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FAMILY PLANNING IMPROVES FOOD SECURITY

EVIDENCE FROM STUDIES IN LOW-
AND MIDDLE-INCOME COUNTRIES

Brief

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The United States Agency for International Development (USAID) defines food security as “having, at all times, both physical and economic access to sufficient food to meet dietary needs for a productive and healthy life.”¹ Given the magnitude and complexity of achieving this goal for the world’s population—projected to increase by 30 percent by 2050²—policymakers will have to engage in collaborative and innovative approaches and consider whether interventions in other sectors can be leveraged to address global food insecurity. This brief summarizes the findings of a full report, *Impacts of Family Planning on Food Security*, available at www.healthpolicyproject.com.

Food security depends on four pillars: food availability, access, use or consumption, and stability (see Box 1). The study explored the impact of family planning on each pillar. Some of the evidence found was based on specific food-security outcomes, such as total food required; but most evidence was conceptual because (1) few programs measure both family planning and food security results and (2) the time period for measuring family planning impacts is often longer than food security programs or studies.

Conceptually, family planning impacts food security most clearly through its influence on population growth, which significantly influences demand for food. By addressing unmet need, voluntary family planning use can decrease a country’s fertility rate (the average number of births per woman), which will decrease the rate of population growth and reduce future pressure on the country’s resources.

Globally, 2 billion people—200 million of them under age five—suffer from undernutrition, and 1 billion go to bed hungry every night.³

Modern contraceptives, which are between 90 and 99.95 percent effective in preventing unplanned pregnancies each year, represent one main factor of fertility change.⁴ Today, an estimated 222 million women in developing countries have an unmet need for modern family planning;⁵ that is, they say they would like to postpone their next birth, or stop childbearing altogether, but are

not using a modern family planning method to avoid pregnancy. For this large unmet need to be satisfied, voluntary family planning services worldwide must be improved and expanded. The foundation of voluntary family planning, free of coercion, is the right of individuals to choose freely and responsibly the number and spacing of their children. For this literature review, it was assumed that increased access to contraception would also increase the voluntary use of modern family planning methods by women with unmet need. In this way, women's expressed intentions would in part determine future increases in family planning use.

A recent analysis of the potential impact of scaling up family planning programs on population growth illustrates that if all unmet need were met (between 2005 and 2050 in 99 developing countries), the total population in those countries in 2050 would be 400 million lower than the United Nations' medium population projection.⁶ The high number of unintended pregnancies worldwide suggests that decreasing barriers to voluntary family planning services could satisfy women's stated needs, while helping governments respond more effectively to the increasing food needs of their growing populations.

What Does the Evidence Tell Us?

Increasing the use of voluntary family planning not only helps women achieve their own reproductive health goals, but may also contribute to achieving food security in profound ways. Voluntary family planning can impact all four food security pillars.

Food Availability

The concept of food availability focuses on the question of sufficient quantities of appropriate, necessary foods; thus, the quantity of food produced and the quantity of food needed both determine food availability. The total population size is one of many factors that affect food availability, because it affects the total quantity of food needed.

Increasing demand

Globally, demand for more food and more types of food is rising in response to a growing population, increased wealth in some countries, and changes in diet. As wealth

Box 1: Definitions

Food availability: Sufficient quantities of appropriate, necessary types of food are consistently available to people or are within reasonable proximity or are within their reach (USAID).

Food access: People have adequate income or other resources to buy or barter to obtain the amounts of appropriate foods they need to maintain adequate nutrition (USAID).

Food use and consumption: People meet the appropriate biophysical requirements (such as good health) for their bodies to adequately process food to meet their nutritional needs (USAID).

Food stability: The three indicators above are consistently present for populations, households, or individuals over time, and not jeopardized by sudden shocks or cyclical events (Food and Agriculture Organization of the United Nations).

Resilience: Associated with food stability, "resilience is the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth" (USAID).

Family planning: The use of contraceptive methods to attain the desired number of children and to plan and space the timing of births (World Health Organization).

Unintended pregnancy: A pregnancy that is mistimed, unplanned, or unwanted at the time of conception (United States Centers for Disease Control and Prevention).

Unmet need: Women with unmet need for contraception are those who say they want to postpone their next pregnancy or have no more children but are not using a family planning method (Demographic and Health Surveys Program).

increases, families can spend more money on food, including animal-based foods, which require more resources to produce. These trends put pressure on food production.

Even in the absence of wealth-related dietary changes, if the world's population grows as projected—from 7.3 billion in 2015 to 9.5 billion in 2050⁷—total demand for food will continue to rise, too. Moreover, if the population of the 49 least-developed countries doubles by 2050 to 1.8 billion (as projected by the United Nations),⁸ the demand for food may rise the fastest in areas already experiencing food insecurity.

