnerable is social exclusion, so much so that the needier are systematically missed from most interventions.

The government should give priority to closing the equity gap in life-saving coverage indicators including antenatal and postnatal care, vaccination, and facility deliveries. This will mean shifting more resources to primary care, ensuring adequate financing for outreach services to remote communities, and improving service coverage in remote areas. Demand side interventions such as Health Equity Funds, vouchers, or cash transfers could be used to further incentivize access to these key interventions.

That the large majority of the poor opt for the private sector probably indicates a perceived lower quality of the public sector. The quality of care in the public sector needs to be assessed and consequently improved, both in terms of clinical quality and responsiveness to the needs of poor clients. This will require a combination of investments in training and equipment; strengthening, monitoring, and oversight of clinical quality by the Ministry of Health (MOH); strengthened oversight and regulation of private and informal health providers; and better social accountability to citizens and local governments in the context of the ongoing decentralization process.

Financial protection for the poor and near-poor must be further enhanced through improved coverage of ID Poor and Health Equity Funds (HEFs), while maintaining low user-fees in the public sector to avoid any excess burden on the near-poor. The low reported use of HEFs and other subsidized schemes is concerning, as is the apparent exclusion and inclusion errors in the ID Poor system.

The implementation and monitoring of the ID Poor system and the HEF post-ID poor system must be strengthened to ensure that

Table 25: Priority Interventions That Can Potentially Reduce Malnutrition Further

Risk factor for childhood malnutrition	The gap
Open defecation	70% population defecates in the open
No access potable water	50% Households with no access to potable water
Low education of mothers	30% mothers with no education
No exclusive breastfeeding first 6 mo.	30% not exclusively breastfed
Low BMI of mothers	20% mothers with low BMI
Anemia in mother	45 % mothers anemic

Source: CHDS 2010

all eligible poor are covered. Furthermore, identified poor receive their HEF cards and are made aware of its benefits. There also requires a scaling up of HEFs nationally with expanded coverage to health centers to allow HEFs to finance outpatient as well as inpatient services. There will also need a strengthening of HEF oversight mechanisms to ensure service quality and to eliminate additional payments.

Low user fees must be maintained in the public sector concurrent with the government's commitment to universal health coverage, particularly at the primary care level. Also, the establishment of stronger oversight and the regulation of fees for non-insured patients at public hospitals must be done to avoid overcharging and catastrophic expenditures. Costs and options must be considered to expand social health protection to the near-poor and the informal sector in the coming years, with at least partial subsidy from government.

The prevention and health promotion for chronic, non-communicable diseases needs to be strengthened, and social protection mechanisms for chronic illness need to begin developing. With the increase in life expectancy and better control of infectious diseases, the burden of disease will shift toward non-communicable diseases in the forthcoming years. Chronic diseases such as hypertension and diabetes treatment will become an increased burden on the poor as well as the better-off, cardiovascular disease and cancers will increasingly contribute to mortality and to impoverishing expenditures.

The first priority for government expenditure is prevention and promotion programs—including anti-smoking campaigns and taxes, and healthy lifestyle programs—coupled with strengthened primary care to manage chronic conditions at relatively low cost.

The provision of non-communicable disease services should be at public health centers and hospitals with appropriate copayment policies for the better off—coverage for HEFs and social health insurance should be assessed based on affordability.

A multi-sector approach needs to be adopted to reduce maternal and child malnutrition, with a focus on aggressively targeting the poor and rural areas. A stunted, underweight, and anemic mother tends to deliver a weaker child, who is more likely to be malnourished and at greater risk of dying.

In the health sector, the monitoring of child growth in health facilities needs to be strengthened; nutritional counseling for pregnant women improved, breastfeeding and feeding practices for children promoted; treatment of severely malnourished children in public health facilities scaled up; and micronutrient distribution and coverage to pregnant women and children improved.

Community-based programs should be established not only to encourage diet diversity and good child feeding practices, but also to improve sanitation and the elimination of open defecation. This needs to be complemented by food fortification and micronutrient supplementation campaigns that target children early in life.

END NOTE

40. These fourteen ministries/entities are: Ministry of Education, Ministry of Health, Ministry of Labor and Vocational Training, Ministry of Agriculture Forestry and Fisheries, Ministry of National Defense, Ministry of Cults Religion, Ministry of Culture and Fine Arts, Ministry of Economy and Finance, Ministry of Interior, Ministry of Public work and Transport, Ministry of Mine and Energy, Ministry of Social Affairs, Council of Ministers, and National Bank of Cambodia.

41. ESP was revised in 2004 and ESP 2004-2008 was developed. There were no major revisions for ESP 2001 to 2005.

42. Wealth is defined by quintiles according to consumption with 20% of the population in each quintile.

43. Because gross enrollment rates will count even adults going to school, it is possible to have values above 100 precent. But net enrollment rates are always between 0 and 100 percent.

44. Increasing net enrolment rates over time does not explain the high dropout rate. Comparing net enrolment rates between grade one any given year to grade four three years later yields an average dropout rate of 4 out of 10.

45. EMIS doesn't use age specific data for enrolment (6-11 ages for primary is their net enrolment rate).

46. Children 12 to 17 years old were selected as they provide a good representation or recent education trends. Lack of attendance and dropout rates for younger children are too small in 2011 to have statistically significant results. For older people, the dropout reason was not asked before 2009.

47. Other groups did not have enough observations to be included.

48. Students in the 40 percent group correspond to those with overage values greater than the median overage for the corresponding year and grade combination.

49. Royal Government of Cambodia, 2009.

50. Calculated for 6 years prior to survey

51. Child mortality is calculated for the 10 year period prior to each survey (i.e. 2005 is 1996-2005)

52. Regression analysis shows a positive and significant relationship between reducing underweight children and the times a week a child was given meat, poultry, fish, shellfish, or eggs. The Underweight Z-score increased by 0.04 for each time a week the food items were provided.

New Poverty Estimates in Cambodia 2009

Annex 1

New Consumption Aggregate

Socio-Economic Surveys in Cambodia

Beginning in 1993/94, Cambodia has conducted several Socio Economic Surveys, collecting information from households and individual household members. Coverage of the surveys has increased from 59 percent of the villages in 1993/94 to 100 percent in the 2004 Cambodia Socio Economic Survey (CSES). Starting in 2004, the survey design, the questionnaire, the field work, and the overall methodology in collecting and processing the information were standardized and applied to the 2007—2011 surveys, as well as the ongoing 2012 CSES.

Poverty was first estimated using the CSES 1993/94. Consumption per capita was selected as the preferred indicator of a household's wellbeing. Extreme (food) poverty lines were estimated based on the food consumed by poor households in 1993/94, and total poverty lines were estimated based on poor households' consumption of non-food items. The main source of information was the recall data; when no recall data was available (transportation, communications, personal care, and hotel accommodations[53]), the information reported from the diaries was used.[54]

Over time, several improvements have been added to the questionnaire, but it was decided not to incorporate such changes into the poverty estimate. This was done to maintain the way consumption was estimated, not only to ensure comparability over time but also to ensure that such comparisons were "fair". Nevertheless, as times change, so do the preferences and habits of the people. This is especially true for countries like Cambodia that have experienced important changes since first estimating poverty after decades of conflict. Therefore the above-mentioned updates are necessary to obtain results that are accurate for Cambodia today.[55]

The CSES 2009 was chosen as the year to update and to improve the way poverty is measured in Cambodia ("new" will refer to

these results).[56] This document includes a description of the "new" methodology and will point out the main differences with the old estimates ("old" will refer to the old methodology).[57] It is important to point out that not only do both methods follow the same principles, but that both methods have the same objective: measuring well-being using per capita consumption.[58]

Components of Total Consumption with the New Method

The recall section of the 2009 Cambodia Socio Economic Survey contains all necessary components to create both the total consumption and the per capita consumption for every household. These components include costs for all food consumed at home or outside the home (purchased, produced, received as gifts, or otherwise), housing (rented or owned), housing services (firewood, electricity, gas, water, and so forth), transportation and communication, purchase values of selected durable goods, personal use goods, recreation and entertainment, education and health, and the like. (A detailed description of each component is included in **Box 1**.) A price index was created for each of the main three regions (Phnom Penh, other urban, and other rural) to account for different costs in various parts of the country. Total monthly household consumption was estimated by adding all of these individual components: this was converted into a measure of individual (per capita) welfare for each day using household size. **(Box 6)**

Box 6: Components Used For The New Consumption Aggregate In Cambodia 2009

All food consumed at home or outside, purchased, produced, or otherwise acquired/received
Monthly value of the home
Housing services (electricity, water, gas, etc.)
Transport and communication
Purchase value of selected durable goods
Personal goods
Spending on recreation and entertainment
Education expenditures
Health related expenditures
Others (including goods received in kind)

Missing Values and Outliers

Similar to other household surveys, the CSES 2009 database included cases with missing information, or information provided that was considered an outlier. Classifying an observation as an outlier is not a precise process and special care was given following the same criteria for all cases: (i) outlier identification took place at the individual variable level before any grouping of values; (ii) in case of doubt, an observation was not classified as an outlier; (iii) a combination of local knowledge, comparisons with other households and statistical properties[59] was used to classified an outlier; (iv) a record of each case was kept throughout the entire process, providing information at the aggregate level for each household; and (v) outliers and missing cases were imputed using averages reported by households with similar characteristics.

Food Consumption

Food consumption was estimated using section 0.1.B of the questionnaire. The variable including total consumption for each item (Q01BC05) was used. The total value of food consumed was reported over the last 7 days from the date when the survey was conducted. To estimate monthly food consumption, reported values were divided by 7, multiplied by 365, and then divided by 12.

Monthly Value of House

The monthly use-value of the house is part of total household consumption; therefore, it must be included in the consumption aggregate. This information was included in section 04 of the questionnaire. For rented houses, the rental price is considered a good estimate of the value of using the house. For renting households, the monthly amount reported in question Q04_25A was used. For households that own their home or otherwise do not pay rent, the monthly use value provided by the owners in question Q04_25B was used.

Among 25 households (0.21 percent of the sample), no information was provided or the reported value was classified as an outlier. Since the value of the house is an important share of the household budget, special attention was given to impute the value of these 25 households. A multivariate regression was estimated: the input for the calculation came from using the information from households that own their home. This was done by relating their own imputed rent value (the natural logarithm) to seven household characteristics: household size, Phnom Penh households, other urban households, roof quality, water source, access to toilets, and access to electricity **(Table 26)**.

