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AGRICULTURE, FOOD SECURITY & NUTRITION

IN MALAWI

Edited by Noora-Lisa Aberman, Janice Meerman, and Todd Benson

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CHAPTER 3 : POVERTY, FOOD PRICES, AND DIETARY CHOICES IN MALAWI

Karl Pauw, Iñigo Verduzco-Gallo and Olivier Ecker
International Food Policy Research Institute

The links between household income growth, household food security, and individual dietary outcomes are complex. While we expect higher incomes to lead to an increase in the quantity and quality of foods accessed by the household—particularly in a resource-constrained context like Malawi—other considerations, such as the allocation in household budgets for non-food items and the relative prices of nutrient-dense food items, will also influence what people eat.

In this chapter we analyze Malawi's recent food consumption trends, including per capita calorie and micronutrient-consumption estimates, and reflect on how these pertain to (1) changes in poverty and household income, and (2) relative changes in food prices. In so doing, we extract from a detailed analysis of household food consumption (Verduzco-Gallo, Ecker, and Pauw 2014) and from an assessment of recent poverty trends (Pauw, Beck, and Mussa 2014). Both these studies draw on the two latest rounds of Malawi's nationally-representative Integrated Household Surveys (IHS2 and IHS3) collected in 2004–2005 and 2010–2011 (NSO 2005; 2012b).

Although in economics, the term "consumption" usually refers to the monetary value of expenditure on goods and services or both, the food consumption modules of the IHS questionnaire specifically ask respondents to report quantities and values of food actually consumed by household members during a seven-day recall period. The interpretation of consumption in this study is therefore closer to the way nutritionists understand consumption—what people eat and ingest. Although, being a household survey, we cannot comment on the allocation of food among household members or make statements about the bioavailability of food consumed.

Malawian woman selling legumes in a Lilongwe market

Our results indicate that while income poverty appears to have decreased between 2004–2005 and 2010–2011 on average, substantial disparities remain and are indeed increasing, with the richest quintile of the population of Malawi becoming disproportionately better off, and the poorest of the poor becoming even worse off, a trend that may well shape nutritional outcomes in the future. In addition, results show that households are generally allocating a larger share of their budgets to food than they did in the past, in spite of rising incomes. And while the country as a whole is consuming more of some nutrient-rich foods, such as white meat, vegetable consumption had decreased, which is likely to exacerbate micronutrient malnutrition.

3.1—Reassessing Malawi's Poverty Estimates

Malawi is ranked the third poorest country in the world. In 2010, GDP per capita was US$780 compared to figures of between US$1,105 and $3,925 in neighboring Mozambique, Tanzania, Kenya, and Zambia (World Bank 2015). However, Malawi also recorded record levels of economic growth between 2005 and 2011. During this period, national GDP growth averaged 7.1 percent annually (NSO 2012a). This translates to increases in per capita GDP of around 3.1 percent. While there were high expectations that growth would be accompanied by rapid poverty reduction, the

official narrative is that this was not the case. Malawi's National Statistics Office (NSO) reports that the national headcount poverty rate—defined as the share of the population with consumption below a poverty line that reflects the cost of a basket of essential nonfood items plus food that yields sufficient calories—declined only marginally, from 52.4 to 50.7 percent, over the period. Moreover, rural poverty reportedly *rose,* albeit by a statistically insignificant 0.7 percentage points (NSO 2005, 2012b).

