global child nutrition
FOUNDATION

SCHOOL MEAL PROGRAMS AROUND THE WORLD

Results from the 2021 Global Survey of School Meal Programs ©

This publication is based on country-and program-specific information provided by government officials or their designees in response to the Global Survey of School Meal Programs © conducted by GCNF in 2021, supplemented in limited ways with publicly available data, primarily from the United Nations and the World Bank. The data and the analysis and presentation thereof are provided in good faith and for general information purposes only. GCNF makes no guarantee as to the completeness or accuracy of the information.

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What is the Global Child Nutrition Foundation (GCNF)?

GCNF, a small non-profit founded in 2006 and based in the United States, provides global monitoring and advocacy, learning exchanges, and technical assistance to support the development of school feeding programs that respond to the nutritional needs of children, while considering local, cultural and community values. GCNF works to ensure governments and their partners have the resources, tools, and connections they need to increase school feeding coverage at scale and to meet the needs of children wherever they are.

Acknowledgements

Implementing a global survey is a major undertaking. The GCNF Global Survey of School Meal Programs © is particularly challenging because it is comprehensive, covering multiple topics and sectors.

GCNF has relied on the goodwill and cooperation of literally hundreds of people and a myriad of governmental and non-governmental organizations in conducting the 2019 and 2021 Global Surveys. While it is not possible to name and thank each organization and individual here, we are deeply grateful to each of you.

Our special thanks go first and foremost to all the government-appointed Global Survey Focal Points, the official respondents of the survey, who worked so hard to gather the necessary information and complete the survey questionnaires. We thank the Ministers who recognize the value of contributing to the world's most comprehensive database on school meal programs and associated activities.

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We again count on the goodwill and partnership of all stakeholders to make good use of the rich trove of survey information and join with us in the ongoing quest to ensure that all children are nourished and able to learn and thrive.

Dr. Ronald Kleinman
President of the Board

Arlene Mitchell
Executive Director

Executive Summary

BACKGROUND

School meal programs—in which students receive meals, snacks, or take-home rations—reach children throughout the world. Numerous studies have documented their positive effects on children's nutrition, physiological development, and academic performance. Yet despite their prevalence and evidence of impact, the data available on large-scale school meal programs have historically been fragmented and inconsistent. A lack of common vocabulary has made it difficult to discern trends over time or compare school meal activities across different settings. Advocates, policy makers, analysts, and practitioners have all confronted the same challenge: a scarcity of comprehensive and standardized information on school meal programs.

The Global Child Nutrition Foundation (GCNF)—supported by an array of international partners and partially funded by the U.S. Department of Agriculture—has sought to address this oversight through the Global Survey of School Meal Programs ©.

The goals of the survey are:

- To fill a critical knowledge gap by creating and maintaining an up-to-date global database of standardized information on school meal programs, covering a wide set of related sectors and activities.
- To track progress over time; to direct efforts to the areas of greatest need; to support investments based on deeper knowledge; and to enable stakeholders to better advocate for resources.
- To share and compare information across programs and countries; to make data available for school meal partners and donors; and to provide data for relevant research.

The survey solicits detailed information from national governments on all large-scale school meal programs within their country. Topics include (among others):

- School meal program coverage and the characteristics of beneficiaries
- Food items provided
- How food is procured and distributed
- Complementary health and sanitation interventions
- Sources and amounts of funding
- The role of government in program management and operations
- Links to local agriculture, engagement with the private sector, and job creation
- Impacts of the COVID-19 pandemic (added in 2021)

2019 Global Survey of School Meal Programs

The Global Survey of School Meal Programs was first launched in 2019 with participation from 105 countries. Results from the 2019 survey are detailed in "School Meal Programs Around the World: Report Based on the 2019 Global Survey of School Meal Programs," accessible at **www.gcnf.org.**

In the 2019 survey round:

- An evolving school feeding vocabulary was made concrete in a glossary of definitions and used—in seven languages—in the survey questionnaire.
- A standardized process of global data collection was established and successfully implemented.
- A framework was established for an ongoing discussion of indicator construction for school feeding.
- A public database and survey report were made available, comprising thousands of data points related to school feeding and providing detailed country- and program-level data that are comparable in content, format, and timeframe.

