



Research Report

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Food Markets and Poverty Alleviation

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Abstract

Despite global progress in poverty reduction, around 2.5 billion people still have to make a living on less than \$2/day. Most of these poor live in rural areas and agriculture forms an important component of their livelihoods. This paper provides a synoptic global overview of the distribution of purchasing power, expenditure on various food items, poverty, and livestock, which, although crude, clearly demonstrates, that domestic food markets could act as powerful catalysts for poverty reduction, provided the appropriate policy and institutional environments are in place. Public actions should overcome current policy and market failures and link small-scale producers with suppliers of critical inputs and buyers in urban markets, and enable rural producers to understand and satisfy the product, process and delivery standards expected by the increasing number of urban 'middle-class' consumers.

1. Introduction

The last two decades or so have recorded substantial economic growth and livelihood improvements among urban populations. Despite this positive development, around 2.5 billion, or close to one half, of the world's population still have to make a living on less than \$2/day. Most of these poor live in rural areas, where they are to a large extent isolated from the process of urban growth, and agriculture forms an important component of their livelihoods. As rising incomes initially lead to rising expenditure on non-staple foods,

opportunities should exist for rural smallholders to participate in the urban growth process by providing and marketing higher-value food products, particularly those derived from livestock. However, growing public health and environment concerns, rapid technological changes, more complex and stringent food safety standards and increased interconnectedness among countries, pose significant challenges for rural smallholders to tap into the growing markets for animal source food.

The aim of this paper is to provide a synoptic global overview of the distribution of purchasing power, expenditure on various food items, poverty, and livestock to qualitatively explore the potential of food markets as an avenue for poverty alleviation.

2. Materials & Methods

Global maps depicting poverty, income and expenditure, and livestock densities were constructed by drawing on publicly available datasets. Income density was mapped by using national *per capita* GDP, at purchasing power parity (PPP, constant 2000 International \$) from the World Development Indicators (<http://devdata.worldbank.org/>) of the World Bank for the year 2006 and multiplying these with the human population distribution produced by the Oak Ridge National Lab (Bright *et al.* 2007). Disaggregated distributions of expenditure by the main food groups were estimated by combining information from the 2005 International Comparison Programme of the World Bank (World Bank, 2008) on food expenditure with USDA's estimates of food budget shares (<http://www.ers.usda.gov/Data/InternationalFoodDemand/>). A global poverty density map was produced by using the 2004 World Development Indicators figure of the proportion of people living below \$2 a day for each country and multiplying these values with the global human population distribution. A global livestock density map was produced by multiplying distribution maps of the main livestock species (cattle, buffaloes, goats, sheep, pigs and poultry) in FAO 2007, with their respective coefficients for conversion into tropical livestock units (TLU).

3. Results & Discussion

Figures 1 and 2 demonstrate that, although developed countries have high income densities¹, food expenditure is just as concentrated, or even more so, in developing countries, despite much lower *per capita* incomes. Global (as well as national) maps of the

¹ Income / expenditure densities are expressed in 2000 \$ PPP income / expenditure per square kilometer.

density of food expenditure and poverty (\$2/day line) show that areas of high food expenditure density coincide with areas of high poverty density (figures 2 and 3). This relationship also holds true for expenditure on meat and dairy products (figures 4 and 5).

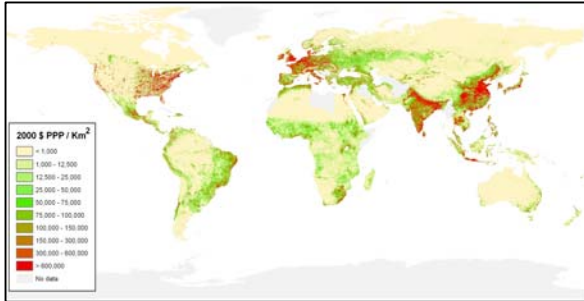


Figure 1 Income density (2000 \$ PPP/km²)

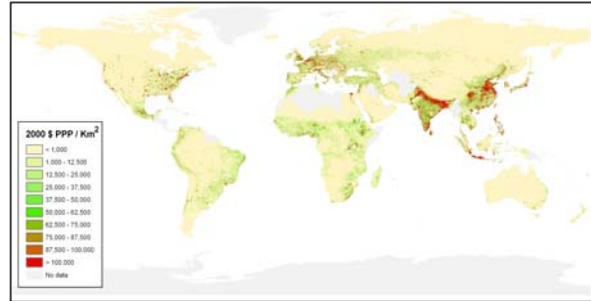


Figure 2 Food expenditure density (2000 \$ PPP/km²)