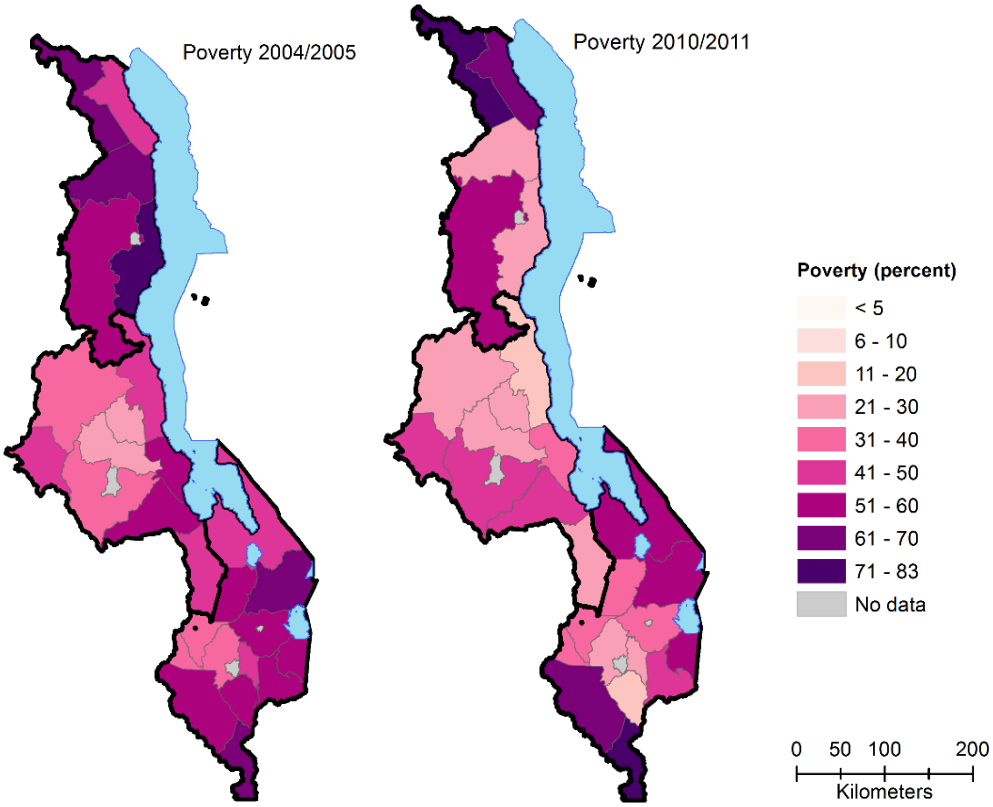
However, recent findings from Pauw, Beck, and Mussa (2014) reflect a somewhat different story. Overall, they estimate a much larger decline in national poverty than NSO found from 47.0 to 38.8 percent (that is, –8.2 percentage points). Per Table 3.1, this includes a large decline in urban poverty consistent with the NSO estimates, but a substantial 7.4 percentage point reduction in rural poverty, which stands in sharp contrast to the 0.7 percentage point increase estimated by NSO. Figure 3.2 maps the district-level poverty rates for Malawi in 2004-2005 and 2010-2011, based on estimates by Pauw, Beck, and Mussa (2014). It is apparent that the incidence of poverty is highest in the northern and southern regions, particularly in the more remote districts or those along the lake shore, but these regions have also seen the greatest declines in poverty over the period.

Table 3.1— Alternative poverty estimates for Malawi: 2004–2005 to 2010–2011

	Poverty headcount rate (%)				Percentage point change & 95% confidence intervals	
	2004/05 (IHS2)		2010/11 (IHS3)			
	Pauw et al.	NSO	Pauw et al.	NSO	Pauw et al.	NSO
Normal (food plus nonfood) poverty line						
National	47.0	52.4	38.8	50.7	-8.2 ± 2.8	-1.7 ± 2.4
Urban	37.6	25.4	27.4	17.3	-10.2 ± 9.4	-8.1 ± 6.8
Rural	48.2	55.9	40.8	56.6	-7.4 ± 2.9	0.7 ± 1.4
Extreme (food only) poverty line						
National	17.1	22.3	17.9	24.5	0.9 ± 2.0	2.1 ± 2.2
Urban	9.0	7.5	4.7	4.3	-4.2 ± 3.6	-3.2 ± 3.4
Rural	18.1	24.2	20.3	28.1	2.2 ± 2.2	3.9 ± 2.4

Source: Pauw, Beck, and Mussa (2014) and NSO (2005, 2012b).

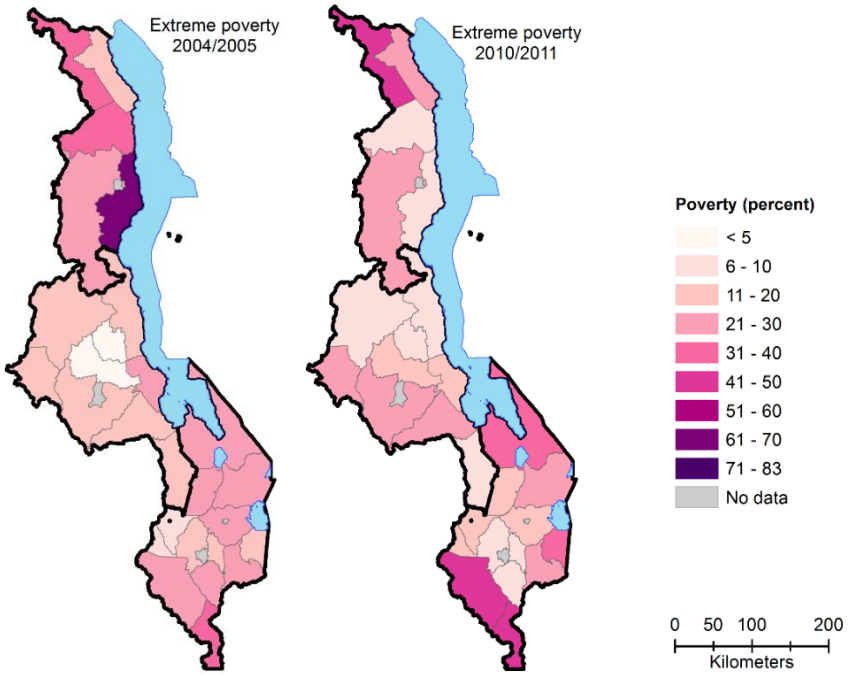
Figure 3.1—Alternative poverty headcount estimates for Malawi, by district, 2004–2005 and 2010–2011



Source: Analysis by M. Kedir, IFPRI, of alternative poverty analysis of IHS2 and IHS3 data (Pauw, Beck, and Mussa 2014).

