4 HOUSEHOLD LEVEL WELFARE IMPACTS

The household level analysis of Cambodia uses the national household dataset, the Cambodia Socio Economic Survey (CSES)[1] of 2004. The CSES 2004 survey covers a total of 12,000 households and was the largest of its kind ever collected in Cambodia. The sample is representative of the country and the distribution of households across regions reflects the distribution of the population. The dataset contains household income and expenditure data by crop required for the household level analysis.

Some general details of the household dataset in Cambodia will be initially presented and then the household level impacts will be described and discussed.

4.1 HOUSEHOLD DISTRIBUTION AND CHARACTERISTICS

Households in the survey are distributed across four geographic regions, the plain, Tonle sap, the coast and the plateau/mountain region, in addition to the capital, Phnom Penh, See Table 3.

Table 3

Poverty estimates by geographical zones

Geographical zone	Share of Population (percent)	Urban	Rural	Total	Urban	Rural	Total
		Index (%)			% of all poor		
Phnom Penh	9.3	1.11	8.92	4.60	1.9	1.1	1.1
Plain	42.6	13.74	32.86	32.07	8.9	42.3	39.7
Tonle sap	29.5	28.21	45.38	42.80	46.3	36.2	37.0
Coast	7.8	20.41	30.07	26.84	19.7	5.0	6.1
Plateau/mountain	10.7	32.61	56.34	52.02	23.2	15.4	16.0
Total	*100.0*	*17.62*	*37.82*	*34.68*	*100.0*	*100.0*	*100.0*

Source: A Poverty Profile of Cambodia 2004, Royal Government of Cambodia, Ministry of Planning, 2006

Approximately 9 percent of the population lives in Phnom Penh, 42.6 live in the plain area, 29.5 in the Tonle Sap region, 7.8 along the coast and 10.7 live on the plateau and mountain regions. High concentrations of the poorer segments of the population are found in the pleatau/mountains and the Tonle sap regions, although percentages are

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1 This is Living Standards Measurement (LSMS) type data and is collected by the National Statistics Office (NSO).

high also in the plain and the coastal region. Overall, about 35 percent of the population in Cambodia live below the poverty line[2].

In order to target the most vulnerable groups amongst the poorer segments of the population, households are disaggregated by income quintile[3] and urban rural location. As shown in Table 3 it is possible to also disaggregate the data by geographic location. In the analysis presented here we will focus on the urban/rural and quintile disaggregation which is useful also for comparability across analyses of a similar nature. Nonetheless extending the analysis to the geographic disaggregation of Table 3 can be done and might be of interest if wanting to focus on a specific region of the country and wanting to target poverty in specific areas of the country.

Households in Cambodia mostly reside in rural areas: 79.9 percent of households live in rural areas and the remaining 20.1 percent live in urban areas, see Table 4. Within the poorest quintile of the population, 17.1 percent of total population live in rural areas while 2.2 percent of total population reside in urban areas, see Table 4.

Table 4

Household distribution and share by quintile and location (percent)

Description	Quintile					Total
	1	2	3	4	5	
Urban						
Number of households	267	278	340	477	1,030	2392
Share (percent)	2.2	2.3	2.9	4.0	8.7	20.1
Rural						
Number of households	2,034	2,021	1,999	1,937	1,506	9497
Share (percent)	17.1	17.0	16.8	16.3	12.7	79.9
Total						
Number of households	2301	2299	2339	2414	2536	11889
Share (percent)	19.4	19.3	19.7	20.3	21.3	100

Source: CSES 2004

Households in urban and rural areas of the countries overall are similar in size with an average of 5 family members, see Table 5. The average age of the household head is also

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2 In addition the A Poverty Profile of Cambodia 2004, Royal Government of Cambodia, Ministry of Planning, 2006 includes the poverty gap and the poverty gap square (poverty severity) and food poverty line measures. The poverty gap is 9.2% while the squared poverty gap is 3.4% for Cambodia. For the food poverty line, the food poverty headcount ratio is 20 %, poverty gap is 4.3% and poverty severity index is 1.4%.
The first quintile represents the poorest segment of the population, namely the lowest 20 percent of total population. As is well know and documented in the literature, in the context of developing country analysis, total expenditure is a much more reliable measure of total household income, see for example Deaton (1997). Throughout the analysis total household expenditure will be used as a measure for total household income and quintile disaggregation is based on total household expenditure.
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similar across quintiles and location. Access to education is low. On average the household head in urban areas has 6 years of education, while in rural areas this reduces to 4 years of education. The poorer segment of the population has very limited access to education. In urban and rural areas the poor on average receive 3 years of education.