Population projections are not set in stone, however. They are estimates of future population size and may change based on various factors, including, most importantly, fertility rates. Satisfying current unmet need for contraception in 99 developing countries plus the United States by 2050 would come close to achieving the United Nations' low-fertility scenario for population growth worldwide.⁹

Several models have looked at the potential impact of lower fertility—thus, slower population growth—on food security measures. Under the United Nations' low-fertility scenario, the number of undernourished children under age five would decline substantially, largely because of higher per capita food consumption.¹⁰ If the world's total fertility rate drops to 2.1 children per woman by 2050, demand for crops may fall, closing about 9 percent of the gap between the amount of food that was available in 2006 and the amount the world will need in 2050. In sub-Saharan Africa, reaching a total fertility rate of 2.1 in 2050 would reduce the size of the projected gap between the region's demand for food and crops produced by approximately 25 percent.¹¹

Estimates such as these show the extent to which food availability is a function of the world's need for food. Slower population growth, as achieved by voluntary family planning use that addresses unmet need, can improve food availability by reducing total demand for food while helping women to achieve their stated fertility desires.

Constraints on agricultural productivity

If the shift to meat- and dairy-based diets continues and population growth follows the United Nations' medium fertility-rate scenario, agricultural outputs will

need to increase by an estimated 70 percent to produce an adequate food supply in 2050.^{12,13} Some argue that population growth has always propelled technological and economic advances that can increase crop output.¹⁴ However, population growth combined with poor land management can result in soil erosion, land degradation, and agricultural activities on marginal plots. Under these conditions, agricultural productivity may drop, not rise.¹⁵

In developing countries (particularly in sub-Saharan Africa), population growth fosters attempts to cultivate fragile arid or semi-arid land that is not conducive to agriculture. Rapid population growth can also encourage deforestation, which may bring more hectares into agricultural production but can erode and degrade the land, decreasing the efficiency of agricultural outputs. Finally, when the amount of arable land available does not increase alongside a rapidly growing subsistence population, plots shrink, decreasing the agricultural output available to sustain farming families and communities. All of these factors can undermine food availability. Because of rapid rural population growth in Kenya, Ethiopia, and Zambia, the proportion of arable land to the size of the population involved in agriculture decreased by 50 percent over the past half century.¹⁶ Rural families in Ethiopia with small plot sizes spend less money per capita purchasing food than rural families with large plot sizes; this may be because decreasing income from cash crops also decreases the ability of families with small plots to buy food.¹⁷

Agriculture accounts for 70 percent of the world's water withdrawals. As the global population grows, more water will be required worldwide for domestic and industrial use.¹⁸ Already, some countries have seen massive amounts of groundwater diverted to agriculture, diminishing their long-term capacity to meet per capita demand for food production along with domestic, industrial, and environmental water needs.

Barriers to women's participation in agriculture

In many countries, women perform a substantial amount of agricultural labor—half in sub-Saharan Africa,¹⁹ for example. However, unintended pregnancy, breastfeeding, and child care may limit women's mobility and the time they are able to spend learning new techniques and contributing to food production. Voluntary family planning programs can minimize these barriers while simultaneously helping women to achieve their desired fertility.

Climate change

Achieving a slower population growth rate might help populations adapt to the agricultural challenges of climate change. Climate change is projected to decrease the amount of arable land; sub-Saharan Africa could lose up to 247 million acres of farmland by 2050, while the region's population is projected to increase by approximately 1.1 billion.²⁰ In Ethiopia, a computer simulation showed that slower population growth may compensate entirely for the effects of climate change on food availability by 2050.²¹

Food Access

Poverty is linked to food access and family planning. Many low-income households bear the double burden of a larger than desired family size—resulting from limited access to family planning and unintended pregnancy—and lack of money to buy sufficient food. In rural Ethiopia, larger households spend less per capita on food than do smaller households;²² this may be a marker of lack of food access among larger households. Furthermore, food purchases account for a larger portion of total household expenditures among poor families, as compared with wealthy families.²³ This suggests that the poorest populations—which often have lower access to family planning—may be most vulnerable to low food access.

Childbearing can affect food access via women's labor force participation and wages. Higher fertility rates are associated with lower female labor force participation.²⁴ A large family planning and maternal and child health program in Bangladesh increased women's wages compared to another area in Bangladesh where the program was not implemented.²⁵ Women in the program area also weighed more and had higher body mass index, which may reflect their households having more income to purchase food that benefited the entire family.²⁶ Women generally spend a higher proportion of the income under their control on food than do men,²⁷ so increasing women's income and decision-making ability can increase the resources that families dedicate to food purchases.