With respect to extreme poverty (that is, share of the population with consumption below the food-only component of the poverty line), Pauw, Beck, and Mussa's figures are consistent with those of NSO in terms of the direction of change, in that both estimates indicate an increase. Although the magnitude of change is smaller in Pauw, Beck, and Mussa's findings, the fact that both analyses document a rise supports the claim that the most vulnerable Malawians were excluded from the benefits of growth between 2005 and 2011. For example, Malawi's Farm Input Subsidy Program (FISP) has been documented as being less effective in targeting the poorest of the poor (Chibwana et al. 2014); the consumption level of most recipients of the subsidy is more likely closer to the poverty line than to the extreme poverty line. Figure 3.2 shows the district-level extreme poverty rates, also based on Pauw, Beck, and Mussa (2014).

Figure 3.2—Alternative extreme poverty headcount estimates for Malawi, by district, 2004–2005 and 2010–2011



Source: Analysis by M. Kedir, IFPRI, of alternative poverty analysis of IHS2 and IHS3 data (Pauw, Beck, and Mussa 2014).

This rise in extreme rural poverty is a contributing factor to rising inequality in Malawi. Not only are the richest becoming disproportionately better off, but the poorest of the poor are becoming even worse off, a trend that may well shape nutritional outcomes in the future.

3.2—Does Increased Income Translate to Improved Food Security?

3.2.1—SHIFTS IN FOOD AND NONFOOD SPENDING

Given that the national-accounts data of NSO suggest that GDP per capita rose by 3.5 percent annually from 2005 to 2011, the expectation is that household expenditures would also rise. IFPRI's analysis of the IHS data from the same period confirms these expectations, showing average expenditure growth to have been around 2.2 percent per capita annually after adjusting for inflation (Pauw, Beck, and Mussa 2014).

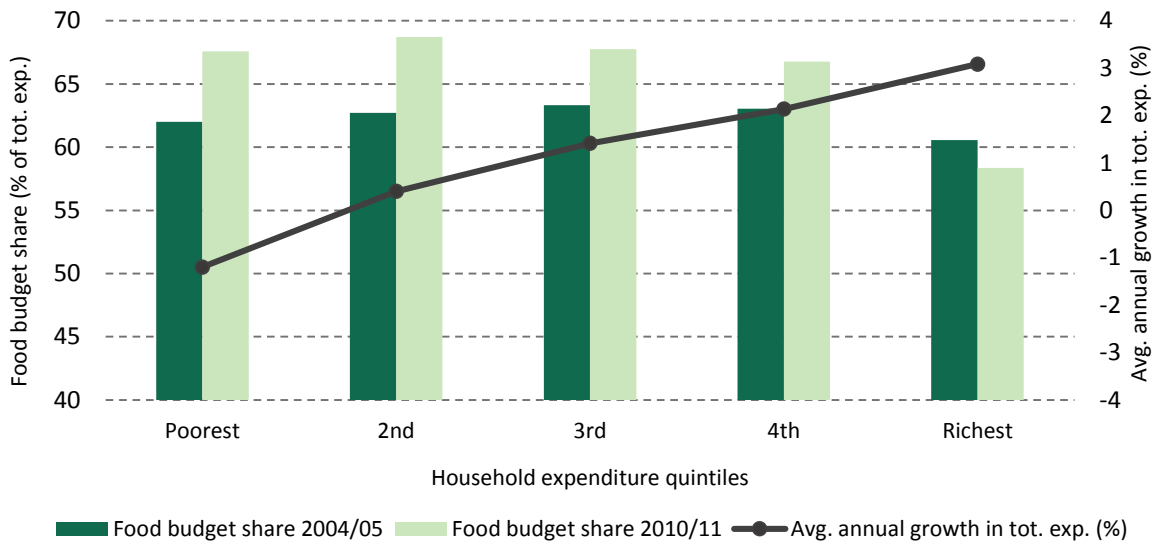
While we would also expect a rise in income to result in households spending a smaller share of their budget on food, Pauw, Beck, and Mussa (2014) find that most households actually spent a *greater* share of their incomes on food in 2011 than in 2004. On average, household food expenditures increased slightly from 61.7 to 62.6 percent between 2004 and 2011. While we might expect this scenario for the poorest quintile who were likely not able to afford to meet their basic food needs despite substantial growth, per Figure 3.3, the second, third, and fourth quintiles also increased food budget expenditures. It was only the richest income quintile that spent a smaller share of income on food.