Housing Services

Housing services information is included in section 04 of the questionnaire. All information was provided on a monthly basis and no transformation was necessary. Items included expenditures in water (Q04_16), sewage or waste water (Q04_20), garbage collection (Q04_21), electricity (Q04_23A), gas or liquid petroleum gas (LPG) (Q04_23B), kerosene (Q04_23C), firewood (Q04_23D), charcoal (Q04_23E), batteries (Q04_23F), and other energy sources (Q04_23G).

Transportation and Communication

Total transportation and communication expenditures are reported in section 01.C of the questionnaire. Total transportation

Table 26: Linear Regression Of Owner Estimated Use Value Of Housing[60]

Dependent Variable: LN (estimated rent)	Estimated β	t value	p value
Constant	9.938	479.9	.000
House size: 1: 0-20 m^2; 2: 21-40 m^2.; 3: > 40 m^2	.386	44.6	.000
Phnom Penh: Region = 1	1.243	46.6	.000
Other Urban : Region = 2	.471	21.2	.000
Good Roof: Q04_05 = 2, 3, 4,6 or 8	.353	18.9	.000
Good Water: Q04_12 = 1, 2, 34 or 5	.004	.3	.761
Good Toilet: Q04_19a = 1, 2 or 3	.399	24.3	.000
With Electricity: Q04_22a = 5	.568	4.5	.000

Adjusted R2 = 0.517 and F probability (ANOVA) < 0.001.

Source: World Bank estimates based on CSES 2009, NIS, Cambodia

expenditures (Q01CC06 & Q01C01=2) and communication expenditures (Q01CC06 & Q01C01=3) were reported from the last month of the survey; thus no transformation was necessary.

Monthly Use Value of Durable Goods

Durable goods information is included in section 09 of the questionnaire. The exact age for items more than one year old was not asked, and the standard methodology used in other studies could not be applied. Originally, an attempt to estimate the use value of all durables was made, but later consultations with the government resulted in removing such imputations. The purchase value was used for selected items bought during the last 12 months. The selected items were as follows: radios, televisions, bicycles, sewing machines, video tape players, stereos, electric fans, kitchens and stoves, dining sets, mobile phones, electric irons, suitcases, batteries, bed sets, wardrobes, and cabinets. In addition, because motorcycles have become an important item—even in poor households—their expenditure was used. These selected purchased items or their imputed value was used only for items acquired over the last 12 months (Q09_C07) and divided by 12 for the monthly value.[61]

Personal Goods

Personal goods information is reported in section 01.C of the questionnaire. Total values—including cash and in kind expenditures—are included in question Q01CC06 and grouped according to variable Q01C01. These groupings included personal care (Q01C01=4); clothing and footwear (Q01C01=5); and personal effects (Q01C01=11). Personal care items were reported for the last month of the survey, and these values were used. Clothing and footwear questions were reported over the last 6 months; the values were divided by 6. Personal effects were reported over the last 12 months; the reported values were divided by 12.

Spending on Recreation and Entertainment

Recreation and entertainment information is reported in section 01.C of the questionnaire. Total values—including cash and in kind expenditures—are captured in question Q01CC06 and divided into several groups according to the variable Q01C01. These groupings include recreation within Cambodia (Q01C01=8); recreation abroad (Q01C01=9); and gambling (Q01C01=12). All respondents were asked questions about such spending over the last 12 months; the reported values were divided by 12.

Education Expenditures

Section 02 of the household questionnaire includes all information for education expenditures. Total education expenditures for each person included formal, non-formal, public, and private education. Estimated total education outlays were derived from six questions: school fees (Q02C16a), tuition (Q02C16b), text books (Q02C16c), other school supplies (Q02C16d), transportation (Q02C16f),[62] gifts to teachers, school building funds, and the like (Q02C16g). Five households did not provide information for individual expenditures, and the reported total was used (Q02C16h). All respondents were asked for expenditures for the past school year; the values were divided by 12. Total education expenditures for each household were equal to the sum of all household members' expenditures.

Health Related Expenditures

Health expenditure information was reported in section 13 of the questionnaire. Each household member was asked individually, which is believed to be more accurate than a single question for the entire household. The question for health expenditures asked respondents for the total amount spent for treatment from any type of healthcare provider (Q13BC11); each household member was asked for expenditures over the last 30 days. The total health expenditure for each household was the sum of all household members' expenditures.

Other Consumption

The final group included information from section 01.C and 07 of the questionnaire. From section 01.C, question Q01CC06 was used for domestic salaries (Q01CC01=7) and miscellaneous items (Q01CC01=13). From section 07, total imputed values by the informant were used (Q07_C05) for goods received from Cambodia or abroad as gifts (Q07_C01=10) or as barter (Q07_C01=11). All four questions were asked over the last 12 months; the reported values were divided by 12 for the monthly estimate.

Total Consumption Aggregate and Daily per Capita Value

The total consumption aggregate was estimated by adding all individual components for each household. The daily per capita consumption aggregate was calculated by dividing each household's consumption aggregate by the household size and by 30.4167.

Weighing the per Capita Consumption Aggregate by Regional Price Index

To compare the welfare conditions of households living in different parts of the country, a regional price index was estimated. This regional price index is based on the value of the total poverty lines for each of the primary three regions: Phnom Penh, other urban, and other rural households.[63] Phnom Penh was chosen as the base for the price Index and assigned a value of 1. For urban households outside Phnom Penh, the estimated price index was 0.8022; for rural households outside Phnom Penh, the estimated price index was 0.7348.

Results

Imputed Values

Imputing missing values and extreme values (outliers) is always a delicate process. To have a good measure of the potential impact of such estimations, a record of the value of each estimate was kept and compared to the total consumption aggregate. Out of 11,970 households in the sample, 11,572 did not require any imputation on any variable. In only 398 households (3.3 percent of the sample), values were imputed: for 323 households, the total imputed value represented 5 percent or less of total consumption; for the remaining 67 households, the total imputed value ranged from 5.1 and 14.9 percent. Only 8 cases had imputed values that represented 15 percent or more of the consumption aggregate.

The 8 households with a total imputed value of 15 percent or more of total consumption were dropped from the sample. The information provided by these 8 households was not reliable enough to construct the consumption

aggregate; therefore, their elimination from the sample was considered to be the best option. To compensate for the dropped households, their weighted values were distributed proportionally to other households within the same Primary Sampling Unit.[64] In other words, households physically close to the eliminated households were used to represent these unreliable figures. The "old" method did not make the same effort to identify and replace outliers.

Comparing the "Old" and the "New" per Capita Consumption Aggregates

A good overall measure of the impact of updating the manner in which per capita consumption aggregate is estimated is to compare average values for each region. In current Cambodian Riels (CR),[65] the "new" per capita consumption in Cambodia is CR 7,325 per day: a value very close to the results obtained applying the "old" method (CR 7,212). **Table 27** shows that the difference between both estimates is larger in Phnom Penh (3.2 percent) and smaller in both other urban areas (0.9 percent) and rural areas (1.2 percent).

Levels of Consumption in Constant 2009 Cambodian Riels

To compare the level of consumption among different regions, it is recommended to understand the differences in prices among regions. This is especially true for welfare analysis—and any other type of comparisons—that requires ranking households on their potential to consume goods and services. Using the price index created with the CSES 2009, the average per capita consumption in Cambodia is estimated at CR 9,325 per day—ranging from CR 15,709 in Phnom Penh to CR 8,183 in rural areas **(Table 28)**. Thus it is not surprising that the price adjusted values are higher than the current values: this is because average goods and services outside Phnom Penh are cheaper. In other words, with the same amount of money, an individual or household can buy more goods or services outside of Phnom Penh than within Phnom Penh.

Another method to understand how per capita consumption is distributed in Cambodia is by estimating averages per quintile.[66] Per capita consumption at 2009 constant prices ranges from CR 3,953 for each day for the poorest 20 percent of the population. It then increases modestly—reaching CR 10,236 per day in the fourth group. In the last quintile, per capita consumption increases substantially, reaching CR 19,009 per day **(Table 29)**.

Table 27: Average Per Capita Daily Consumption, Cambodia 2009

	Current Riels/day		Increase	
	Old	New	Riels/day	%
Phnom Penh	15,225	15,709	484	3.2%
Other urban	10,096	10,184	88	0.9%
Other rural	5,940	6,013	73	1.2%
CAMBODIA	7,212	7,325	113	1.6%

Source: World Bank estimates based on CSES 2009, NIS, Cambodia

Share of Consumption by Component

The relative importance of each component of total consumption is a useful tool. The average per capita nominal consumption was computed not only for each region but also for the entire country. The percentage of each component was estimated, and it is presented in **Table 30**. At 53.2 percent, food represents the biggest share of all components within Cambodia. The second expenditure type is related to the house and its services (electricity, water, and so forth), representing 19.2 percent of the average Cambodian's budget. The third largest share is transportation and communication, which represents 6.7 percent of this budget. Smaller shares are allocated to health (3.8 percent) and education (2.4 percent).

Food shares are a smaller part of total consumption for Phnom Penh—40.2 percent—because the consumption levels are higher (compared to rural households at 58.1 percent) **(Table 30)**. On the other hand, the use value of the house behaves inversely, with the richest households allocating a higher share of their budget than the poor: in 2009, housing represented 24.1 percent of the budget for households in Phnom Penh and only 9.5 percent for rural households. Households in Phnom Penh also allocate a higher percentage of their budget to recreation and entertainment, transportation and communication, and education. But they allocate smaller shares to health related expenditures.

New Poverty Lines

The Concept of Poverty

The concept of poverty has been recognized as a multi-dimensional condition. At the core of these dimensions, poverty is defined as the lack of something for which a minimum, decent standard of living is required. As such, many factors contribute to poverty—if not poverty by definition, these factors can considerably lower living standards. Some examples of these factors are as follows: limited access to justice; gender discrimination; ethnic discrimination; vulnerability; insecurity and safety issues; pollution and environment issues; child

Table 28: Constant Riels (2009 Phnom Penh) Per Capita Consumption Per Region, Cambodia 2009

	Phnom Penh	O. Urban	O. Rural	CAMBODIA
Per Capita Consumption/day in constant Riels	15,709	12,694	8,183	9,325

Source: World Bank estimates based on CSES 2009, NIS, Cambodia

Table 29: Per Capita Daily Consumption By Quintile, Cambodia, 2009

	Decile					Avg.
	1	2	3	4	5	
Constant Riels	3,953	5,818	7,610	10,236	19,009	9,325
Current Riels	2,937	4,342	5,733	7,921	15,691	7,325

Table 30: Shares Of Total Consumption By Components And Regions In Cambodia 2009

Consumption aggregate components	Phnom Penh	Other Urban	Other Rural	CAMBODIA
All food consumed at home or outside	40.2%	48.7%	58.1%	53.2%
Monthly use value of house	24.1%	16.6%	9.5%	13.4%
Housing services (electricity, water, gas, etc.)	6.5%	6.0%	5.5%	5.8%
Transport and Communication	9.0%	7.3%	5.9%	6.7%
Monthly use value of durable goods	1.8%	2.0%	1.9%	1.9%
Personal goods	4.1%	4.9%	5.6%	5.2%
Spending on recreation and entertainment	2.2%	1.8%	0.9%	1.3%
Education expenditures	5.2%	3.0%	1.4%	2.4%
Health related expenditures	1.8%	2.8%	4.5%	3.8%
Others (including goods received in kind)	5.1%	7.0%	6.7%	6.4%
Total	100%	100%	100%	100%
Daily per capita nominal consumption (CR)	**15,709**	**10,184**	**6,013**	**7,325**

The values are the percentages of the average nominal values reported in 2009

Source: World Bank estimates based on CSES 2009, NIS, Cambodia

labor; domestic abuse; physical and mental handicaps; hunger and malnutrition; lack of adequate housing; restricted access to health and education; and the like. The number of dimensions varies greatly; their relative importance changes from country to country. Moreover, these dimensions can vary within the same country, not only across regions but also over time.