Table 5

Households' characteristics in Cambodia

Quintile	Urban areas			Rural areas		
	Household Size	Age of household head	Household head years of education	Household Size	Age of household head	Household head years of education
1	5.9	45.3	3.1	5.9	43	2.9
2	5.5	44.4	3.8	5.2	43.7	3.5
3	5.2	46.2	4.6	4.7	44.8	3.8
4	4.9	45.9	5.8	4.4	45.8	4.4
5	4.9	47.8	7.8	4.1	45.4	5.4
Total	*5.1*	*46.5*	*6*	*4.9*	*44.5*	*3.9*

Source: CSES 2004

The poor have very limited access to modern forms of energy, both in rural and urban areas. Overall we find that only wealthier urban households have access to electricity while most urban and rural poor households still use kerosene lamps for lighting. See details of energy access to different sources of energy in Appendix 2.

Wealth distribution in Cambodia is very unequal, both in urban and rural areas, although more so in urban areas, see Figure 1, and differences between rural and urban expenditure levels are larger in the top share of the population, the fifth quintile. In urban areas, the expenditure level of the wealthier quintile is 10 times as high compared to the urban poor, while in rural areas the rural rich spend approximately 7 times more that the rural poor. Households in rural and urban areas spend the same amount over a one year period and as households become better off, the differences in expenditure levels between urban and rural areas increase.

Figure 1

Total household expenditure by quintile and location ('000 Riels)
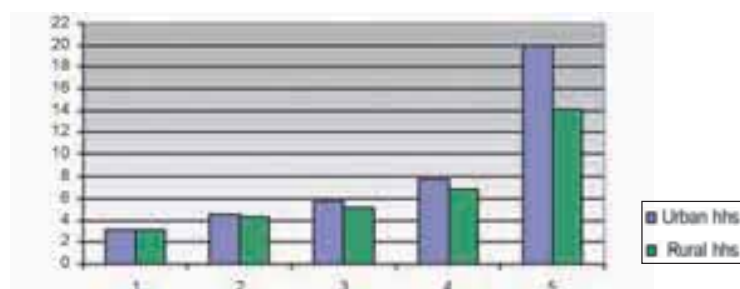
Note: Expenditure levels have been adjusted for purchasing power differences between urban and rural areas.
Source: CSES 2004, calculations by the authors

When taking a regional perspective across Cambodia and looking at regional average wealth distribution in terms of total expenditure levels, we find that the west part of the country and the area around the capital are the wealthier areas of the country, see Figure 2.

Figure 2
**Regional distribution of total expenditure (Riels)**
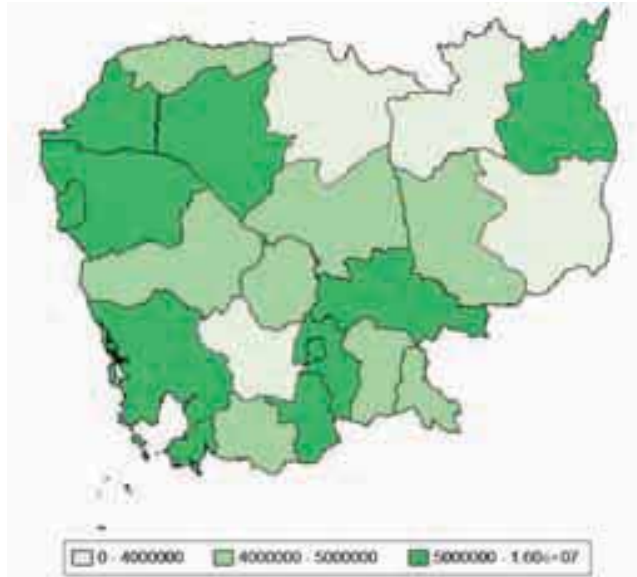
Source CSES 2004

The east and the north east areas emerge as the poorer areas of the country. Note that the map is based on average expenditure levels for the region considered and therefore ignores distribution within the region. Consequently there might be some very poor segments within the wealthier regions.

As discussed, analyzing the dataset by region can assist policymakers in targeting particular areas of the country also in coordination with other particular ongoing programmes. The regional impacts will be touched upon in the analysis but not discussed in detail as beyond the scope of this paper but can illustrate how this type of analysis can be extended to a regional focus.

Based on the CSES 2004, food budget shares are still a large part of total expenditure in Cambodia, see Figure 3. On average, households in the first three expenditure quintiles spend between 60 and 70 percent of their income to buy food. For the lower quintiles, differences in terms of food budget shares between urban and rural households are small. The food budget share only falls below 50 percent for the wealthier urban part of the population in the fifth quintile.