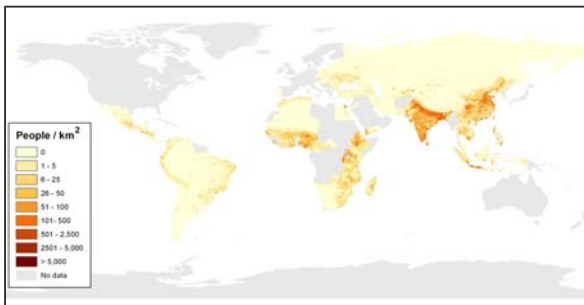


Figure 3 Poverty density (people living on less than \$2/day/km²)

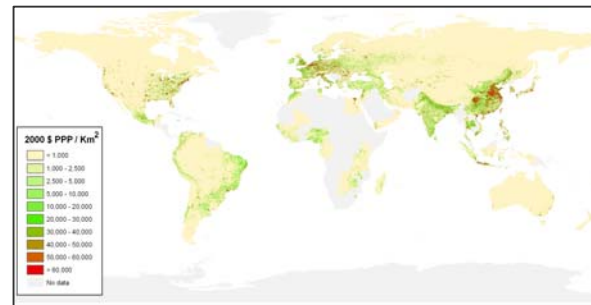


Figure 4 Expenditure density on meat (2000 \$ PPP/km²)

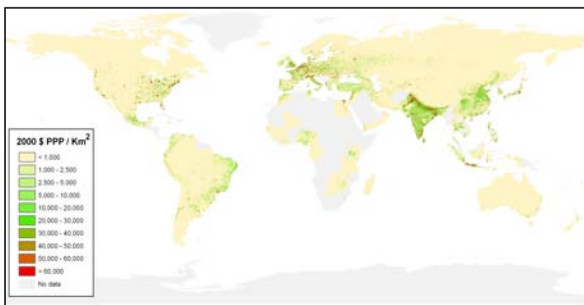


Figure 5 Expenditure density on dairy products (2000 \$ PPP/km²)

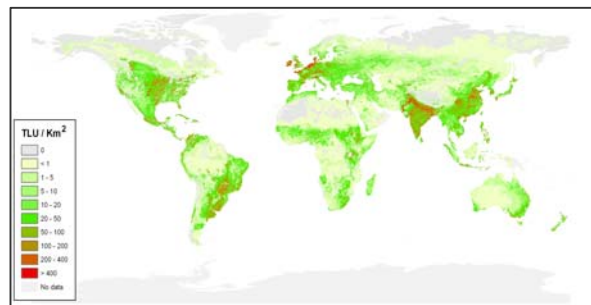


Figure 6 Livestock density (Tropical livestock units per km²)

Although very crude, the above geographical superimposition demonstrates that domestic food markets could act as powerful catalysts for poverty reduction, provided the appropriate policy and institutional environments are in place. In fact, it has been estimated that the 4 billion people who live on less than \$10 a day (primarily in developing countries), represent a food market of about US\$2.9 trillion per year (Hammond *et al.* 2007).

The 'middle class' in low and medium income economies is increasingly demanding higher-value agricultural products, including meat, milk and eggs (e.g. Maltsoglou 2007), and thus could sustain a growing market for smallholder livestock producers. This emergent demand is still strongly conditioned by cultural tradition and tastes concentrate on local varieties that are predominantly produced by smallholders, thereby offering a window to sustain traditional livestock breeds, raised on marginal land and/or crop by-products as an alternative (or complement) to the promotion of industrial livestock production methods and associated genotypes. Moreover, market surveys conducted in Southeast Asia and West Africa indicate that preference for local varieties and products results in substantial price premia (Ifft *et al.* 2007; Roland-Holst *et al.* 2007). This preference for traditional varieties confers an economic advantage to smallholder livestock producers and reinforces some of the environmental advantages of their production methods vis-à-vis intensive / industrial production systems. Finally, smallholders are generally linked to urban consumers through supply chains of small enterprise traders, distributors, and retailers. This means that demand for traditional varieties has pro-poor multiplier effects across networks of low-income market intermediaries (Ifft *et al.* 2008).