A closer look at relative food and non-food inflation rates may help explain this outcome. Using prices underlying their estimated poverty lines, Pauw, Beck and Mussa (2014) estimate a food inflation rate of 129.0 percent, a non-food inflation rate of 93.1 percent, and a national average inflation rate of 114.7 percent. The NSO's own estimates also reveal higher food inflation, although their overall inflation rate is slightly higher at 128.9 percent.

With relatively cheaper non-food items available, households were able to increase non-food expenditures without actually spending more. For example, household survey data reveals significant *declines* in the share of households reporting inadequate access to housing (–12.5 percent), health care (–27.5 percent), and clothing (–15.5 percent) between 2004 and 2011. In consequence, households were simultaneously able to spend more money on food. The question of interest,

discussed in the remaining sections of this chapter, is whether this shift in household budget allocation translated into shifts in what foods were purchased, and if so, what the nutritional implications of such changes may be.

Figure 3.3—Household food budget shares, by quintile: 2004–2005 and 2010–2011



Source: Authors' estimates based on IHS2 and IHS3 (NSO 2005, 2012b).

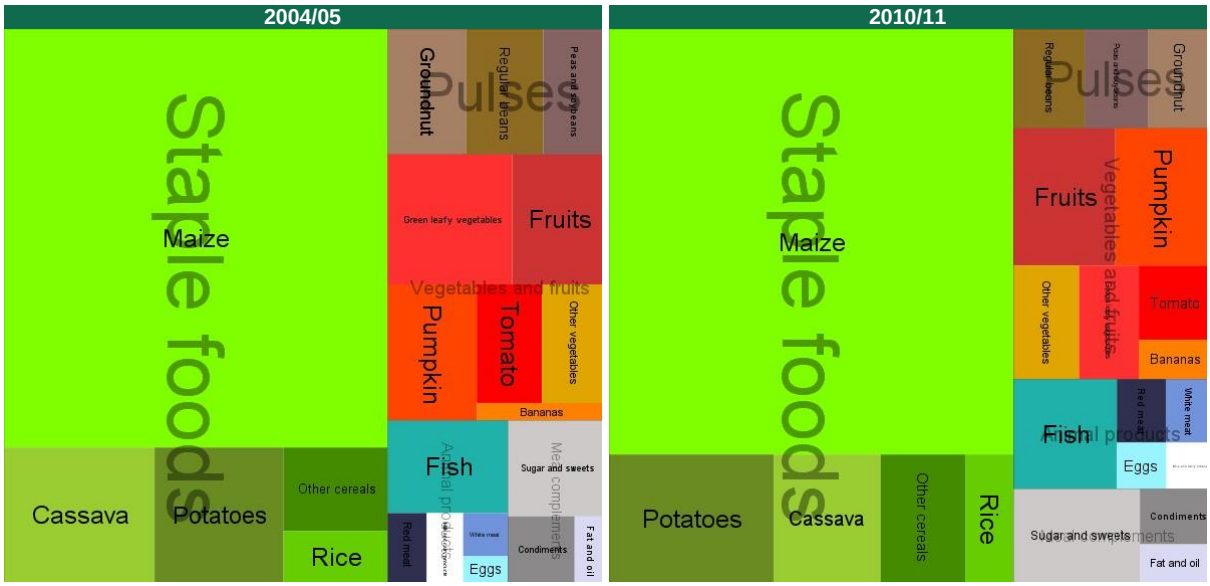
3.2.2—SHIFTS IN HOUSEHOLD FOOD CONSUMPTION PATTERNS

Before considering detailed household food consumption patterns, we first look at household dietary diversity, using IHS data to construct household dietary diversity scores (HDDS). As described in Chapter 2, HDDS is based on a simple counted score of 12 food groups constructed from recall data on household food consumption.

As expected, results indicate that HDDSs in Malawi tends to increase as incomes increase. Nationally, alongside the increase in average incomes, the average HDDS increased from 7.9 to 8.2 between 2004–2005 and 2010–2011. However, this national average masks substantial variation across income quintiles. In line with findings on extreme poverty, the poorest Malawians did not increase their HDDSs at all. There was actually a very marginal decline from 6.4 to 6.3. HDDSs increased across all other quintiles, but most markedly in the fourth (8.7 to 9.4). This is not surprising, as the HDDS for the wealthiest households will tend to increase at a slower rate than that of relatively poorer household groups for a given rate of income growth as the wealthiest are already closer to their optimum HDDS (see Swindale and Bilinsky 2006).

Regarding estimated consumption of specific food items, several important household food-consumption shifts appear to have occurred between 2004 and 2011. These shifts are shown graphically in Figure 3.4 for the country as a whole in terms of what share of the quantity (by weight) of food consumed came from what food sources. In both rural and urban areas, there was a substantial increase in the consumption of staple foods, namely rice and maize, the latter being already the most widely-consumed food crop. Overall consumption of maize, rice, fruit, and animal products increased in both rural and urban areas, while consumption of vegetables and cassava declined. Consumption of pulses declined sharply in rural areas, but increased in urban areas. Potato consumption also increased in urban areas.