There have been several attempts to develop measurements of poverty by combining several dimensions simultaneously. Most of these measurements take the form of an index; they have met with limited and varied degrees of success. The root of the problem stems from putting all dimensions onto one measurement so that they can be compared (economists call this the "unit problem"). For example, it is not clear what is more important in the manifestation of poverty: Is being handicapped or being abused a more significant factor? Is not having enough food to eat or not having access to basic medical attention more likely to create poverty? Another example can be stated in the following question: Is it more dangerous to live near a river prone to flooding or to live in a neighborhood with a high crime rate?

In this work, consumption reported by households is used as the measurement of welfare: it is compared to minimum amounts (poverty lines), which classify either a household or a person as poor or not poor. Households are classified as "extremely poor" if their daily per capita consumption is below the "food poverty line". Households are classified as "poor" if their

daily per capita is below the "total poverty line". Thus a household that is classified as "extremely poor" is also by definition "poor".[67]

By using the local currency to value consumption, one can add different types or dimensions related to poverty within a common unit: Cambodian Riels (CR). Therefore, this alleviates some of the 'unit problems' mentioned in the aforementioned paragraph. (This was done for food, education, health, entertainment, and so on.) But this approach does not incorporate or attempt to incorporate all the dimensions of poverty. To address other dimensions of poverty, it is recommended to do complementary analyses—placing direct attention on specific issues. For example, if one believes the elderly are more vulnerable than other population groups, it is recommended to explore the conditions of people 60 years and older. It is also necessary to explore the characteristics, relationships to other variables (including poverty), sources of income, support, and so forth.

This document uses a 'new' approach to measure consumption and poverty lines: it is based on the conditions in the Cambodia Socio Economic Survey (CSES) 2009. Comparisons will be made with the previous method developed in the 1993/94 CSES; they will be marked as the 'old' method.

Poverty Lines

Two poverty lines have been estimated: The first corresponds to the cost of a food basket that contains a minimum amount of calories for the proper biological function of a human being. It is called the Food (Extreme) Poverty Line. The second poverty line is equivalent to the food poverty line plus an allowance corresponding to a minimum of non-food goods and services that are also considered basic for a human being. Each poverty line is drawn from different segments of the population to make them relevant to the resulting classifications.

Food (Extreme) Poverty Line

The food poverty line is the cost of a food basket that provides a specific amount of calories. There are three elements necessary to estimate the food poverty line: the minimum caloric requirement of an individual, the quantities or components of the food basket, and the prices used to estimate the cost of the food basket.

Minimum Caloric Requirements

The total calories for the food basket are based on minimum caloric requirements estimated for Cambodia—taking into consideration both age and gender. This estimate follows the recommendations of the FAO, WHO, and UN in 2004[68] (which were adapted to Cambodia). Because Cambodia is a developing country with almost 80 percent of the population engaged in agricultural activities, the requirements are estimated for medium to medium-high levels of activity. For each age and gender group, the minimum recommended kilocalorie intake for one person for one day was estimated. Finally, an allowance was added for pregnant women. **Table 35** includes the requirements according to gender and age, and the population share for each combination. First, the average kilo-caloric (Kcal) requirement was estimated (weighted by the population share) and 2,194.75 Kcal/day, and second the allowance for pregnant women (5.25 Kcal/day) was added for a total per capita minimum requirement of 2,200 Kcal/day. Originally, estimates with higher levels of activity and higher caloric requirements were

modified to reflect the Royal Government of Cambodia's preferences.

Food Basket Composition

To decide what items to include in the food basket and in what amounts, data from a diary survey was used. Diary information is detailed enough to allow for weight, unit price, and caloric content estimation. To make the food basket appropriate for the poor, households within the 5 percent to 25 percent lower consumption group were selected.[69] Food used for production, charities, or payments of loans was excluded—only food items used for household consumption were used. The diary data collected information on 193 different food items.

The food basket contained 111 products—after eliminating products without caloric content information, products reported by less than 5 percent of the households, or products reported in ambiguous units. Of these 111 products, the reported consumption was transformed to weight and the median values in kilograms were computed. Also, for these same 111 products, the median price per kilogram for each of the major three regions of the country was computed.

The total caloric content of the selected food basket was estimated at 1,484 Kcal per day.[70] The amount of food required to satisfy the minimum caloric requirement of 2,200 was computed by multiplying the reported quantities by 1.4824 (2,200/1,484). The list products, the quantities necessary for the 2,200 Kcal per day requirement, and the individual Kcal for these products are in **Table 35**.

Food Basket Cost

The cost of the food basket was estimated by multiplying the quantities by the prices for each of the three regions of the country. An allowance of 10 percent to the total cost was originally added to compensate for wastage, but later dropped after conversations with government officials. The price, the cost of each food item, and the total cost of each food basket is included in (Table 37). Total values of the food basket in current Cambodian Riels per capita are CR 3,411 for Phnom Penh, CR 2,791 for households in other urban areas, and CR 2,570 for rural households **(Table 31)**.

Reduced Food Basket Costs

In the future, estimating the value of the food basket will require pricing the same food basket with new prices. The food basket quantities do not change, but the prices change over time. However, obtaining reliable prices is not easy for several reasons: First at 111 items, the number of individual items in the food basket is large. Second, in periods of high inflation, monthly prices fluctuate, therefore, requiring the need for better information. Third, some of the categories in the basket include several food items; thus, updating these prices over time poses difficulty. Fourth, future budget restrictions can limit the ability to collect all the necessary information for an accurate assessment.

For these reasons, a second food basket was created: the reduced food basket. It uses the following principles: maintaining total food basket costs as close as possible to the original estimates, maintaining products with a clear definition and a clear unit measurement, and maintaining products that provide the most calories and that are most commonly or frequently consumed by households. After applying these principles, the resulting food basket includes only 29 food items (compared

to 111); at the same time, it includes more than 96 percent of the long (111 items) food basket's calories. The cost of the reduced food baskets is about 91.5 percent of the long food basket.

To keep costs as similar as possible to the long food basket, the total quantity of the 29 food items was increased. After the final adjustment, the reduced food basket costs are as follows: CR 3,408.87 for Phnom Penh, CR 2,820.08 for households in other urban areas, and CR 2,583.10 for rural households **(Table 31)**. Cost differences between the two sets of food baskets are 1.1 percent for Phnom Penh and almost 0 for both other urban households outside Phnom Penh and for rural households. Given the advantages of tracking the reduced food basket's cost over time and the limited negative impacts, it is recommended to use the reduced food basket. The complete reduced basket is in **Table 37**.

Total Poverty Line

The total poverty line is equal to the food (extreme) poverty line plus an allowance for a minimum amount of non-food goods and services (housing, clothes, personal goods, entertainment, and so forth). Because there is not an accepted minimum amount of non-food goods and services, determining the minimum amount is done indirectly.

The technique to estimate the non-food allowance starts with the concept that the food poverty line provides the minimum food requirements and that consumption is labeled as "essential" or "basic". The second concept is the principle that a household may substitute some of its "basic" food consumption for other goods and services only if these other goods and services are as important as the food not consumed. Said another way, a household can go hungry; at the same time, they may use part of their budget for non-food goods and services because those goods and services are as important or as necessary as food.[71]

Households with total consumption that hover around the food poverty line do not meet or barely meet the minimum food requirements. Nevertheless, these households still allocate part of their budget to non-food consumption. This non-food consumption has to be as important as the food not consumed; therefore it is called "basic". In the Cambodian Socio Economic Survey (CSES) 2009, 498 households had total consumption within 10 percent of the food poverty line value.[72] In these households, food represented 64 percent of total consumption in Phnom Penh and 66 percent of total consumption in the other two regions: non-food consumption represented 36 and 34 percent, respectively.[73]

The food poverty line should represent 64 or 66 percent of the total poverty line, and the non food allowance should be the remaining

Table 31: Long (111 Items) And Reduced (29 Items) Food Basket Values, Cambodia 2009

	Phnom Penh	Other Urban	Other Rural
Cost of 111 items Food Basket in current Riels/day	3,408.87	2,820.08	2,583.10
Reduced Food Basket Cost in current Riels/day	**3,448.05**	**2,815.70**	**2,583.10**
Difference in Riels per day / percentage	39.18/1.1%	-4.38/-0.2%	0.00/0.0%

Source: Poverty group estimates with CSES2009, NIS, Cambodia

36 or 34 percent of the total poverty line. Given the food poverty line values reported in **Table 1**, the corresponding total poverty lines are as follows: CR 5,326.36 (Phnom Penh), CR 4,272.85 (other urban), and CR 3,913.79 (rural) **(Table 32)**.

Poverty Lines Comparisons between the "Old" and the "New" Method

The "old" and the "new" food poverty lines values are very similar: the "new" method estimates are CR 14 higher than the "old" for Phnom Penh (+0.4 percent), CR 87 lower for other urban households (3.0 percent), and CR 138 lower for rural households (-5.1 percent) **(Table 33)**. The difference between the "old" and the "new" food poverty line is a product of two factors: First, by redefining the food basket in 2009, flexibility was introduced that has allowed households to switch food consumption into cheaper products. Second, with higher incomes, households have increased food expenditures with more expensive calories. The net effect is mostly positive because the efficiency gains were higher than the more expensive calories being consumed.

However, the two methods reached very different values for the non-food allowance: the "new" values were more than two and a half times as much as the "old" values **(Table 33)**. Both estimates are based on how much food and non-food was consumed by groups or households within the samples (the Engels coefficient). Why has the Engels coefficient changed so drastically from 84 to 65 percent after using the "new" method?