2021 Global Survey of School Meal Programs

Data collection for the second survey wave took place from July 2021 to March 2022. The survey captured information for the school year that began in 2020—a year that was at least partly, if not wholly, affected by the COVID-19 pandemic. GCNF received a survey response from 134 national governments, along with three third party submissions. For two additional countries, there was enough publicly available data from government sources to enable their inclusion in the database. Thus, 139 countries—representing 81% of the world's population—are included in the database. Of these, 125 countries had at least one large-scale school meal program, together providing information on 183 programs.

In the 2021 survey round:

- The overall response rate from governments, predicted to be much lower due to the toll taken by the COVID-19 pandemic, was higher than in 2019.
- The terminology and data collection process were well accepted by survey respondents and implementing partners who had been involved in the first round.
- The results can be compared against the 2019 baseline. The 2021 survey and subsequent survey rounds will allow for tracking changes over time and assessing the impacts of shocks.

The survey has been used to create a set of short, colorful country reports that document, in a standard format, the status of school meal programs in each country in the database. These are available at **www.survey.gcnf.org/country-reports/.**

Results

Coverage of School Meal Programs & Characteristics of Beneficiaries

Across the 139 countries in the 2021 database, at least 330.3 million children received food through school meal programs in the school year that began in 2020. The aggregate coverage rate—or the share of all children of primary and

secondary school age that received food through school meal programs—was 27%. While 8% of school age children in the Middle East/North Africa benefited from school meal programs, this value was 16% in Sub-Saharan Africa, 26% in South Asia/East Asia/Pacific, 47% in Europe/Central Asia/North America, and 55% in Latin America/Caribbean. The aggregate school feeding coverage rate also rose with higher levels of income. While 10% of school age children in low-income countries benefited from school meal programs, this value increased to 27%, 30%, and 47% in lower middle-income, upper middle-income, and high-income countries, respectively. These disparities underscore how school feeding coverage is lowest precisely where needs are likely to be greatest.

The coverage rate for primary school age children was considerably higher than for other ages, and it was particularly uncommon for children of pre-school or secondary school age in low-income countries to benefit from school meal programs. Given the importance of both early childhood development and adolescent nutrition, this points to a serious gap in coverage.

The survey also collected retrospective information on the number of children that received school meals three years earlier. Among the countries that could provide this historical information, 43% reported an increase in the number of children reached through school meal programs, while 27% reported a decrease and the remaining countries saw no change. These figures were especially striking in Sub-Saharan Africa, where 71% of countries reported a substantial increase in the number of children benefiting from school feeding activities.

Characteristics of School Meal Programs

Almost all (93%) of the 183 school meal programs reported an objective to meet the nutritional and/or health needs of students. Meanwhile, just 35% of programs reported a goal to prevent or mitigate obesity, with programs in high-income countries (70%) far more likely to incorporate this focus than those in lower middle-income (16%) or low-income countries (5%). The potential for school meal programs to be employed as a strategy to combat obesity is evidently less recognized in lower-income settings where concerns of undernutrition remain salient, even as rates of obesity are rising. At the same time, programs in lower-income settings were more likely to report an objective to meet agricultural goals, likely reflecting the significant role of agriculture in less industrialized economies.

School meal programs exhibited a wide diversity of approaches to targeting beneficiaries. Some directed resources geographically towards areas with high levels of poverty, food insecurity, and malnutrition. Other programs targeted students based on their individual characteristics, such as household income or membership in a marginalized group. Still others opted for universal targeting, whereby all students in a given school or grade level were designated to receive school food.

In-school meals, served by 80% of programs, were again the most common modality for food delivery in 2021. However, the share of programs that provided take-home rations had risen sharply from 25% in 2019 to 39% in 2021. This shift likely reflected efforts to adapt to pandemic-related school closures. In-school snacks, served by 29% of programs, were the third most common modality.

Food Basket and Food Sources

The school menu—or the contents of the "food basket"—is a fundamental element of any school meal program. Grains/cereals was the most common food category (served in 87% of programs), followed by oil (78%) and legumes (75%). Fruits and vegetables (63-65%) were less common, and animal-source foods were served least often—though there was a high degree of variation across income groups. Poultry, for example, was served in 69% of programs in high-income settings but just 5% of programs in low-income settings. The gap was even larger for fruits, which were served in 97% and 22.5% of programs in high- and low-income settings, respectively—a difference of 74.5 percentage points. In high-income settings, children received an average of 8.3 different food categories, while this value dropped to 7.1, 6.5, and 5.2 in upper middle-income, lower middle-income, and low-income settings, respectively. Across regions, this value was greatest in South Asia/East Asia/Pacific and least in Sub-Saharan Africa.