Figure 3.4— Graphical representation of changes between 2004/05 and 2010/11 in the share of the quantity of food consumed in the average Malawian diet by food source



Source: Authors' estimates based on IHS2 and IHS3 (NSO 2005, 2012b).

3.3—Relating Food Consumption Shifts to Changing Food Prices

To better understand the shifts in household food consumption, we also estimate the daily per capita consumption of various foods and the change in consumption per day between 2004–2005 and 2010–2011. These estimates of average per capita availability of specific foods and food groups are based on household consumption data not individual diet data.

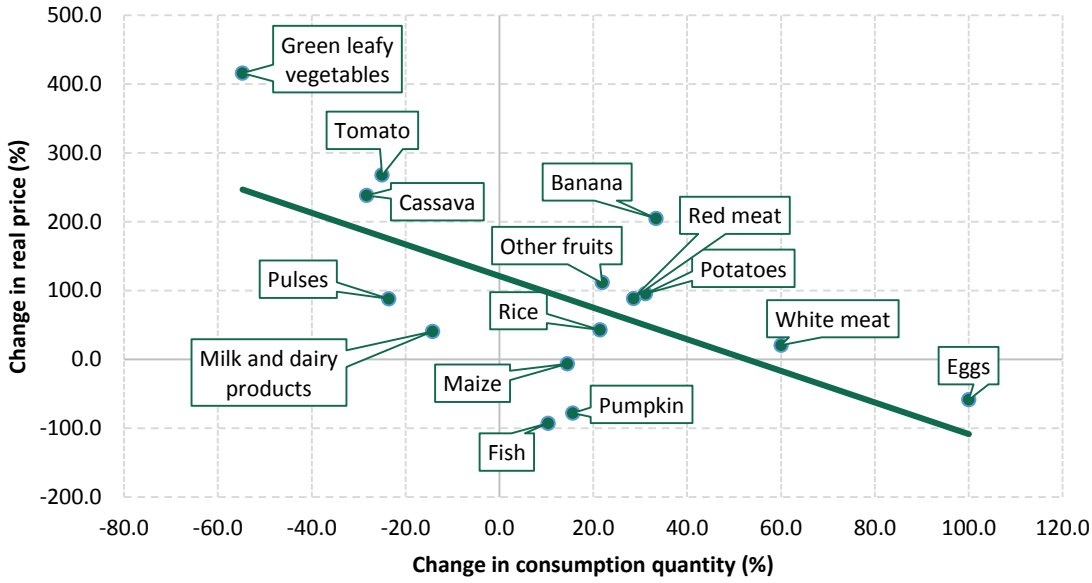
Figure 3.5 plots changes in the consumption levels of these foods (x-axis) against changes in their national median prices. While the figure disregards potentially significant regional price variations, it nevertheless conveys a powerful message of how, on average, price increases may explain decreases in consumption, as evidenced by the downward sloping fitted trend line. However, for a significant number of food items we see increases in consumption despite rising prices, including luxury items such as rice and meat. These results may reflect shifting preferences associated with rising welfare levels among wealthier households.

3.3.1—STAPLE FOODS

As incomes increase, households often substitute away from coarse grains (maize, barley, or sorghum) and starchy staples (potatoes or cassava) toward finer grains such as rice or wheat (Fuglie, 2004). However, in Malawi, our analysis indicates that maize consumption increased by 14 percent. This increase is significant in absolute terms given that maize already accounts for around two-thirds of all calories consumed in Malawi. The most likely explanation for this is the increase in maize supply under FISP, which coincided with a real decline in maize prices.

There was also a relatively sharp rise in potato consumption. The more detailed analysis reveals that this increase was driven mostly by rising potato consumption in urban areas.

Figure 3.5—Food consumption changes and relative price shifts: 2004–2005 to 2010–2011



Source: Authors' estimates based on IHS2 and IHS3 (NSO, 2005, 2012b).

Unlike maize and potatoes, the typical substitution response did seem to hold for cassava, for which consumption declined substantially. Cassava is traditionally a food crop for which demand rises when maize supply is low, and so ample maize harvests and stores during the period in question are perhaps one reason for the decline in cassava consumption. However, cassava prices also more than tripled during this period, which suggests the decrease in consumption may be as much due to a price effect as an income effect. Much of the price increase was likely due to increased demand for cassava as a commercial input for manufactured food and non-food products (see Kambewa 2010).

Finally, despite an increase in the price of rice, consumption rose by an estimated 21 percent. This pattern may be due to a strong consumer preference for rice, facilitated by increased purchasing power.