There are two reasons why the food allowance in the "new" method is much larger than that of the "old" estimate: the base year and price evolution. The base year came from a time when the "old" method was first developed. It used information from the 1993/94 household survey: a time in Cambodia when poverty was much higher and households dedicated a higher share of their budget to food.[74] For example, rural households' non-food share in 1993/94 was estimated at 21.1 percent compared to 34 percent in 2009.[75] With fundamental changes in Cambodian society, this change in budget allocation is not surprising: it has been 16 years since the 1993/93 estimate, and income levels have more than doubled.

The second reason is the evolution of prices over the 16 years from 1993 to 2009—measuring price changes over a long period of time is always difficult. The unit value from the diary questionnaires and the prices from the price questionnaire both indicate that inflation in

Table 32: Poverty Lines Per Region In Current Riels Per Day In Cambodia, 2009

	Total Poverty line [a]	Food allowance [b]	Non Food Allowance [c]
Phnom Penh	5,326.36	3,408.87	1,917.49
Other urban	4,272.85	2,820.08	1,452.77
Other rural	3,913.79	2,583.10	1,330.69
CAMBODIA	**4,080.75**	**2,683.33**	**1,397.42**

a Food poverty line/0.64 or 0.66; b Same as the Food Poverty Line value; c Total Poverty Line - Food allowance. The total for Cambodia is the average of the expanded sample.

Source: Poverty group estimates based on CSES 2009

non-food prices was lower than inflation in food prices in all three regions throughout the entire period. By 2009, the "old" method was producing even lower shares of non-food consumption than it had previously; for example, rural households' non-food share was estimated at 15.8 percent.

The reasons for the differences are clear: the important question is which method to use? The answer is explained as follows. The closer the year in question is to the 1993/94, the use of the "old" method is more accurate. The closer the year in question is to the 2009, the use of the "new" method is more accurate. In addition, by having estimates using both methods over a period of time, comparisons of tendencies, trends, and factors related to poverty can be made. If the differences are a matter of only levels, most of the poverty analysis and generated knowledge will not change.

2009 Poverty Results

With the "new" method, extreme poverty in Cambodia is estimated at 5.3 percent, with relatively lower values in the urban areas (0.6 percent in Phnom Penh and 2.0 percent in other urban areas) and somewhat higher in rural households at 6.3 percent. The "old" method estimates have similar extreme (food) poverty rates—all of which are within 2.4 percentage points or each other **(Table 34)**.

Total poverty with the "new" method is substantially higher due to the much larger non-food allowance. The total rate is estimated at 23.9 percent, with values of 4.3 percent in Phnom Penh, 12.7 percent in other urban areas, and 27.5 percent in rural areas **(Table 34)**. With the "old" method, total poverty in Cambodia was estimated at 14.6 percent.

Table 33: Poverty Line Comparisons In Current Riels Per Day In Cambodia, 2009

Region	Food (Extreme) Poverty Line			Non-Food Allowance		
	Old	New	Difference	Old	New	Difference
Phnom Penh	3,395	3,409	14	790	1,917	1,127
Other urban	2,907	2,820	-87	531	1,453	922
Other rural	2,721	2,583	-138	492	1,331	839

Source: Poverty group estimates based on CSES 2009, NIS, Cambodia

Table 34: Poverty Headcount In Cambodia 2009

Region	Food (Extreme) Poverty Headcount			Total Poverty Headcount		
	Old	New	Difference	Old	New	Difference
Phnom Penh	0.8%	0.6%	-0.2%	1.8%	4.3%	2.5%
Other urban	2.8%	2.0%	-0.8%	6.9%	12.7%	5.8%
Other rural	8.7%	6.3%	-2.4%	17.0%	27.5%	10.5%
Cambodia	**7.4%**	**5.3%**	**-2.1%**	**14.6%**	**23.9%**	**9.3%**

Source: World Bank staff estimates using the 2009 CSESS, NIS, Cambodia

Table 35: Caloric Requirements And Population Weight By Age And Gender In Cambodia 2009

MALES				FEMALES			
Age (years)	**Kcal/day**	**Pop. Share**	**Kcal*share**	**Age (years)**	**Kcal/day**	**Pop. Share**	**Kcal*share**
< 1	671	1.2%	8.0	< 1	615	1.1%	6.5
1 a 1.9	942	1.0%	9.2	1 a 1.9	843	0.9%	7.9
2 a 2.9	1,115	1.0%	10.9	2 a 2.9	1,041	1.0%	10.0
3 a 3.9	1,239	1.1%	13.1	3 a 3.9	1,140	0.9%	10.3
4 a 4.9	1,338	1.0%	13.0	4 a 4.9	1,239	0.9%	10.9
5 a 5.9	1,462	1.0%	15.3	5 a 5.9	1,313	1.1%	14.2
6 a 6.9	1,561	1.2%	18.7	6 a 6.9	1,413	1.1%	15.2
7 a 7.9	1,685	1.1%	18.8	7 a 7.9	1,536	1.0%	15.9
8 a 8.9	1,809	1.1%	19.3	8 a 8.9	1,685	1.0%	17.6
9 a 9.9	1,958	1.2%	22.5	9 a 9.9	1,834	1.2%	21.2
10 a 10.9	2,131	1.2%	25.1	10 a 10.9	1,983	1.1%	21.9
11 a 11.9	2,329	1.1%	24.7	11 a 11.9	2,131	1.1%	22.5
12 a 12.9	2,528	1.1%	28.2	12 a 12.9	2,255	1.1%	24.3
13 a 13.9	2,751	1.3%	34.5	13 a 13.9	2,354	1.1%	26.9
14 a 14.9	2,974	1.2%	36.2	14 a 14.9	2,429	1.1%	26.8
15 a 15.9	3,147	1.4%	42.7	15 a 15.9	2,478	1.1%	27.8
16 a 16.9	3,296	1.3%	42.4	16 a 16.9	2,478	1.2%	29.1
17 a 17.9	3,370	1.2%	40.2	17 a 17.9	2,478	1.1%	28.3
18 a 18.9	2,681	1.3%	33.9	18 a 18.9	2,020	1.2%	24.5
19 a 19.9	2,664	1.1%	28.5	19 a 19.9	2,004	1.1%	22.1
20 a 24.9	2,731	5.1%	138.7	20 a 24.9	2,039	5.2%	106.1
25 a 29.9	2,733	4.6%	126.2	25 a 29.9	2,040	5.1%	103.5
30 a 34.9	2,737	2.6%	71.5	30 a 34.9	2,209	2.8%	62.8
35 a 39.9	2,742	2.9%	79.9	35 a 39.9	2,212	3.2%	69.8
40 a 44.9	2,726	2.4%	65.4	40 a 44.9	2,202	2.8%	61.4
45 a 49.9	2,711	2.4%	64.8	45 a 49.9	2,193	2.7%	60.1
50 a 54.9	2,718	1.6%	43.1	50 a 54.9	2,197	2.4%	52.0
55 a 59.9	2,730	1.3%	35.8	55 a 59.9	2,205	1.9%	42.2
60 a 64.9	2,234	1.1%	24.4	60 a 64.9	1,938	1.3%	26.1
65 a 69.9	2,241	0.7%	15.6	65 a 69.9	1,942	0.9%	18.1
70+	2,241	1.1%	25.5	70+	1,942	1.7%	32.6
		48.6%	1,176.14			51.4%	1,018.61

Weighted average = Sum (Kcal/day * Population Share) = 1,176.14 + 1,018.61 = 2,194.75 Plus Pregnancy Allowance: Birth ration of 0.025 * Extra caloric requirement of 210 = 5.25. Total = 2,194.75 + 5.25 = 2,200.00

Table 36: Food Items, Calorie Content, Prices And Costs Of Food Basket, Cambodia 2009

	Kcal in .100 gr	Refuse	gr./day	Kcal/day	Prices per Kilogram			Cost in Current Riels/day		
					Phnom Penh	Other Urban	Rural	Phnom Penh	Other Urban	Rural
Rice quality 2 (bad quality)	356.3	0%	428.5	1526.60	2,000	1,800	1,500	856.91	771.22	642.69
Other rice	353.5	0%	3.8	13.60	2,200	2,200	2,117	8.45	8.45	8.13
Corn on the cob	159.9	60%	2.1	1.30	3,333	2,500	1,500	6.91	5.18	3.11
Pnum pan	263.8	0%	0.4	1.10	7,500	7,500	6,000	3.02	3.02	2.42
Yellow noodles	373.7	0%	0.5	1.70	10,000	7,692	7,692	4.49	3.45	3.45
Others noodles	343.6	0%	1.3	4.50	8,000	6,667	6,667	10.59	8.82	8.82
Cakes, tarts, pies, quiches	370.2	0%	0.4	1.60	10,000	8,333	10,000	4.19	3.49	4.19
Other biscuit/cookies	460.2	0%	9.5	43.80	5,000	3,333	3,500	47.58	31.72	33.30
Rice cakes	234.1	0%	0.8	1.80	2,633	3,000	2,500	2.06	2.34	1.95
Other traditional cakes	376.7	0%	1.8	6.60	3,333	3,333	3,000	5.82	5.82	5.24
Other cereal preparations	362.8	0%	0.4	1.60	5,000	3,333	3,167	2.17	1.44	1.37
Pork without fat	374.9	18%	5.5	17.00	15,000	14,000	15,000	83.00	77.46	83.00
Pork with fat	456.8	12%	13.0	52.40	15,000	12,000	12,000	195.38	156.30	156.30
Bone of pig	0.0	85%	4.6	0.00	14,000	10,000	10,000	63.74	45.53	45.53
Beef	132.4	20%	4.3	4.50	20,000	15,000	15,000	85.25	63.94	63.94
Bone of cow	0.0	85%	1.6	0.00	12,000	7,000	7,143	19.54	11.40	11.63
Chicken	152.6	45%	5.9	4.90	16,000	10,000	12,000	93.90	58.69	70.43
Duck	233.4	0%	0.9	2.10	12,000	8,833	8,000	10.57	7.78	7.05
Other meat	176.0	25%	6.1	8.00	7,200	6,000	5,000	43.53	36.27	30.23
Other locally proc.meat	204.8	0%	0.4	0.90	16,000	12,000	12,000	6.89	5.16	5.16
Mud fish (large)	99.2	50%	2.2	1.10	10,000	8,000	8,000	21.55	17.24	17.24
Mud fish (small)	99.2	50%	15.5	7.70	10,000	8,000	8,000	154.49	123.59	123.59
Snake fish	87.5	43%	0.7	0.30	7,000	7,000	6,667	4.56	4.56	4.34
Cat fish	92.3	51%	9.9	4.50	9,000	7,000	7,000	89.25	69.41	69.41
Sea fish (small)	79.8	63%	2.6	0.80	8,000	5,000	4,500	20.98	13.11	11.80
Other fish	136.8	31%	58.8	55.50	8,000	6,000	5,000	470.02	352.51	293.76
Crabs	104.4	62%	6.0	2.40	3,500	2,000	1,500	21.13	12.08	9.06
Other seafood	94.3	45%	6.6	3.40	5,000	4,000	3,000	32.97	26.38	19.78
Smoked fish	212.3	0%	1.2	2.50	10,000	10,000	10,000	11.73	11.73	11.73
Fermented /cheese fish	102.1	0%	9.9	10.10	7,000	6,000	6,000	69.33	59.42	59.42
Dried fish	192.8	24%	3.8	5.50	13,333	9,000	8,000	50.36	33.99	30.22
Canned fish	138.1	0%	1.9	2.60	9,286	6,667	8,500	17.42	12.51	15.95
Dried prawns or shrimps	316.4	0%	0.2	0.70	10,000	15,000	16,667	2.16	3.24	3.60
Duck eggs	182.8	12%	10.6	17.00	5,882	5,882	5,882	62.34	62.34	62.34
Other fresh eggs	128.1	9%	0.2	0.20	10,000	10,000	10,000	1.55	1.55	1.55
Fermented/salted eggs	189.7	12%	0.2	0.40	7,407	7,407	7,407	1.78	1.78	1.78
Vegetable oil / soybean	900.0	0%	0.8	7.00	6,000	5,000	6,000	4.69	3.91	4.69
Other cooking oils	900.0	0%	2.5	22.70	5,495	5,495	6,000	13.85	13.85	15.12
Pork fat	427.5	0%	0.9	4.00	6,000	6,000	6,000	5.60	5.60	5.60