The urban poor can spend 60 percent or more of their income on food,²⁸ and because many lack a steady income, their diets are especially vulnerable to abrupt increases in food prices. The rural poor have the smallest

plot sizes and low crop yields, but few other ways to earn money to buy food to supplement their diets.²⁹ Rising food prices push both groups to buy cheaper, less nutritious foods.³⁰

Food Use and Consumption

Breastfeeding has many benefits, but pregnant and breastfeeding women require 300 to 500 more calories each day than other women and also have greater need for proteins, vitamins, and minerals.^{31,32} Failure to meet these needs during the 1,000-day period from conception through a child's first two years of life not only compromises the mother's health but also can harm her child's health and development through adulthood.³³ Access to family planning gives women control over the size of their families, which can increase their capacity to satisfy their nutritional requirements when they are pregnant and breastfeeding.

Family planning also affects food use and consumption in densely populated urban areas. Population growth is fastest in the small and medium cities of developing countries, where poverty rates are higher than in big cities.³⁴ In medium and small cities, access to health services, including family planning, may be more restricted, and sanitation facilities are less than adequate. High population density combined with poor sanitation can increase the prevalence of waterborne diseases and their consequences, such as diarrhea, which harm people's ability to absorb nutrients from the foods they eat. Moreover, in these settings, people tend to rely on food prepared outside the home, which may have less nutritional value than unprocessed food.³⁵

Food Stability

Food stability depends on resilience—the ability to adapt to change. For example, as mentioned, when poor, nonagricultural households confront a jump in food prices, they are forced to spend a higher share of their income to buy what they need and may buy cheaper, less nutritious foods.

Women are less likely to be resilient to external shocks—for example, jumps in food prices and natural disasters such as droughts and floods—that can hinder their consistent access to food.³⁶ Early departure from school and lower participation in the labor force (two consequences of early childbearing and poor spacing of children) can compromise women's resilience to shocks.

Childbearing that occurs too early, too often, or too late in a woman's life—and is associated with maternal mortality and morbidity—also diminishes women's capacity to stabilize their families' access to food.³⁷ Thus, expanding family planning programs—along with women's education and employment opportunities—can improve women's ability to react to changes in their food availability, access, or utilization.

Conclusion

Empirical evidence shows that family planning can have a role in addressing the issue of global food security. Strengthening family planning services should be on national and local food security agendas. Multisectoral development policies and implementation plans will be more successful if they approach family planning and food security as integrated strategies.

References

1. USAID. n.d. "Feed the Future." Available at: <http://www.usaid.gov/what-we-do/agriculture-and-food-security/increasing-food-security-through-feed-future>.
2. United Nations, Department of Economic and Social Affairs. 2013. *World Population Prospects, the 2012 Revision*. New York: United Nations.
3. United States Agency for International Development (USAID). "Agriculture and Food Security." Available at: <http://www.usaid.gov/what-we-do/agriculture-and-food-security>.
4. Cleland, J., M. Ali, and I. Shah. 2006. *Dynamics of Contraceptive Use. Levels and Trends of Contraceptive Use as Assessed in 2002*. Population Division, United Nations Department of Social and Economic Affairs.
5. Singh, S. and J. Darroch. 2012. *Adding It Up: Costs and Benefits of Contraceptive Services Estimates for 2012*. New York: Guttmacher Institute and United Nations Population Fund (UNFPA).
6. Moreland, S. and E. Smith. 2010. *World Population Prospects and Unmet Need for Family Planning*. Washington, DC: Futures Group.
7. United Nations, Department of Economic and Social Affairs. 2013. "Excel Tables—Fertility Data." In *World Population Prospects, the 2012 Revision*. Available at: <http://esa.un.org/wpp/Excel-Data/fertility.htm>.
8. United Nations, Department of Economic and Social Affairs. 2013. "Key Findings and Advance Tables." In *World Population Prospects, the 2012 Revision*. Available at: http://esa.un.org/unpd/wpp/Documentation/pdf/WPP2012_%20KEY%20FINDINGS.pdf.
9. Moreland, S. and E. Smith. 2010. *World Population Prospects and Unmet Need for Family Planning*. Washington, DC: Futures Group.
10. Rosengrant, M.W., M.S. Paisner, S. Meijer, and J. Witcover. 2001. *2020 Global Food Outlook: Trends, Alternatives, and Choices*. Washington, DC: International Food Policy Research Institute (IFPRI).
11. Searchinger, T., C. Hanson, R. Waite, and B. Lipinski. 2013. "Achieving Replacement Level Fertility." *Working Paper, Installment 3 of Creating a Sustainable Food Future*. Washington, DC: World Resources Institute. Available at: <http://www.worldresourcesreport.org>.
12. Food and Agricultural Organization of the United Nations (FAO). 2009. "Declaration of the World Summit on Food Security." World Summit on Food Security, November 16–18, Rome.
13. Godfray, H., J. Beddington, I. Crute, L. Haddad, D. Lawrence, et al. 2010. "Food Security: The Challenge of Feeding 9 Billion People." *Science* 327(5967): 812–818.
14. Boserup, E. 1965. *The Conditions of Agricultural Growth: The Economics of Agrarian Change Under Population Pressure*. London: George Allen and Unwin Ltd.
15. Kastner, T., M. Rivas, W. Koch, and S. Nonhebel. 2012. "Global Changes in Diets and the Consequences for Land Requirements for Food." *PNAS* 109(18): 6870.
16. Jayne, T.S., T. Yamano, M. Weber, D. Tscharley, R. Benfica, et al. 2003. "Smallholder Income and Land Distribution in Africa: Implications for Poverty Reduction Strategies." *Food Policy* 28(3): 254–275.
17. Moreland, S. and E. Smith. Unpublished. *Analyses of IFPRI Ethiopia Rural Household Survey*.
18. FAO. 2007. *Coping with Water Scarcity*. Available at: <http://www.fao.org/ag/magazine/0704sp4.htm>.
19. Bremner, J. 2012. *Population and Food Security: Africa's Challenge*. Washington, DC: Population Reference Bureau.
20. Zuberi, T. and K. Thomas. 2012. "Demographic Projections, the Environment and Food Security in Sub-Saharan Africa." *UNDP Working Paper: Regional Bureau for Africa* 11.