3.3.2—PULSES

The per capita decline in pulse consumption (24 percent) is likely also linked to increased prices (88 percent). However, it is important to note that this national decline in pulse consumption masks substantial difference in regional price changes—overall, rural pulse prices increased by 99 percent, while in urban areas they only increased by 47 percent. Moreover, when the data were disaggregated by variety, groundnut prices actually *declined* in urban areas, while peas and soyabean prices increased by only around 10 percent, compared to sharp increases in the prices of these particular varieties in rural areas. These regional price trends explain regional consumption behavior to some extent, namely substantial decreases in per capita pulse consumption among rural households, but a rise in urban pulse consumption (see Verduzco-Gallo et al. 2014 for details).

3.3.3—VEGETABLES AND FRUITS

Per capita consumption of fruit and pumpkin increased nationwide, while consumption of tomatoes and green leafy vegetables declined considerably. These consumption trends are fairly similar across rural and urban areas, with relative price shifts again providing a likely explanation for the changes: pumpkin prices declined by 82 percent; while tomato and leafy green prices rose sharply, by 264 and 412 percent, respectively. The one exception within this group was bananas and other fruit. Despite two- to three-fold increases in the price—admittedly from a relatively low level compared to, say, animal source foods—consumption increased fairly substantially. As with rice and meat products, this pattern may be due to strong consumer preferences for fruit, facilitated by increased purchasing power.

3.3.4—ANIMAL-SOURCE FOODS

Per capita consumption of white meat (mostly chicken) increased substantially—by 60 percent—nationwide. Nationwide consumption of red meat also increased, albeit less drastically than for chicken, by 29 percent. Importantly, prices for both these animal source foods also increased. White meat prices rose by 20 percent nationally, but declined in rural areas, possibly because of the availability of cheaper feed. In both rural and urban areas, red meat prices rose steeply and rose by 88 percent nationally. As with rice and fruit, it is likely that household increases in income combined with preferences for meat outweighed national average price increase, with the net effect being increased per capita consumption.

In contrast, price increases for milk and dairy products—41 percent—may have led to a concomitant decline in consumption of 14 percent. Egg consumption doubled, likely due to a substantial price decrease of around 58 percent.

Fish is an important part of the traditional Malawian diet, especially for communities near the lakeshore. Per capita fish consumption increased by 10 percent alongside a sharp 93 percent decline in fish prices. This outcome is somewhat surprising in the context of dwindling fish stocks in Lake Malawi (FAO 2013) and, indeed, the numbers change substantially when the data are separated into dried fish versus fresh. Disaggregation reveals an almost three-fold *increase* in the real price of fresh fish, and alongside that a decline in per capita fresh fish consumption. In contrast, per capita consumption of dried fish, some of which is imported from neighboring Tanzania and Mozambique, doubled alongside a significant decline in dried fish prices.

3.4—Nutritional Implications of Changes in per Capita Consumption of Specific Foods

To better understand how shifts in household food consumption impact diet quality, in the absence of individual dietary data, we approximate daily per-capita calorie and micronutrient intake given the foods and quantities accessed by the household. These per-capita estimates are then compared to the daily recommended intake requirements for household members to yield Household Micronutrient Access estimates. Estimates for average per-capita consumption of calories, iron, and vitamin A via these food groups are based on food composition tables from Kenya and Senegal and are shown in Table 3.2. (More details on this estimation process can be found in Chapter 2.)

3.4.1—CALORIES

The average Malawian household increased its per-capita consumption of calories by 4.6 percent between 2004—2005 and 2010—2011. Calorie consumption also increased across all income quintiles in both rural and urban areas. However, despite these increases, average estimated consumption among the poorest rural households remained below minimum calorie requirements.

In both rural and urban areas, the richest quintile recorded the largest increase in calories, despite already consuming calories well above required amounts. This trend is common in many other developing countries and is often considered as an early step in the nutrition transition. The nutrition transition is characterized by a shift away from relatively monotonous diets of varying nutritional quality toward an industrialized diet that is usually more varied and includes more processed food; more food of animal origin; more added sugar and fat; and often more alcohol. This transition is accompanied by a shift in the structure of occupations and leisure toward reduced physical activity and leads to a rapid increase in the prevalence of overweight and obese individuals, with implications for diet-related non-communicable diseases and their associated health care costs (Popkin 1994).

Table 3.2—Calorie and micronutrient consumption, by residence and consumption quintile (2004–2005 to 2010–2011)