Table 36: Food Items, Calorie Content, Prices And Costs Of Food Basket, Cambodia 2009

	Kcal in .100 gr	Refuse	gr./day	Kcal/day	Prices per Kilogram			Cost in Current Riels/day		
					Phnom Penh	Other Urban	Rural	Phnom Penh	Other Urban	Rural
Banana	93.6	34%	9.6	5.90	1,600	1,500	1,000	15.28	14.32	9.55
Pineapple	48.1	45%	1.4	0.40	2,000	1,429	1,600	2.83	2.02	2.27
Other mangoes	79.2	28%	5.0	2.80	2,000	2,000	1,500	9.92	9.92	7.44
Lime	46.8	23%	0.7	0.30	3,000	5,000	2,500	2.21	3.68	1.84
Rambutan	68.5	56%	1.8	0.50	2,500	2,500	1,500	4.53	4.53	2.72
Longan (mien)	70.8	50%	1.1	0.40	4,500	4,000	4,000	5.08	4.52	4.52
Papaya	39.5	28%	8.9	2.50	1,500	1,000	1,000	13.41	8.94	8.94
Water melon	24.3	37%	5.8	0.90	1,500	1,000	1,000	8.73	5.82	5.82
Other melons	35.9	49%	1.1	0.20	1,000	1,000	1,000	1.14	1.14	1.14
Calamansi	47.8	62%	0.8	0.20	3,000	3,000	3,000	2.53	2.53	2.53
Chico	68.9	20%	0.5	0.30	2,000	2,000	2,000	0.93	0.93	0.93
Jackfruit	78.2	61%	1.0	0.30	1,000	1,000	1,000	1.04	1.04	1.04
Apples	53.4	18%	0.6	0.30	4,000	4,667	5,000	2.40	2.80	3.00
Other fresh fruits	67.5	12%	3.8	2.20	3,500	2,000	1,667	13.15	7.52	6.26
Tamarind	302.9	62%	4.7	5.40	3,000	2,000	2,000	13.98	9.32	9.32
Other preserved fruits	364.6	0%	0.1	0.50	6,000	6,000	4,000	0.74	0.74	0.49
Coconut	362.3	54%	2.8	4.70	4,250	2,000	1,667	11.90	5.60	4.67
Peanuts	617.1	29%	0.3	1.20	6,000	5,000	5,000	1.70	1.42	1.42
Peanut Preparation	602.8	0%	0.6	3.40	6,000	5,000	5,000	3.38	2.82	2.82
Trakun (watercress marsh cabbage)	17.9	16%	24.1	3.60	1,667	1,200	1,000	40.21	28.95	24.12
Garlic	50.9	10%	3.8	1.70	3,000	3,000	3,600	11.34	11.34	13.61
Spring Onion / leeks leaves	32.1	9%	1.0	0.30	5,000	5,000	4,000	5.20	5.20	4.16
Cabbage leaves	25.3	14%	4.7	1.00	2,571	2,000	2,000	11.97	9.31	9.31
Leaf and stem vegetables	14.9	26%	24.0	2.60	3,000	2,000	2,000	72.10	48.07	48.07
Cauliflower	30.3	40%	0.6	0.10	3,500	3,000	2,733	2.14	1.84	1.67
Other leaf and stalk vegetables	28.1	0%	20.3	5.70	2,500	2,000	1,400	50.67	40.54	28.38
Tomatoes	22.7	6%	3.8	0.80	2,500	2,000	2,000	9.49	7.59	7.59
Bell peppers, sweet	32.3	13%	0.7	0.20	3,292	3,000	3,000	2.27	2.07	2.07
Ridge gourd	20.7	26%	10.7	1.60	2,000	1,333	1,000	21.45	14.30	10.72
Bitter gourd	16.1	20%	1.1	0.10	2,667	2,000	2,000	2.82	2.12	2.12
White/yellow/green gourd	20.0	15%	18.7	3.20	1,714	1,200	1,000	32.07	22.45	18.71
Cucumbers	15.9	28%	16.3	1.90	2,000	1,500	1,250	32.52	24.39	20.33
Brinjals/eggplant	31.4	9%	7.0	2.00	2,000	1,667	1,500	13.95	11.63	10.46
Other fruit vegetables	54.7	13%	19.8	9.40	2,000	1,200	1,000	39.51	23.71	19.76
Onions/shallot	46.8	10%	1.4	0.60	3,000	3,000	3,000	4.17	4.17	4.17
Turnip	39.6	21%	1.6	0.50	1,800	1,500	1,500	2.91	2.42	2.42
Carrots	35.4	17%	0.5	0.10	3,000	2,667	3,000	1.42	1.26	1.42
Other root vegetables	42.4	7%	4.0	1.60	4,000	2,000	2,000	15.81	7.90	7.90

Table 36: Food Items, Calorie Content, Prices And Costs Of Food Basket, Cambodia 2009

	Kcal in .100 gr	Refuse	gr./day	Kcal/day	Prices per Kilogram			Cost in Current Riels/day		
					Phnom Penh	Other Urban	Rural	Phnom Penh	Other Urban	Rural
Sweet Potatoes	121.5	13%	1.4	1.50	1,200	1,100	1,200	1.67	1.53	1.67
Cassava	146.4	27%	0.9	1.00	1,500	2,000	1,500	1.37	1.82	1.37
Traov	116.9	16%	0.7	0.70	2,000	2,000	1,600	1.45	1.45	1.16
Mushrooms	31.0	3%	1.2	0.40	8,000	5,000	4,000	9.47	5.92	4.74
Other tubers and products of tuber	347.3	0%	0.6	2.20	1,500	1,000	1,500	0.94	0.63	0.94
Green gram/Mung beans	300.9	0%	0.8	2.30	4,000	4,000	4,000	3.05	3.05	3.05
Bean sprouts	40.6	7%	0.9	0.30	2,000	2,000	2,000	1.77	1.77	1.77
Long green beans	34.8	0%	3.9	1.40	2,500	2,000	2,000	9.75	7.80	7.80
Other pulses/legumes	345.2	0%	0.7	2.20	4,000	3,000	4,000	2.60	1.95	2.60
Cucumber pickles	17.8	0%	1.5	0.30	4,000	3,000	2,500	6.07	4.55	3.79
Cabbage pickles	41.5	0%	5.4	2.20	3,000	2,500	2,500	16.10	13.42	13.42
Other prepared & pre-served veg.	26.6	0%	1.9	0.50	5,000	2,500	2,500	9.68	4.84	4.84
Granulated (refined)	397.6	0%	4.6	18.30	2,400	2,400	2,600	11.04	11.04	11.96
Other sugar	374.4	0%	3.4	12.60	3,000	3,000	3,000	10.11	10.11	10.11
Confectionary products	534.7	0%	0.1	0.40	12,500	14,286	12,000	0.92	1.05	0.88
Other sugar products	268.0	0%	3.4	9.10	3,333	3,000	4,000	11.30	10.17	13.57
Ice	0.0	0%	8.8	0.00	500	500	500	4.42	4.42	4.42
Ice cream	157.1	0%	0.4	0.60	5,000	6,000	5,000	2.06	2.47	2.06
Other edible ices	51.9	0%	0.6	0.30	3,333	2,041	2,041	2.03	1.24	1.24
Soy sauce	178.8	0%	0.9	1.60	2,823	2,822	2,646	2.45	2.45	2.30
Fish sauce	47.9	0%	6.2	3.00	2,352	1,764	1,764	14.67	11.00	11.00
Other sauces	115.6	0%	2.2	2.50	4,000	3,000	3,000	8.67	6.50	6.50
Salt	0.0	0%	7.4	0.00	1,400	1,100	1,100	10.30	8.09	8.09
Black or white pepper	364.1	0%	0.4	1.60	12,000	10,000	10,000	5.11	4.26	4.26
Red pepper spice	274.6	0%	0.2	0.50	10,000	10,000	5,000	1.74	1.74	0.87
Monosodium glutamate (MSG)	0.0	0%	3.8	0.00	10,000	10,000	10,000	37.66	37.66	37.66
Ginger	317.9	0%	1.2	3.80	5,000	5,000	4,000	5.93	5.93	4.74
Other spices and seasonings	95.8	28%	4.3	3.00	4,000	3,000	3,000	17.38	13.03	13.03
Canned soft drinks	38.7	0%	0.9	0.30	4,735	3,519	3,472	4.03	3.00	2.96
Bottled soft drinks	38.7	0%	1.3	0.50	2,604	2,604	2,604	3.28	3.28	3.28
Fruit drinks	45.5	0%	2.2	1.00	2,041	2,020	2,041	4.39	4.34	4.39
Locally produced spirits/ liqueurs	245.4	0%	6.9	16.90	2,116	2,116	2,116	14.54	14.54	14.54
Locally produced wine	162.7	0%	3.1	5.00	2,116	2,116	2,116	6.51	6.51	6.51
TOTAL			**976.94**	**2200**				**3,448**	**2,816**	**2,583**

Table 37: Food Items, Calories Content And Costs Of Reduced Food Basket, Cambodia 2009