21. Moreland, S. and E. Smith. 2012. *Modeling Climate Change, Food Security, and Population*. Washington, DC: Futures Group.
22. Moreland, S. and E. Smith. Unpublished. *Analyses of IFPRI Ethiopia Rural Household Survey*.
23. Ibid.
24. Bloom, D., D. Canning, G. Fink, and J. Finlay. 2007. "Fertility, Female Labor Force Participation, and the Demographic Dividend." *NBER Working Paper* No. 13583, November.
25. Gribble, J. and M.L. Voss. 2009. *Family Planning and Economic Well-Being: New Evidence from Bangladesh*. Washington, DC: Population Reference Bureau.
26. Ibid.
27. FAO. "Men and Women in Agriculture: Closing the Gap." Available at: <http://www.fao.org/sofa/gender/key-facts/en/>.
28. United Nations Development Programme (UNDP)/ UNFPA, United Nations Children's Fund (UNICEF), and World Food Programme (WFP). 2009. "Agenda Item 1: Population Growth and Rapid Urbanization, Food Insecurity on the Rise in Urban Settings."
29. Jayne, T.S., T. Yamano, M. Weber, D. Tscharley, R. Benfica, et al. 2003. "Smallholder Income and Land Distribution in Africa: Implications for Poverty Reduction Strategies." *Food Policy* 28(3): 254–275.
30. International Fund for Agricultural Development (IFAD), WFP, and FAO. 2012. *The State of Food Insecurity in the World* 112.
31. Riely, F., N. Mock, B. Cogill, L. Bailey, E. Kenefick, et al. 1999. "Food Security Indicators and Framework for Use in the Monitoring and Evaluation of Food Aid Programs." *FANTA* 16.
32. Population Action International. 2011. *Why Population Matters to Food Security*. Washington, DC: Population Action International, page 2.
33. Black, R., H. Alderman, Z. Bhutta, S. Gillespie, L. Haddad, et al. 2013. *Executive Summary of the Lancet Maternal and Child Nutrition Series*. Maternal and Child Nutrition Study Group. Available at: http://thousanddays.org/wp-content/uploads/2013/06/Nutrition_exec_summ_final.pdf.
34. Ferré, C., F. Ferreira, and P. Lanjou. 2011. "Is There a Metropolitan Bias? The Inverse Relationship Between Poverty and City Size in Selected Developing Countries." *Society for the Study of Economic Inequality, Working Paper Series*, ECINEQ WP 2011 192.
35. IFPRI. 2010. *The Impact of Global Change and Urbanization on Household Food Security, Nutrition, and Food Safety*.
36. de la O Campos, A.P. and E. Garner. 2012. "Women's Resilience to Food Price Volatility: A Policy Response." Available at: <http://www.fao.org/docrep/019/i3617e/i3617e.pdf>.
37. Bremner, J., K. Hardee, K. Mogelgaard, H. D'Agnes, et al. Unpublished. 2013. *Population, Family Planning and Climate Change Vulnerability: Addressing the Links in Community-Based Projects*.

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