Reflecting their emphasis on nutrition-related goals, 80% of programs in low-income settings served fortified food products, such as grains/cereals, oil, and salt fortified with vitamin A, iron, and iodine (among other fortificants). The share of programs serving such foods dropped to 72%, 42%, and 21% in lower middle-income, upper middle-income, and high-income countries, respectively. A similar pattern was seen for biofortified foods and micronutrient supplementation, features that were predominantly or exclusively present in lower-income settings.

Given the many linkages between nutrition and other aspects of health, the survey also gathered information on complementary programs and services offered in schools. A large share of programs (87%) incorporated food and nutrition education, and 68% were paired with school gardens that served as both a source of fresh food and an avenue to learn about agriculture. Respondents also cited the presence of several other complementary programs or services, including hygiene education, deworming treatment, and testing for anemia.

Across all regions and income groups, market purchases were the most common method through which school meal programs procured food. These purchases primarily occurred in domestic markets, though 38% of programs purchased at least some food from foreign countries. In-kind contributions from foreign and domestic settings were much less common at 23% and 21%, respectively, and were primarily reported by programs operating in low-income and lower-middle income countries.

In the 2019 survey, many countries had recounted an effort to shift toward local purchasing. In the 2021 survey, programs were considered to rely on domestic production if they drew at least 70% of the value of their food from domestic sources and if farmers (or farmer organizations) sold directly to the program or the schools. Such programs were more common in low-income or lower middle-income settings, with 29% of programs in Sub-Saharan Africa meeting this definition. Programs that relied on domestic production served, on average, a greater diversity of foods than programs that relied on in-kind donations from foreign sources. This provides suggestive evidence that domestic procurement—and engagement with farmers—is associated with more diverse and healthier food baskets.

Funding and Costs

Detailed budget information was provided for 87% of the programs and 80% of the countries (with some countries presenting partial budget data for some, but not all, of their programs). Across the 139 countries in the survey database, the aggregate budget for school feeding in the reference year was at least USD 35.3 billion.

In all regions and income groups, governments contributed a sizable share of the funding for school meal programs. Across all countries, an average of 70% of funding came from the government, and in 53 countries, the government contributed 100% of the funding. On average, the share of funding contributed by governments was lowest in low-income countries (at 24%), though this value increased to 74% for lower middle-income countries. Regionally, governments in Latin America/Caribbean contributed the greatest share of funding, on average shouldering 98% of the costs.

Aggregating across all countries, the budget per year per child who received school food was USD 108. However, this figure varied considerably from USD 18–23 in lower-income and lower middle-income countries to USD 400 in high-income
countries. (Note that these calculations do not account for differences in purchasing power parity.) Across regions, the average investment per child was lowest in Sub-Saharan Africa at USD 30, followed by USD 54.5 in South Asia/East Asia, USD 58 in Latin America/Caribbean, USD 109 in Middle East/North Africa, and USD 382 in Europe/Central Asia/North America.

Among the 125 countries with large-scale school feeding in the survey database, a dedicated line item for school feeding activities was present in 69% of the national budgets. In several regions, there was a positive association between this line item and the achieved coverage rate, and in most regions, countries with a dedicated line item spent more per beneficiary than those without. Across all programs, 64% regarded their funding as adequate. This value was 44% in low-income countries and increased to 51%, 68%, and 90% in lower middle-income, upper middle-income, and high-income countries.

Management and Implementation

Policies, laws, and standards around school feeding can form a supportive structure to steer school meal programs in a positive direction. A large majority (80%) of countries had a national school feeding policy, with no evident pattern across income levels. However, the existence of a nutrition, heath, or food safety policy related to school feeding was positively associated with income. Meanwhile, the likelihood of an agriculture policy related to school feeding was highest in low-income settings, and a policy guiding private sector involvement in school meal programs was relatively rare across all income groups.