	Kcal in 100 gr.	Refuse	Quantity/day		Prices per Kilogram			Cost in Current Riels/day		
			Value	Unit	Phnom Penh	Other Urban	Rural	Phnom Penh	Other Urban	Rural
Rice quality 1 (good quality)	353.5	0%	61.65	grams	2,000	2,000	2,000	123.31	123.31	123.31
Rice quality 2 (bad quality)	356.3	0%	484.74	grams	2,000	1,800	1,500	969.49	872.54	727.11
Pork without fat	374.9	18%	6.26	grams	15,000	14,000	15,000	93.90	87.64	93.90
Pork with fat	456.8	12%	21.58	grams	15,000	12,000	12,000	323.64	258.91	258.91
Bone of pig	0	85%	5.15	grams	14,000	10,000	10,000	72.11	51.51	51.51
Beef	132.4	20%	4.82	grams	20,000	15,000	15,000	96.45	72.34	72.34
Chicken	152.6	45%	6.64	grams	16,000	10,000	12,000	106.24	66.40	79.68
Mud fish (large)	99.2	50%	2.44	grams	10,000	8,000	8,000	24.38	19.50	19.50
Mud fish (small)	99.2	50%	17.48	grams	10,000	8,000	8,000	174.78	139.83	139.83
Cat fish	92.3	51%	11.22	grams	9,000	7,000	7,000	100.97	78.53	78.53
Other fish	136.8	31%	73.93	grams	8,000	6,000	5,000	591.44	443.58	369.65
Fermented /cheese fish	102.1	0%	11.21	grams	7,000	6,000	6,000	78.44	67.23	67.23
Dried fish	192.8	24%	4.27	grams	13,333	9,000	8,000	56.98	38.46	34.19
Duck eggs	182.8	12%	0.140	units	5,882	5,882	5,882	70.52	70.52	70.52
Other cooking oils	900	0%	13.62	grams	5,495	5,495	6,000	74.81	74.81	81.70
Banana	93.6	34%	33.16	grams	1,600	1,500	1,000	53.05	49.73	33.16
Papaya	39.5	28%	10.11	grams	1,500	1,000	1,000	15.17	10.11	10.11
Trakun (watercress marsh cabbage)	17.9	16%	50.22	grams	1,667	1,200	1,000	83.71	60.27	50.23
Leaf and stem vegetables	14.9	26%	27.19	grams	3,000	2,000	2,000	81.57	54.38	54.38
Ridge gourd	20.7	26%	12.13	grams	2,000	1,333	1,000	24.27	16.18	12.13
White/yellow/green gourd	20	15%	21.16	grams	1,714	1,200	1,000	36.28	25.40	21.16
Cucumbers	15.9	28%	18.40	grams	2,000	1,500	1,250	36.79	27.59	23.00
Brinjals/eggplant	31.4	9%	7.89	grams	2,000	1,667	1,500	15.79	13.15	11.84
Granulated (refined)	397.6	0%	5.20	grams	2,400	2,400	2,600	12.49	12.49	13.53
Ice	0	0%	10.00	grams	500	500	500	5.00	5.00	5.00
Fish sauce	47.9	0%	6.22	mm	2,352	1,764	1,764	16.60	12.45	12.45
Salt	0	0%	8.32	grams	1,400	1,100	1,100	11.65	9.15	9.15
Monosodium glutamate (MSG)	0	0%	4.26	grams	10,000	10,000	10,000	42.60	42.60	42.60
Locally produced spirits and liqueurs	245.4	0%	7.77	grams	2,116	2,116	2,116	16.45	16.45	16.45
Total								**3,408.87**	**2,820.08**	**2,583.10**

Note: 1 liter = 1,000 milliliter and 1 Kg. = 1,000 grams. Unit conversions for selected products: 1221-Duck eggs: 1Krg. =11.765 units; 1262-Other cooking oils: 1 Lt. =0.91 Kg.; 1280Banana: 1 hand=0.7 Kg.; 1480-Ice: 1 Lt. =0.98 Kg.; 1491Fish sauce: 1 Kg. =0.8818 Lt.; and 2080-Locally produced distilled liqueurs: 1 Kg. =1.0582 Lt. With the conversions provided here, more than 99% of all products reported in 2009 were transformed into one single unit (the same unit listed in the table). For 1221-Duck eggs: 1 unit = 85 grams, and for 1491Fish sauce: 1 liter =1,134 grams (1 milliliter= 1.134 grams)

END NOTE

53. Hotel accommodation expenditures were later estimated using the recall data.

54. Recall data is collected by directly asking households how much they bought, received, or consumed during the days preceding the survey. Diary data is a written record of actual expenditures and consumption.

55. This concept is fully understood and applied in other exercises like the Consumer Price Index when at different time intervals, the list of products and their relative weight is reviewed and changed to reflect new preferences by Cambodian households.

56. 2009 was used to "update" the methodology because the expanded sample was close to 12,000 households.

57. For a detailed description of the "old" method, see Knowles, J. Poverty Estimates for Cambodia 2009. February 2012.

58. If no mention of "old" or "new" is made, the "new" methodology and results should be assumed.

59. The number of standard deviations from the mean was estimated for all variables. Use of subpopulations was customary to take into consideration differences among regions, or for example, public and private health services, or school level (for education expenditures).

60. The exponential of the equation's predicted value was used as the imputed rent for the 25 households without information.

61. Because motorcycle purchases are not as frequent as the other items, the purchase value was first divided by 5.

62. School transportation could have been classified in the Transportation and Communication grouping, but it was decided that it was more important to have an accurate measure of all expenditures for education.

63. A detailed explanation of the poverty line estimates is provided in a similar document.

64. Primary Sampling Units are groups of ten to twenty households sampled as a unit and in proximity, typically selected from the same groups of households identified during the population census work.

65. Current Riels are the values as reported by the households before correcting for regional price differences.

66. Each quintile includes exactly twenty percent of the population, ordered from lowest to highest consumption.

67. For daily per capita consumption estimates, see World Bank, Measuring Consumption Using the 2009 Cambodia Socio-Economic Survey (CSES2009), December 2012.

68. FAO/WHO/UNU in 2004. Human Energy Requirements. Report of a Joint FAO/WHO/UNU Expert Consultation. Rome.

69. The poorest 5 percent of the population is excluded because their low budget severely restricts their decisions to select food. For Phnom Penh and Other Urban, the number of observations was too small, so the 5-25 internal percentiles for each of the two urban regions was estimated and used.

70. Observed calorie consumption does not include all dropped products due to limited use, lack of appropriate calorie content, difficult measurement issues (i.e. bowls of rice), or meals outside home.

71. The idea is related to the concept of "revealed preferences" when households "show" their preferences. In this case, households' non-food consumption is "revealed" to be as important as the "basic" food not consumed.

72. Given the small number of poor households in the urban areas, the range was increased to 40% for Phnom Penh and to 15% for Other Urban households. The reference group included 23 households from Phnom Penh, 35 from other urban areas, and 440 rural households.

73. This share is also known as the Engels coefficient.

74. As poverty decreases, the share of the budget dedicated to food also decreases (Engels's Law).

75. This is the estimated share for "households whose total expenditures equal the food poverty line" from The World Bank 1997, A Poverty Profile of Cambodia 1993/1994 discussion paper No. 373, p18.

New Government and World Bank Poverty estimates 2004-2011

Annex 2

In 2011 a team of analysts from the National Institute of Statistics (NIS); the General Directorate of Planning; the Economic, Social, and Cultural Council (ECOSOCC); and the World Bank estimated Cambodian poverty. *This new poverty estimate was developed for the 2009 Cambodia Socio Economic Survey (CSES).*[76] This new estimate not only considers changes in Cambodia, but also reflects current conditions within the country. These same principles were applied to the 2004, 2007, 2008, 2010, and 2011 data sets to estimate consumption, poverty lines, and poverty rates. The Royal Government of Cambodia conducted a similar exercise using the 2009 CSES household survey.

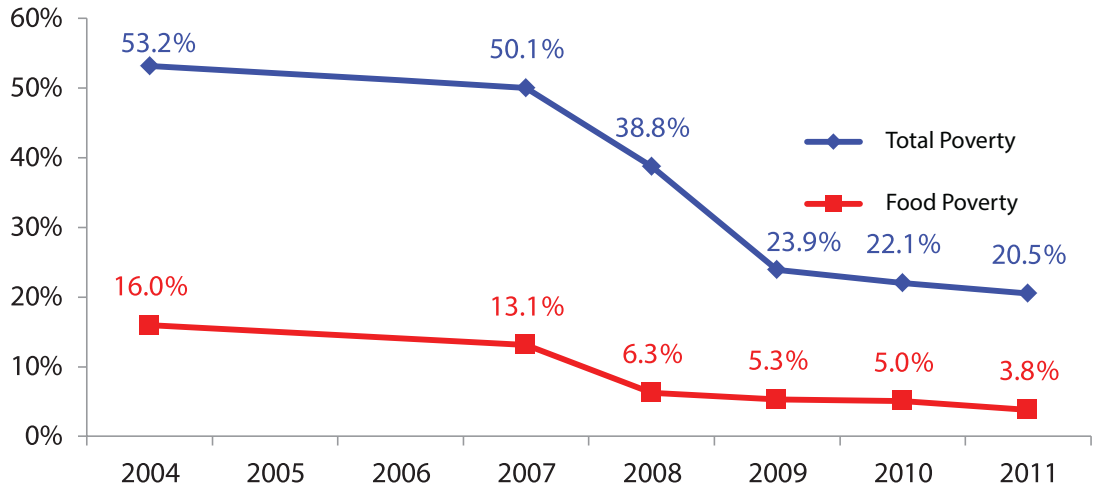
Poverty Rates (Headcount Rate)

Total poverty has significantly decreased since 2004. Total poverty fell from 53.3 percent in 2004 to 23.9 percent in 2009; over the next two years, it fell again reaching 20.5 percent in 2011. Food poverty has also decreased substantially. Food poverty fell from 16.0 percent in 2004 to 5.3 percent in 2009; in 2011, it fell moderately to 3.8 percent **(Figure 47).** The Royal Government of Cambodia poverty rates for 2009, 2010, and 2011 are very similar to the World Bank estimates–with differences of less than one percentage point **(Figure 49)**.

Food Poverty and Total Poverty were estimated for three regions of the country: Phnom Penh, other urban, and rural. Each of these regional averages show very similar changes to the national poverty rate—with important reductions from 2004 to 2009 and a slight reduction in 2010 and 2011.[77]

The overwhelming majority of Cambodia's poor live in the rural regions: this general trend has not changed. Poverty is much higher in the rural areas of Cambodia; it is lowest in Phnom Penh **(Table 38)**. In 2004, about 89 percent of the poor lived in rural regions. By 2011, 91 percent of the poor lived in rural regions. About 90 out of 100 food-poor persons lived in rural households—both in 2004 and in 2011.