Figure 6 shows that areas of high livestock density conform closely to areas of high demand for food, including meat and milk. Livestock keepers, many of whom are smallholders, are thus frequently located in reasonable proximity to markets. Market access for the large majority of producers is therefore less obstructed by physical barriers than by domestic 'policy and market failures'. Policymakers tend to bias national policies in favour of large-scale, high end formal value chains over small-scale, informal market arrangements, for example through sanitary regulations smallholders can hardly comply with. 'Market failures' include distribution chains that alienate producers from consumers by preventing efficient price transmission and thereby undermine incentives to improve product quality. Investment incentives are further compromised by credit market failures, preventing attainment of even modest economies of scale. Finally, contractual opportunities remain very scarce for smallholders, exposing them to high levels of risk and volatile returns.

As a result of the above policy and market failures, many smallholder livestock producers operate at the beginning of the production function and relatively small but targeted inputs could lead to disproportional productivity gains (e.g. Garcia *et al.* 2006; Maltsoglou and Rapsomanikis 2005). Smallholders have repeatedly been shown to have low production costs due to low reliance on purchased high-value feed, while marketing costs are comparatively high. The increases in food and concentrate feed prices over the past 12 months should further increase this production cost advantage over industrial livestock

production systems and allow for higher investments in marketing while still delivering competitive products to urban consumers.

4. Conclusions

Even cursory observation suggests that domestic and regional food markets have significant potential to improve smallholder livelihoods, and rising food scarcity makes their supply response a high priority for governments. The dual objectives of rural poverty reduction and greater food security can best be tackled with policies that overcome the many policy and market failures faced by smallholders, with a focus not only on the international market but, more importantly, on local and regional markets, and promote equitable livestock supply / value chains.

A sustainable solution to rural poverty and food security requires incentives and institutions that increase both farm productivity and food market effectiveness. Unlike 'super seeds' and other technologies of the Green Revolution, however, one-size-fits-all solutions will not overcome the obstacles facing today's smallholders. Increases in household farm productivity still depend on technology adoption, which however is strongly determined by investment incentives, credit availability, bargaining power, and market access. Sustaining progress in poverty reduction, while contending with emergent challenges to food security calls for policies, and institutions that link small-scale producers with suppliers of critical inputs and buyers in urban markets, and enable rural producers to understand and satisfy the product, process and delivery standards expected by predominantly urban clients.

5. References

- Bright E.A., Coleman P.R., and A.L. King (2007). *LandScan Global Population Database*. Oak Ridge National Laboratory.
- FAO (2007). *Gridded Livestock of the World 2007*, by G.R.W. Wint and T.P. Robinson. Rome, 131pp (available at: <ftp://ftp.fao.org/docrep/fao/010/a1259e/a1259e00.pdf>)
- Garcia O., Saha A., Mahmood K., Ndambi A., and T. Hemme (2006). *Dairy Development Programs in Andhra Pradesh, India: Impacts and Risks for Small-scale Dairy Farms*. PPLPI Working Paper No. 38, 80pp (available at: <http://www.fao.org/ag/againfo/programmes/en/ppipi/docarc/wp38.pdf>)
- Hammond A.L., Kramer W.J., Katz R.S., Tran J.T., and C. Walker (2007). *The Next 4 Billion*, Washington, 162pp. World Resources Institute.
- Ifft J., Otte J., Roland-Holst D., and D. Zilberman (2007). *Demand-Oriented Approaches to HPAI Risk Management*. PPLPI Research Report, 9pp. (available at

http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/rep-hpai_demandside.pdf).

Ifft J., Otte J., Roland-Holst D., and D. Zilberman (2008). *Smallholder Poultry Supply Chains in the Ha Noi Region*. HPAI Risk Reduction Project Research Brief, 4pp. (available at: <http://www.hpai-research.net/docs/rbr07.pdf>)

Maltsoglou I. (2007). *Household Expenditure on Food of Animal Origin: A Comparison of Uganda, Vietnam and Peru*. PPLPI Working Paper No. 43. 37pp. (available at: <http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/wp43.pdf>)

Maltsoglou I. and G. Rapsomanikis (2005). *The Contribution of Livestock to Household Income in Vietnam: A Household Typology Based Analysis*. PPLPI Working Paper No. 21. 41pp. (available at: <http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/wp21.pdf>)

Roland-Holst D., Chadwick D., Ifft J., and Reed V. (2007). *Livestock Market Surveys for IPALP*. Consultancy Report to PPLPI

World Bank (2008). *2005 International Comparison Program*. Washington, 75pp. (available at: <http://go.worldbank.org/VMCB80AB40>)

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