	Calories (kcal/day)			Iron (mg/day)			Vitamin A (RE mcg/day)		
	2004–2005	2010–2011	*Change (%)*	2004–2005	2010–2011	*Change (%)*	2004–2005	2010–2011	*Change (%)*
Total	**2,204**	**2,305**	***4.6***	**20.0**	**19.5**	***-2.5***	**417**	**373**	***-10.6***
Rural	*2,176*	*2,232*	*2.6*	*20.2*	*19.5*	*-3.5*	*420*	*375*	*-10.7*
Poorest	1,387	1,441	*3.9*	13.5	13.8	*1.8*	304	219	*-27.9*
2nd	1,857	1,895	*2.1*	17.8	17.4	*-2.0*	379	303	*-20.0*
3rd	2,211	2,245	*1.6*	20.9	20.0	*-4.1*	427	392	*-8.2*
4th	2,632	2,642	*0.4*	24.3	22.6	*-7.3*	467	468	*0.1*
Richest	3,269	3,431	*5.0*	28.5	27.2	*-4.6*	592	586	*-1.0*
Urban	*2,423*	*2,704*	*11.6*	*18.4*	*19.5*	*6.3*	*393*	*360*	*-8.5*
Poorest	1,712	1,838	*7.3*	15.5	15.6	*0.6*	350	210	*-40.1*
2nd	2,104	2,387	*13.4*	17.6	18.7	*5.8*	365	311	*-14.8*
3rd	2,457	2,791	*13.6*	19.1	20.5	*7.3*	375	392	*4.5*
4th	2,752	3,157	*14.7*	19.7	21.4	*8.3*	446	463	*3.8*
Richest	3,385	3,867	*14.2*	21.0	23.6	*12.2*	451	503	*11.7*
Requirement	**1,701**	**1,728**	***1.6***	**17.2**	**17.5**	***1.7***	**375**	**380**	***1.3***

Source: Authors' estimates based on IHS2 and IHS3 (NSO 2005, 2012b).

3.4.2—IRON AND VITAMIN A

In urban areas, estimated changes in per-capita access to iron appear to have been income-dependent and in line with estimated increases in nationwide red meat consumption. However, this does not hold true for rural areas where, counterintuitively, the highest declines were in wealthier households. Only the poorest rural quintile increased access to iron, based on our estimates. With respect to non-heme (that is, plant based) iron, one partial explanation is the aforementioned decreased pulse consumption that occurred across income quintiles in rural areas due to rising rural pulse prices. However, this does not explain the distribution across quintiles. One possibility is increased consumption of dried fish. When consumed whole, dried fish are an excellent source of iron. Further, it is possible that this food product, which may be considered an inferior good relative to increasingly expensive fresh fish, is consumed primarily by poorer households, with positive implications for iron intake.

Nationwide, estimated vitamin A consumption deteriorated sharply during the period 2004–2005 to 2010–2011, especially among poorer urban and rural households whose consumption patterns appear more price-sensitive to the significant price increases. This trend is not consistent with the nationwide increase in fruit and pumpkin consumption, both of which are sources of vitamin A, and is congruent with national decreases in dairy product and leafy green consumption, also sources of vitamin A. With respect to the latter, a line of inquiry which remains unexplored is whether high horticulture prices are creating incentives for farmers to sell more of their vegetables, rather than retaining them for their own consumption.

3.4.3—ESTIMATED CALORIE AND MICRONUTRIENT SHORTFALLS

Table 3.3 reports on Household Micronutrient Access indicators for calories[11], iron, and vitamin A. Table 3.3 represent the share of households whose approximated calorie, vitamin A, and iron intakes are below the nutrient intake requirements of its members. The share of households whose consumption falls short of requirements is indicated for rural and urban areas and the country as a whole.

[11] While calories are macronutrients, not micronutrients, the indicator for calorie shortfall is calculated the same way as for micronutrients.

Table 3.3—Estimated shortfalls in calorie, iron and vitamin A consumption, by residence (2004–2005 to 2010–2011)

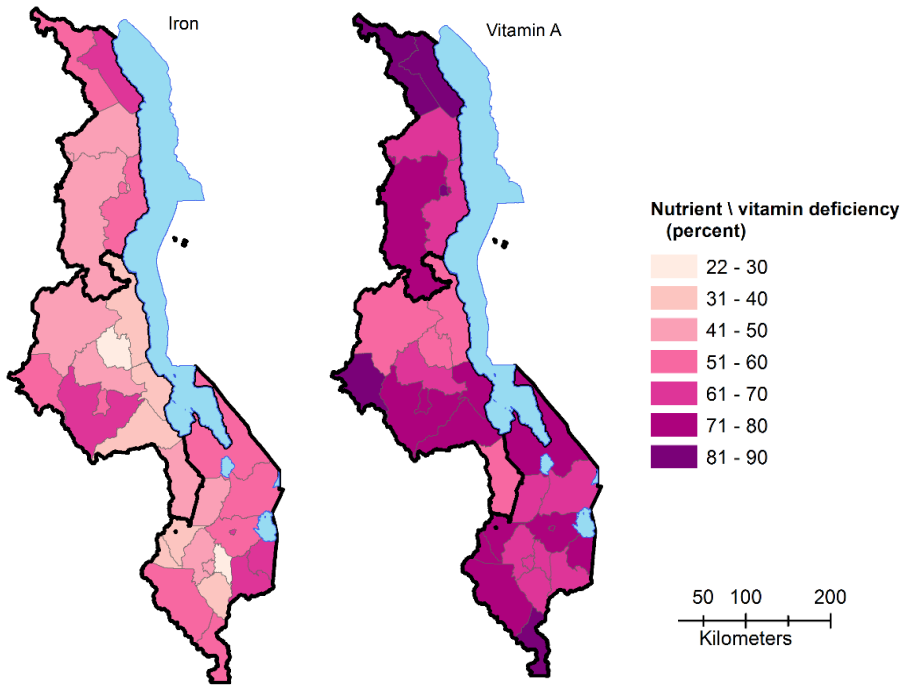
	Calorie shortfall (%)			Iron shortfall (%)			Vitamin A shortfall (%)		
	2004–2005	2010–2011	%-point change	2004–2005	2010–2011	%-point change	2004-–2005	2010–2011	%-point change
Total	**39.4**	**34.3**	***-5.1***	**44.1**	**48.6**	***4.5***	**62.0**	**69.9**	***7.9***
Rural	40.5	36.7	*-3.8*	42.6	47.7	*5.1*	61.8	69.8	*8.0*
Urban	30.9	20.6	*-10.3*	55.1	54.0	*-1.1*	63.1	70.8	*7.7*