Figure 47: Poverty Rates In Cambodia 2004, 2007-2011



Source: World Bank estimates using CSES, provided by NIS, Cambodia

Consumption and Poverty Lines

First, to measure poverty, the total value of all goods and services consumed by each household was computed. Then, the per capita consumption per day was estimated using household size. Second, the cost of a food basket containing 2,200 calories per day was computed. (This is the food poverty line.) Finally, the total poverty line was estimated by adding a quantity for the consumption of goods and services distinct from foods constituting the food poverty line. Households with consumption values below the food poverty line are considered 'Food Poor' and households with consumption values below the total poverty line are considered 'Poor'

In 2011, per capita consumption was CR 17,340 in Phnom Penh; CR 9,430 in other urban areas; and CR 6,398 for each day in rural households. Consumption aggregates and poverty lines for each region for 2004, and from 2007 through 2011 are presented in **Table 39** (in current Cambodian Riels [CR]).

In constant 2009 Phnom Penh Riels, average per capita consumption has increased from CR 6,399 in 2004 to CR 9,325 in 2009; average per capita consumption then decreased to CR 8,815 in 2011. The cost of the basic food basket has increased from CR 3,153 in 2004 to CR 3,543 in 2011; the total poverty line has remained constant at CR 5,326 per day per person **(Table 40)**.

Since 1993, Cambodians have decreased the share of their household budget for food. In 1993, the average household in Cambodia allocated 68 percent of their total budget for food items. With higher incomes and better socioeconomic conditions, the share has steadily decreased over time–reaching about 55 percent in 2004 and nearly 51 percent in 2011 **(Figure 48)**.

In 2011, the average household in Cambodia dedicated 51.1 percent of its budget for food, 14.8 percent for housing, 6 percent for house utilities, and 7.6 percent for communication and transportation. Personal expenditures accounted for 5.3 percent, followed

Table 38: "New" Headcount Rates By Regions In Cambodia 2004, 2007-2011

Year	Food Poverty			Total Poverty		
	Phnom Penh	Other Urban	Rural	Phnom Penh	Other Urban	Rural
2004	3.81%	11.43%	17.89%	15.83%	39.67%	58.97%
2007	0.06%	8.70%	15.26%	2.66%	35.04%	57.86%
2008	0.62%	4.54%	7.17%	2.54%	26.83%	44.60%
2009	0.56%	1.98%	6.28%	4.27%	12.67%	27.53%
2010	0.74%	2.84%	5.86%	4.54%	12.61%	25.42%
2011	0.00%	3.75%	4.38%	1.53%	16.10%	23.72%
2004 Contribution	2.0%	7.8%	90.2%	2.5%	8.1%	89.4%
2011 Contribution	0.0%	10.1%	89.9%	0.8%	8.2%	91.0%

Source: World Bank estimates using CSES

Table 39: Daily Consumption And Poverty Lines, Cambodia 2004, 2007-2011

Year	Per Capita consumption			Food Poverty Line			Total poverty line		
	Phnom Penh	Other Urban	Other Rural	Phnom Penh	Other Urban	Other Rural	Phnom Penh	Other Urban	Other Rural
2004	7,148	4,030	2,549	1,980	1,573	1,423	3,361	2,623	2,407
2007	13,104	6,544	3,482	2,499	1,907	1,765	4,394	3,430	3,157
2008	16,902	7,728	5,571	3,654	2,744	2,540	5,928	4,594	4,597
2009	15,709	10,184	6,013	3,409	2,820	2,583	5,326	4,273	3,914
2010	16,888	10,614	6,045	3,606	2,984	2,733	5,609	4,501	4,122
2011	17,340	9,430	6,398	3,894	3,221	2,951	6,014	4,828	4,422

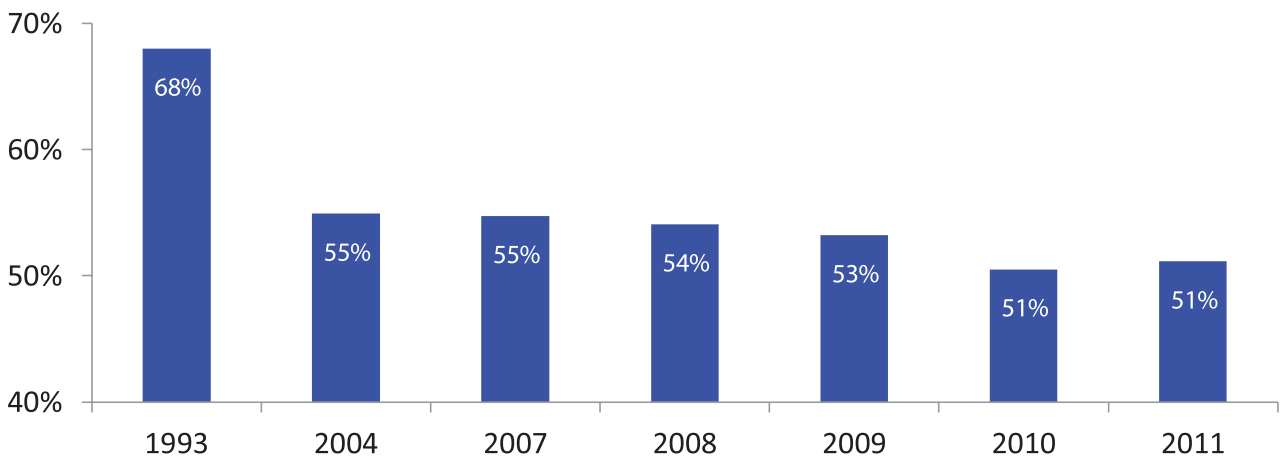
Source: World Bank estimates using CSES

Table 40: Daily Consumption And Poverty Lines (2009 Phnom Penh Constant Riels), Cambodia

Year	Per Capita consumption	Food Poverty Line	Total poverty line
2004	6,399	3,153	5,326
2007	7,243	2,981	5,326
2008	7,580	2,997	5,326
2009	9,325	3,505	5,326
2010	9,105	3,521	5,326
2011	8,815	3,543	5,326

Source: World Bank estimates using CSES

Figure 48: Food Share In Household Budget, Cambodia 2004, 2007-2010



Source: World Bank estimates using CSES

by health and education (2.7 and 2.6 percent, respectively). Small durables and recreation costs accounted for 1.7 and 1.2 percent of the budget. Richer households spent a smaller budget share on food and a larger share on housing, communication and transportation, durables, entertainment, education, and health.

The Royal Government of Cambodia estimated poverty using the 2009 Cambodia Socio Economic Survey (CSES) by computing per capita expenditure and poverty lines. Households with expenditure values below the poverty line were considered poor. In 2004, 2007, 2008, 2010, and 2011, per capita expenditure was estimated using the CSES household surveys. Poverty lines were estimated by adjusting the 2009 estimated value with the Combined Consumer Price Index (CPI).[78] The resulting poverty rates are very similar to World Bank estimates, especially for 2009, 2010, and 2011 **(Figure 49)**.

New Royal Government of Cambodia and World Bank Poverty Comparisons

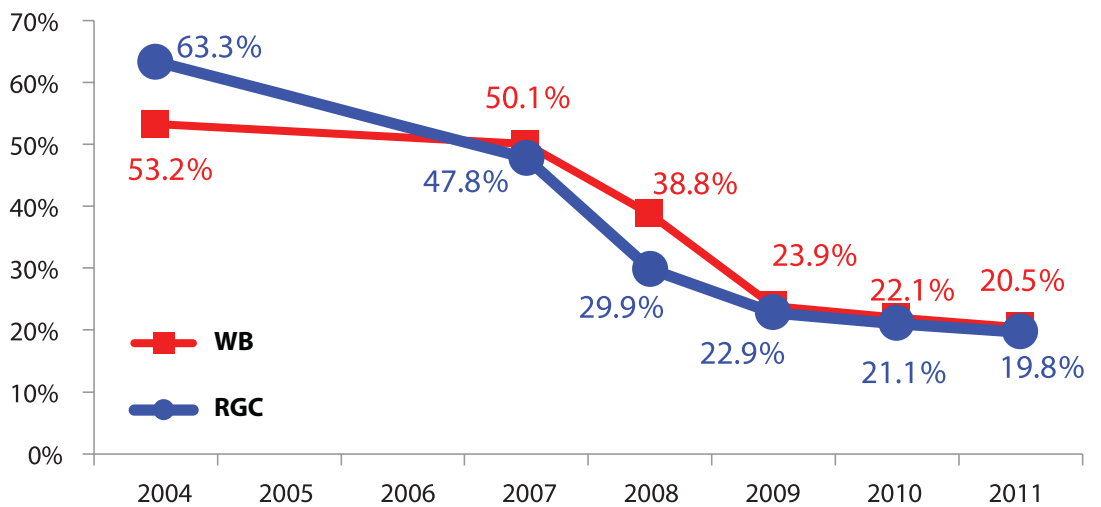
Food Poverty Lines

In 2004, 2007, and 2009, the unit values reported by households were used to calculate the cost of the reduced food basket. In 2008, the 2007 values were updated with the monthly food index, created by James Knowles. In 2010 and 2011, the food poverty lines were calculated using the values of the previous year updated with the food CPI (the "Combined" series, using both Phnom Penh and Cambodia's provinces).

Non-food Component of Total Poverty Lines

In 2004, 2007, and 2008, the values for 2009 were updated or modified with James Knowles' non-food price index. In 2009, the

Figure 49: New Poverty Estimates From World Bank And Royal Government Of Cambodia



Source: World Bank and Royal Government of Cambodia estimates using CSES

shares were estimated by observing people with consumption values hovering near the poverty line. In 2010 and 2011, the 2009 values were updated with the non-food CPI (the "Combined" series, using Phnom Penh and Cambodia's provinces).[79]

The "new" and the "old" poverty estimates show almost the same evolution over time:

- **Food Poverty**, The "new" estimates are slightly lower than the "old" estimates.
- **Total Poverty**. The "new" estimates are significantly higher than the "old" estimates.

Figure 50 shows estimates of both Food Poverty (a) and Total Poverty (b); it further illustrates the similarity of the changes from the "old" and the "new" methodologies.