Figure 3

Food budget share by quintile and location (percent)
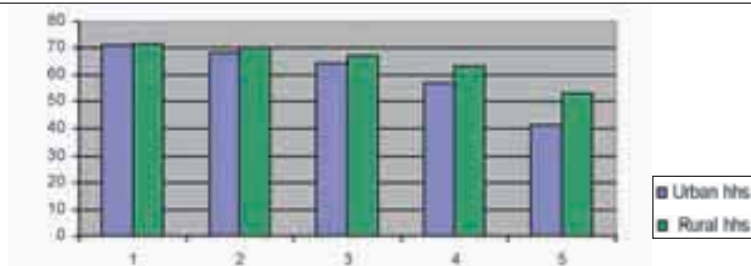
Source: CSES 2004

## 4.2 HOUSEHOLD WELFARE IMPACTS DUE TO PRICE INCREASES

We now turn to the welfare impact analysis. In order to compute the net position of a household with respect to a specific crop, it is necessary to know how much money the household earns from that crop and how much the household spends on that crop. Once we compute the net position of the household, i.e. whether they are net producers or net consumers, we show the impacts of price increase across location and expenditure quintiles.

In the case of Cambodia, the analysis focuses on rice since this is the most important food crop. As the aim of the analysis is on assessing the impact of higher prices on the poor, as discussed, we divide households by quintile and urban and rural location. Distinguishing between rural and urban households is the key issue since rural households are more likely to be net producers of crops and benefit from the price increases. Once this first step of the analysis is undertaken we add more details on key household characteristics in an effort to further characterize the poorer segment of the population in Cambodia.

4.2.1 RICE HOUSEHOLD LEVEL IMPACTS

In the case of rice we find that all quintiles in Cambodia benefit from a 10 percent increase in the price of rice, see Figure 4. The first three quintiles of the population gain the most from the price increase. Poor households on average experience a welfare gain of 0.35 percent for a 10 percent price increase.

Figure 4

Household welfare impacts of rice price increases by quintile and location (percent)
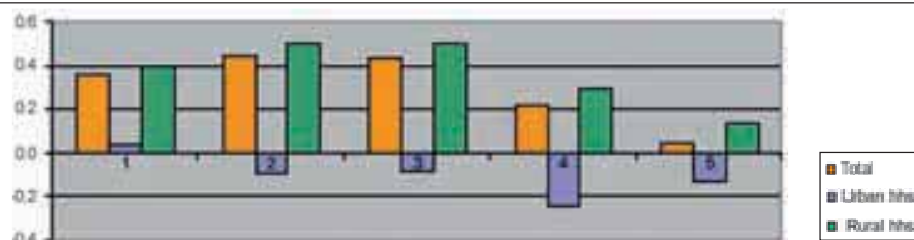
Source: Calculations by the authors

When distinguishing between urban and rural households, it is still the case that all poor households gain, albeit to a different degree. The welfare gain in urban areas for such a price increase is minimal, but for rural areas a 10 percent price change results in an average 0.4 percent increase in households' welfare.

Figure 5

Household welfare impacts of rice price increases by region (percent)

Source: CSES 2004

Note that the welfare impact shown is an average effect so that there might be, as further discussed later, categories of households which overall are hurt by the price increase even if overall the welfare impact is positive. Secondly, the 10 percent price change should be compared with recent rice price movements in the countries. We discuss this in section 6 illustrating how recent rice price changes have been much larger. In this case the welfare impact should be multiplied by the size of the actual price change.

Impacts across regions are not homogeneous across the country. We find that for 5 out of the 23 regions in Cambodia the welfare impacts of the price change are negative, see Figure 5 (the results in tabular format are included in Appendix 2). The most negatively hit regions are Kaoh Kong and Phnom Penh.

4.2.2 RICE IMPACTS AND HOUSEHOLD CHARACTERISTICS

At this stage additional specific household characteristics are added to the analysis in order to identify potential vulnerable groups within the poorer segment of the population. By doing so and specifying some key household characteristics households can be grouped into detailed household typologies. For the purpose of the welfare and

vulnerability analysis, households are distinguished based on their land ownership status and whether the household head is a male or female. Once the vulnerable household groups are identified through the household typologies, the vulnerable groups should be closely monitored upon price increases and specifically targeted if safeguard programmes are put in place.

In the case of land ownership, we distinguish between households that are land owners and households that do not own land. In the case of gender we distinguish between households that are headed by a male and households that are headed by a female. We first discuss the land ownership results and then the gender findings.

4.2.2.1 RICE IMPACTS AND LAND OWNERSHIP

Approximately 31 percent of the urban population owns land while 77.6 percent of the rural population own land, see Table 6. In the case of the poor, 62.8 percent of the urban poor own land and 81.7 percent of the rural poor own land. This results in 0.7 percent of the total population being poor and landless in urban areas and 3.5 percent of the population being landless and poor in rural areas, equivalent to approximately 4 percent of the total population.