Agriculture, Employment, and Community Participation

To understand how school meal programs are integrated in their local economies, the survey asked about programs' engagement with farmers and the non-farm private sector. Across all programs, 59% reported direct engagement with farmers and 71% reported engagement with other private sector businesses. These patterns varied across regions, with farmer engagement considerably more common in Latin America/Caribbean and Sub-Saharan Africa than other regions. In lower-income settings, it was more common for programs to engage with small-scale farms, whereas at higher income levels, it was increasingly likely for programs to engage with farms of all sizes. Private sector engagement was highest in Europe/Central Asia/North America and the Middle East/North Africa. This engagement took various forms, such as the hiring of private companies for food transport and catering services.

Of the programs in the database, 62% were able to provide an estimate of the number of people employed, reporting a combined total of 3.7 million paid personnel across all activities. An overwhelming majority of these workers served as cooks/food preparers, with the remaining roles distributed across food handlers, transporters, off-site processors, and safety and quality inspectors. Additionally, 32% of programs reported a focus on creating jobs for women, while 20% reported a focus on youth employment. Both priorities were more common in low-income and lower middle-income settings.

COVID-19 and Other Emergencies

School meal programs were far from passive in their experience of the COVID-19 pandemic. They responded actively and often with great agility to a crisis in which their services were urgently needed, even as their work was extraordinarily disrupted. Due to the COVID-19 pandemic, over three quarters (78%) of countries indicated that "most" schools were either closed, operating remotely, or in some form of hybrid status for at least one month in the school year that began in 2020, and 38% indicated that schools were not open for in-person learning for at least six months. During this time, school meal programs were confronted with the immense challenge of reaching school

children with food even when school was not in session. The breadth of programmatic modifications included adjustments to the number of beneficiaries, the targeting of beneficiaries, the modalities of food delivery, and the composition of the food basket. Despite these and other efforts, 39% of programs reported that pandemic-related disruptions forced a temporary cessation of school feeding activities at some point during the reference year.

The survey surfaced some unexpectedly positive outcomes emerging from the COVID-19 pandemic. First, the disruption caused by the pandemic brought greater attention to, and appreciation for, the role of school meal programs. While these programs had always filled an important role—nourishing children in schools and facilitating learning—it was specifically when this service was interrupted that many people recognized its critical importance. Second, the public health crisis brought greater attention to school hygiene, with school systems providing additional handwashing stations, maintaining greater cleanliness on school property, and monitoring and enforcing food hygiene in school kitchens.

Successes and Challenges

Survey respondents were asked to comment on the recent successes and challenges associated with school feeding in their countries. As noted, school meal programs were able to pivot from their standard procedures to ensure that children continued to receive food even when schools were closed or when they reopened with new social distancing guidelines. The lessons learned from this experience can be applied in future emergencies, such as climatic and geophysical shocks, conflicts, and economic crises. School meal programs have also played a positive role in incentivizing children to return to school following other disruptions. Some respondents highlighted an increase in environmentally friendly practices or an expansion in menu offerings to include a greater diversity of foods.

Alongside these successes, almost every respondent was able to identify challenges faced by school meal programs, the most pressing among these being the stress of inadequate resources and unpredictable funding. A second area of concern related to the need for supervision and the mismanagement of resources. Though programs and countries continue to improve their oversight and data collection, limited resources necessarily constrain these efforts.

CONCLUSION

Overall, the 2019 and 2021 Global Surveys of School Meal Programs document the popularity of school feeding worldwide. At the same time, school feeding is highly varied in its form, highlighting a need to be thoughtful when extrapolating from one setting or program design to another. The surveys surface some questions that are beyond the scope of this report, and key research needs are highlighted. For example, research is needed on the tradeoffs associated with different program designs; the potential for local food procurement to support diverse food systems; and the role of school feeding in bringing children back to school after a prolonged absence. Thought is also needed on how best to collect data on decentralized school meal programs, and how to categorize Home-Grown School Feeding (HGSF) programs to sharpen our understanding of their impact. The surveys provide a starting point for practitioners and researchers to dig into these issues and contribute new and deeper levels of understanding. Ultimately, the value of this data resource will continue to grow as the survey is repeated in future years.

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OVERVIEW OF SCHOOL MEAL PROGRAMS

School meal programs —through which students are provided with meals, snacks, or take-home rations—are intended to address multiple cross-sectoral objectives. They often aim to enhance access to education by reducing barriers to school enrollment, raising attendance and retention, increasing students' ability to concentrate during the school day, and improving learning outcomes (African Union 2018). They also aim to reduce the gender gap in education by addressing barriers to schooling that are particularly salient for girls (Gelli 2007; Bundy et al. 2017).