END NOTE

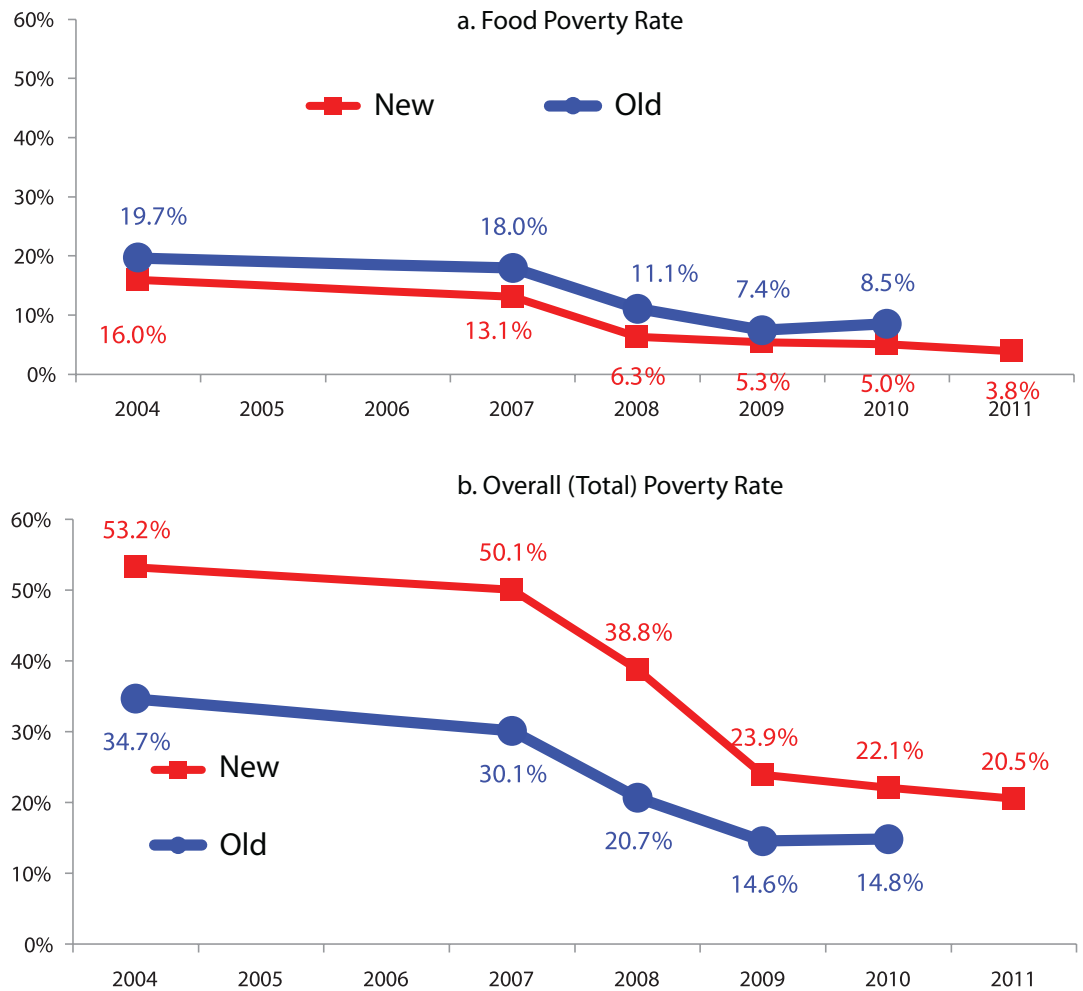
76. The "old" poverty estimates were developed based on the 1993-94 CSES household survey. They reflect conditions from almost twenty years ago.

77. The exception is for "Other Urban" households in 2010 and 2011 in which poverty increased.

78. The Combined CPI includes prices from Phnom Penh and the provinces.

79. Food and total poverty line values in 2010 and 2011were updated using the same method as the government of Cambodia

Figure 50: Headcount Rates In Cambodia With "Old" And "New" Methodologies



Source: World Bank estimates using CSES

Simulation of Drivers of Poverty Reduction

Annex 3

2007-2009

To explain the increase in poverty reduction in rural households from 2007 to 2009, an examination is required into the increase in consumption for the group of rural households that escaped poverty.[80] This "Reference Group" includes households within the 27.5 percentile (poor in 2009) and the 57.9 percentile (poor in 2007). The average daily per capita consumption for the Reference Group in 2007 was 4,415 in 2009 Phnom Penh Riels, and 6,465 in 2009. In other words, the average per capita increase for the reference group was 2,050 per day.[81] Less than 40 percent of the increase was in 2008 and over 60 percent in 2009. In 2009, per capita agricultural GDP—mostly linked to rural households—increased 3.8 percent in Cambodia, compared to a 10.9 percent decrease for industrial GDP —mostly linked to urban households—.

Household consumption increase is possible when household income and savings change. Since traditional savings are limited in rural Cambodia, this simulation uses income changes for the reference group households as the direct source of increased consumption.

From 2007-2009 the price of rice increased considerable changing the behavior of some farmers. According to the Consumer Price Index, the price of rice increased 37.1 percent from 2007 to 2009 (row J, **Table 41**), compared to an actual decrease of 6.1 percent in 2009-2011.[82] The impact of the price increase affected household income in three different ways: *first* by increasing the actual value of the harvest, *second* by increasing the planted area (bringing into production otherwise not used land or switching from other less profitable crops), and *third* by allowing households to increase the use of inputs and to boost productivity (specifically, an increase in access to credit owing to higher than expected income and better returns on investment).

From 2007 to 2009, total agricultural land use increased by 7.6 percent in Cambodia; households in the Reference group reported an impressive increase of 40.4 percent (row K, **Table 41**); the remaining households reported a decrease of 3.6 percent.[83] From 2009 to 2011, households in the reference group actually exhibited a decrease in rice production by 8.5 percent (harvested area). Productivity increases from 2007 to 2009 were estimated from government statistics at 11.8 percent for wet season rice and 2.3 percent for dry season rice (row L, **Table 41**).[84] After examining all the changes attributed to the increase in the price of rice, the net gain was 1,393 Riels per person per day for all rice farmers **(Table 41)**.

Because not everybody is growing rice, total income increase has to be adjusted. After adjusting for the 20% of households not growing rice in the Reference group, the net increases are: 429 Riels from the price increase of original production, 471 Riels from production increase (with original price) and 211 from the price increase of extra production (last column, **Table 41**). The total average for the entire group was an increase of 1,111 per day per person in 2009 Phnom Penh Riels.

2004-2007

From 2004 and 2007 rice price increases were moderate. Planted area as well as harvested Tons of rice showed important increases in part due to very low yields in 2004. Unfortunately in 2004 the CSES survey did not include questions regarding planted or harvested area for agricultural crops and no estimate for the impact of rice from 2004-2007 can be derived from the micro data. In the other hand, the small price changes during the period are not expected to have major impact on farmers' behavior and the observed national averages from government statistics are reasonable indicators of what happened for poor and non-poor households alike.

From 2004 to 2007 the price of rice increased, in constant Riels, 4.8 percent (Cambodia Consumer Price Index: CPI). According to government statistics, during the same three year period, total rice production in Cambodia increased 33.0% due to an impressive productivity increased of 18 percent combined with a 12.2 percent increased area harvested.[85] The production increase was possible because increased input use estimated at a cost of 20% the increased production.

Using the estimated value of rice for 2007 of CR 957 **(Table 41)**, the total impact of the price increase in 2004-2007 was CR 44 per capita per day, and the production increase contributed another CR 191 per capita per day.

2004-2009

The total impact is the sum of the two period estimates. For 2004-2009 the impact of the increased rice price was: CR. 429 + CR. 211 + CR. 44 = CR. 683.72 and the impact of increased productivity and area harvested was: CR. 471 + CR. 191 = CR. 661.94. The combined income increase was CR. 1,345.66 per day per person 2009 Phnom Penh Riels.

Agricultural Wages 2004-2009

Using the CSES 2004 and 2009, the increase income from agricultural wages was 49%. Given a wage labor income of CR. 918 **(Table 15)**, the corresponding income increase is CR. 450 (day/person, 2009 Phnom Penh Riels).

Table 41: Estimated Income Increase From Rice In 2008 And 2009, Cambodia

		Wet Rice	Dry Rice	Total	2009 Phnom Penh Riels	
Initial conditions in 2007					**Farmers**	**Ref. group**
A	Hectares	0.97	0.22	1.19		
B	Yield per Kilogram	2.20	4.50			
C=A*B	**Tons of paddy rice**	**2.13**	**0.98**	**3.11**		
D=C*0.55	Milled (55% of paddy)	1.17	0.54	1.71		
E=D*1,000	Milled in Kilograms	1,172	537	1,708		
F	Production value Riels/Kg in 2007	910	910	910		
G=E*F (,000)	**Nominal Riels/year/HH (thousand)**	**1,066**	**488**	**1,554**	**2,126**	**1,696**
H=G/365	Value per day/HH	2,920	1,337	4,257	5,826	4,647
I=H/4.86	**Nominal Riels/day per capita**	**601**	**275**	**877**	**1,200**	**957**
Changes between 2007 and 2009 in "Reference Group"						
J	Price Increase	37.1%	37.1%	37.1%		
K	Area increased	40.4%	40.4%	40.4%		
L	Productivity increase	11.8%	2.3%			
Impact of changes in per capita consumption per day by different factors						
M=I*(K+L)	Production increase * 2007 price	314	118	432	**591**	**471**
N=I*J	Price increase * old production	269	123	393	**538**	**429**
O=N*J	Price increase * production increase	141	53	193	**265**	**211**
M+N+O	**Total Increase**	**724**	**294**	**1,018**	**1,393**	**1,111**

END NOTE

80. Because the CSES is not a panel survey, the corresponding households are not the ones that escaped poverty but the group of household representing those that actually escaped poverty.

81. Unless otherwise stated, Riels quantities reported here are in 2009 Phnom Penh Riels.

82. A single price increase was used to either wet or dry season rice because there is no information related to the time farmers sold their product. Total rice price inflation is the difference in the average constant price of rice in 2009 and 2007 divided by the 2007 price.

83. Households in the reference group include 30.4 percent of rural households in Cambodia and their behavior is not representative of the entire country or all rural households.

84. Since consumption in 2008 and 2009 is affected by the yields from the previous years, the values for 2007 and 2008 were used. Information from the CSES is also from the previous year since agricultural harvest questions are from the previous season. The 2006 CSES rice productivity estimate was 2.20 tons of paddy rice per hectare in the wet season and 4.50 tons per hectare in the dry season, compared to the Royal Government of Cambodia 2.27 Tons (wet) and 3.94 (dry). The estimates are considered close enough to use the productivity growth reported by the government.

85. Since consumption in 2004 and 2007 is affected by the yields from the previous years, the RGC official productivity values for 2003 and 2006 were used. Information from the CSES is also from the previous year since agricultural harvest questions are from the previous season.

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