Source: Authors' calculations with IHS2 and IHS3 data (NSO 2005, 2012b).

While access to calories improved from 2004–2005 to 2010–2011, there are significant differences in the levels and rate of decline in rural and urban areas. The number of rural Malawian households that failed to access sufficient calories changed from 40.5 to 36.7 percent. While the improvement in urban households was far greater, changing from 30.9 to 20.6 percent. See Figure 3.6 for a district-level map of average estimated household calorie intake deficiency.

The picture looks different for micronutrients (Figure 3.6). A sharp increase in the rural iron shortfall rate (5.1 percentage points) caused the national shortfall to increase by 4.5 percentage points (offsetting a decrease of 1.1 percent among urbanites). Vitamin A shortfalls also increased sharply in both urban and rural areas, giving rise to a 7.9 percentage point increase overall. As above, while the reasons for this trend are difficult to tease out due to conflicting patterns of consumption between various vitamin A-source foods, one partial explanation may be the steep price increase of green leafy vegetables and a concomitant sharp decline in their consumption.

Figure 3.6— Average estimated household iron and Vitamin A intake shortfalls, by district, Malawi 2010



Source: Analysis by M. Kedir, IFPRI, of IHS3 calorie deficiency analysis results (Verduzco-Gallo, Ecker, and Pauw 2014).

3.5—Synopsis of Findings and Concluding Remarks

In this chapter, we present per capita food consumption estimates and associated changes in calorie and micronutrient access for Malawi between 2004–2005 and 2010–2011. Consistent with growth in GDP per capita, poverty declined across urban and rural areas. This was accompanied by an increase in food expenditures across all household expenditure quintiles except the richest. As a result, per capita food consumption, calorie access, and household dietary diversity in Malawi increased

nationwide and in both rural and urban areas, despite evidence of rising food prices. In fact, the rise in food prices may reflect a shift in consumption preferences toward more costly food sources, a shift made possible in part by a decline in the price of the major staple maize and the ability of households to increase their budgetary allocation to food without reducing the quality or quantity of nonfood purchases. However, these dietary changes did not appear to translate into generalized improvements in micronutrient access. Estimated Household Micronutrient Access for vitamin A declined in rural and urban areas, particularly among poorer quintiles, while estimated Household Micronutrient Access for iron declined significantly among most income quintiles in rural areas.

Apart from the increase in consumption of a select number of foods for which we observed price increases, most consumption choices can be construed as consistent with the direction of changes in relative prices of food items. Particularly, a sharp increase in the consumption of calorie-rich maize can be linked to a decline in real maize prices. We also note a reduction in consumption of iron-rich pulses, specifically in rural areas, together with sharp increases in pulses prices. Finally, the decline in vitamin A may be partially associated with a sharp decline in the consumption of green leafy vegetables, which have also become significantly more expensive in real terms and relative to other food products.

These changes suggest that substitution effects in food consumption may have, indeed, contributed to reducing the vulnerability of Malawian households to severe food insecurity (that is, calorie insecurity), but also contributed to increasing the risk of micronutrient malnutrition and related health consequences. The changes are disconcerting, especially considering the potentially harmful long-term effects of shortfalls in vitamin A and iron, because both the NSO and IFPRI estimates indicate that the most vulnerable families have been bypassed by recent reductions in income poverty, leaving them that much more vulnerable to rising food prices and inflation. Conversely, the pattern among the highest income quintile appears to be overconsumption of calories. In line with global trends, it is likely that this pattern has been accompanied by increased intake of processed foods, including those high in sugar, sodium, and fat, with negative implications for nutrition and health.

Beyond raising incomes and educating households about the importance of healthy, balanced diets, these results suggest a need for economic incentives that alter relative prices of different food items in a way that would stimulate demand for those nutrient-rich foods for which consumption levels are currently inadequate.

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