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Meat in diets: impact on health, poverty and environment

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Abstract
When the incomes of poor families rise, a sizable share of the extra income is spent on meat to supplement their normal diet of staple grains and vegetables. Between 1973 and 1996, all developing countries combined per capita consumption of beef, mutton, goat, pork, poultry, eggs and milk rose by an average of about 50%. IFPRI estimates that by 2020, each person in the developing world is likely to demand about 29 kg of meat and 63 kg of milk a year, an increase from 21 kg and 41 kg, respectively, as at 1993. An outstanding question is whether the world will be able to produce sufficient livestock to meet this future demand. Even if meeting the demand was possible there are concerns regarding the consequences of increased animal production on human health, the environment and the general welfare of small scale farmers.

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Introduction
Generally, the poor consume cereals more than other foods because cereals are cheap. In Asian countries that have experienced significant income rises over the past two decades, meat consumption has grown by more than 5%. In addition to rising incomes, another factor contributing to increased demand for meat globally is urbanization. It has been observed that as people move to cities they consume more meat, milk and other livestock products. The reasons for these changes in consumption patterns are not clearly understood but they include influences of urban lifestyles, less opportunities for accessing cereals in urban areas and for some, increased incomes. In the early 1990s each person in the developed countries consumed on average about four times as much meat and five times as much milk as each person in the developing world.

Benefits of meat: There are numerous nutritional reasons for poor people in developing countries to want to add more meat in their diets. Food staples like rice and maize offer calories but are not dense in micronutrients or protein. Although vegetables could supply all the proteins required for a healthy life, one would have to eat a wide variety of them. In contrast eating meat is an easier way to get usable protein into diets. Meat can also aid in the absorption of other nutrients. For example, although meat contains iron, it also helps the body to absorb iron from other foods, a trait known as the *meat factor*. In some Asian countries, scarcity of bio-available iron is estimated to lead to anemia in over half of adult women and preschool children, which retards mental development for children and work capacity for adults. Consuming more meat, fish and dairy products would be the best way to alleviate these deficiencies. It is estimated that a five fold increase in amounts of meat, fish and

dairy products available would lower the prevalence of anemia by 50%.

Meeting the demand: The desired increase in meat consumption is unlikely to happen since costs for livestock products remain prohibitively high and beyond what most poor households can afford. A solution would lie in reducing the production and processing costs of these products. To meet demand for meat products, there has been a substantial growth in livestock production in developing countries. Meat production grew 5.4% annually from the early 80-90s, about five times higher than that of developed countries, which grew at 1.1%. The developing world supplies almost half of the world's meat, with Asia being the fastest growing supplier, accounting for more than 80% of the net increase of meat output in developing countries.

It is predicted that globally livestock will become the most important sub sector within agriculture. However, concerns remain over how the traditional small scale livestock farmers will respond to the new opportunities. These farmers face some constraints including limited feed resources, product perish ability, market access, etc. Economies of scale that are expected to spurn from growth in this sub sector are more likely to favor large scale producers. In addition, policies are more likely to favor the resource endowed, large scale producers, and to an extent neglecting small scale livestock farmers.

These concerns notwithstanding, increased demand for livestock products will offer more opportunities to benefit the poor. In addition to improved human nutrition, livestock will drive economic growth and provide collateral and a form of savings whose value is not reduced easily through inflation. Livestock farmers will also obtain manure, thus reduce the need to purchase inorganic soil amendments. An additional benefit of growth in the livestock sector will be enhanced gender equity. Women especially tend smaller livestock, and this gives them increased control over products and the income from their sale. However, to secure these benefits research is needed to find market oriented ways to enhance competitiveness of the small holder farmers.

Effects of production on prices, health and the environment: It has been suggested that a boom in livestock production could divert cereals away from food and towards feed markets, pushing prices for staple cereals beyond the reach of the poor. However, one school of thought is of the opinion that cereal prices are experiencing a long term trend downwards, because a substantial reserve capacity for their production exists. According to IFPRI's projections by 2020, increasing livestock consumption will prevent inflation adjusted cereal prices from falling below their already low levels, and might even raise them marginally. The debate on the prices of cereals is likely to take an interesting turn as demand for these commodities increases towards production of biofuels.

Although increased consumption of meat and other high protein and fat rich foods is expected to be beneficial, it could also have harmful effects on health. In China, for example, the diseases of affluence are beginning to take over from the diseases of poverty, e.g. heart disease. Besides health concerns, livestock production presents enormous environmental challenges. Industrial livestock production, which confines large numbers of animals in smaller areas, generates large volume of waste. In many large farms, the capacity to utilize manure is often much less than the amount of manure that is generated. Improper disposal of the excess manure poses a risk to biodiversity and to human health. Manure also produces greenhouse gases- 16 % of the annual methane emissions and 7% of the more aggressive nitrous oxide – which has implications on global climate change events. In the United States of America, for example, it has been reported that factory farming poisons water supplies and pollutes air. Tightening regulations, in participatory initiatives whereby the communities are involved in making decisions about setting up and managing farms, proper management of manure and other wastes to prevent runoff and improved management of open air cess pools are some of the proposed measures to reduce adverse impacts on the environment.

If well undertaken, livestock enterprises can improve environmental quality, especially under traditional farming systems that are more suited to small scale farmers. Ownership of livestock is a great motivation for farmers to plant trees that could be used as forage, shrubs, grass

contours, and pasture, that also help to reduce erosion and conserve water.

However, without proper training and incentives to farmers, livestock farming could damage the environment, e.g. through overgrazing on open, communally owned range lands. There is also increased risk of diseases spreading from animals to human beings, examples being the recently bird flu outbreaks in Asia and Rift Valley fever in East Africa. Some other adverse impacts of livestock could be the increasing conversion of forests to ranches especially in the Amazon, where cattle fetch higher profits. Deforestation and degradation are likely to increase if demand for livestock continues to increase globally.

Reference

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