Table 6

Distribution and share of households by quintile, location and land owners

| Household numbers (share of subsample in percentage)						
Urban						
Quintile	**1**	**2**	**3**	**4**	**5**	*Total*
Land owners	167 (62.8)	145 (52.2)	159 (46.8)	2120 (5.2)	160 (15.5)	751 (31.4)
Land less	99 (37.2)	133 (47.8)	181 (53.2)	357 (74.8)	870 (84.5)	1649 (68.6)
Total	*266*	*278*	*340*	*477*	*1030*	*2391*
	Rural					
Land owners	1649 (81.7)	1672 (83.1)	1635 (81.9)	1463 (75.6)	924 (61.4)	7343 (77.6)
Land less	369 (18.3)	340 (16.9)	361 (18.1)	471 (24.4)	582 (38.6)	2123 (22.4)
Total	*2018*	*2012*	*1996*	*1934*	*1506*	*9466*

Note: Household numbers are listed with percentages in brackets
Source: CSES 2004

The results show that land ownership does influence the welfare impacts, see Figure 6. Poor households that do not own land, both in rural and urban areas, tend to lose from the rice price rises. For a 10 percent price increase, poor household in urban areas lose on average 1.1 percent of their welfare, while rural households lose even more, 1.3 percent of their welfare. Therefore for slightly over 4 percent of the total Cambodian population, price increases in rice will have a negative impact. When considering additional measures and development tradeoffs this share of the population should be safeguarded.

Figure 6

Household welfare impacts due to changes in the price of rice by quintile, location and land ownership (percent)
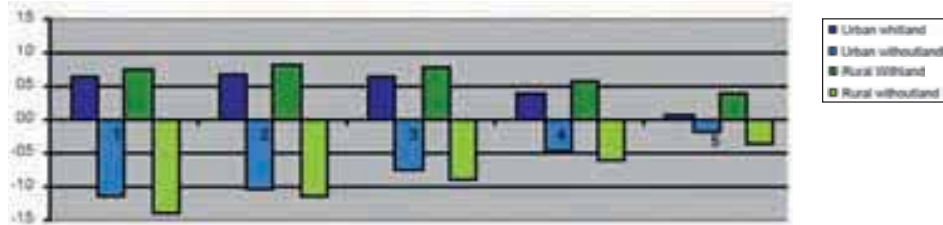
Source: Calculations by the authors

4.2.2.2 RICE IMPACTS AND GENDER

The proportion of female headed households is roughly similar in urban and rural areas, see Table 7. Approximately 1 in 4 households have a female head in the urban areas, while 1 in 5 is female headed in rural areas.

Poor urban female headed households account for approximately 0.4 percent of the total population or 18 percent of the urban poor. While rural female headed households account for 3.4 percent of the total population or 21 percent of the rural poor.

Table 7

Distribution of households by quintile, location and gender of household head

Household numbers (share of subsample in percentage)						
Urban						
Quintile	**1**	**2**	**3**	**4**	**5**	*Total*
Male headed household	219 (82)	226 (81.3)	243 (71.5)	355 (74.4)	776 (75.3)	1819 (76)
Female headed household	48 (18)	52 (18.7)	97 (28.5)	122 (25.6)	254 (24.7)	57 (24)
Total	*267*	*278*	*340*	*477*	*1030*	*2392*
Rural						
Male headed household	1596 (79.1)	1626 (80.8)	1540 (77.2)	1530 (79.1)	1162 (77.2)	7454 (78.7)
Female headed household	422 (20.9)	386 (19.2)	456 (22.8)	404 (20.9)	344 (22.8)	2012 (21.3)
Total	*2018*	*2012*	*1996*	*1934*	*1506*	*9466*

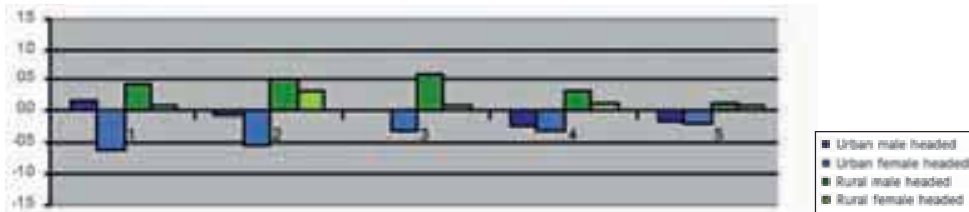*Note: Household numbers are listed with percentages in brackets*
Source: CSES 2004

The results show that the gender of the household head has a significant impact on household welfare, see Figure 8. Urban female headed households lose from a price increase in rice, with poor female headed households losing 0.6 percent of their welfare on average.

In the case of rural households, the impact of a price increase is positive for both male and female headed households. Female headed households gain less though, compared to male headed households, due to the price increase.

Figure 7

Household welfare impacts due to changes in the price of rice by quintile, location and gender of household head (percent)

Source: Calculations by the authors