By targeting children from low-income households, school meal programs additionally serve as a social safety net (Abay et al. 2021; African Union 2021; Alderman and Bundy 2011). They are one of the most widespread safety nets in the world, reaching an estimated 388 million children (WFP 2020) and operating in a greater number of countries than any other safety net program (World Bank 2018). They address objectives related to health and nutrition by reducing hunger and improving children's micronutrient status with diverse menus and food fortification. For many children, particularly those in low-income settings, the food served in schools represents their only regular meal of the day, making school meal programs relevant to achieving the second Sustainable Development Goal (SDG) of ending hunger. Especially in high income settings, school meal programs are often designed to model healthy eating habits and influence children's food choices (Aliyar et al. 2015).

In recent years, home-grown school feeding (HGSF) has increasingly gained traction. HGSF programs procure locally grown food with the intent to promote local economic development and agricultural transformation. By meeting the schools' demand for food with that supplied by smallholder farmers, these programs may be able to foster a new market for farm output and create jobs along the entire food value chain (African Union 2021; Bundy et al. 2013; FAO and WFP 2018; Nehring et al. 2017). Local procurement may also address health and nutrition objectives by ensuring that school menus contain a variety of nutritious foods (Aliyar et al. 2015; Drake et al. 2020; Fernandes et al. 2016; Singh 2021; Sumberg and Sabates-Wheeler 2011). As will be discussed in section 4 ('Research Agenda'), evidence is urgently needed regarding the mechanisms and impacts of HGSF.

[1] The terms "school meal programs," "school feeding programs," and "school food programs" are used interchangeably in reference to all school-based food programs.

Reflecting their manifold objectives, school meal programs encompass a diverse set of designs and implementation arrangements. Programs can vary in the modality through which food is provided, the contents of the menu, the way children are targeted to receive food, the embedding of conditions into the criteria for participation, and the pairing of school meals with other health and nutrition programs, among many other factors. The three main modalities through which food is provided to school children are in-school meals, in-school snacks (such as fortified biscuits, fruits, or milk), and take-home rations given to the students' families, often conditional upon their children maintaining a certain rate of school attendance (African Union 2018).

In addition to variation in the food items served, school meal programs can vary in their inclusion of fortified foods or biofortified foods to enhance the micronutrient contribution to children's diets (Olney et al. 2021). School meals and snacks may also vary in their site of preparation (on school grounds or off-site) and level of food processing, and the programs can vary in their level of centralization, with decisions alternatively made at the central, regional, local, or school levels. Finally, programs may choose to incorporate a wide variety of complementary services, such as deworming treatment, water and sanitation, or nutrition education, which augment the value of the food provided (Bundy et al. 2017).

There is strong evidence to demonstrate the positive impact of school meal programs on education and health outcomes, with impacts often mediated by variations in program design. Many studies have documented a positive impact on school enrollment, attendance, and retention (Alderman and Bundy 2011; Gelli 2015; Wang et al. 2021), along with cognitive performance and educational achievement (Aurino et al. 2020; Bundy 2013). There is evidence of positive outcomes for children's height and weight (Wang et al. 2021) and micronutrient status, such as hemoglobin concentration/anemia and vitamin A status (Adelman et al. 2019; Fernandes et al. 2016). A recent analysis of school meal programs took account of impacts across multiple sectors and arrived at a benefit-cost ratio of between 7 and 35 (Verguet et al. 2020), attesting to the numerous benefits generated by such programs.

RATIONALE FOR THE GLOBAL SURVEY OF SCHOOL MEAL PROGRAMS

Prior to the Global Survey of School Meal Programs (launched in 2019 by the Global Child Nutrition Foundation (GCNF)), the data landscape on school feeding was fragmented, with inconsistent quantity and quality of information across countries and even across different programs within the same country (GCNF 2021a). While it was relatively easy to find information on programs implemented by the World Food Program or other international partners, information on nationally owned programs (i.e., those managed by governments, either alone or with support from development partners) was scarce—though the latter are substantial in scale and geographic reach. Furthermore, until the Global Survey of School Meal Programs, information had not been collected and published regularly, making it difficult to compare school feeding operations across different settings or discern trends over time. This makes it particularly challenging to understand the impact of an emergency, such as the COVID-19 pandemic, on children's access to food through their schools, and in the other direction, the impact of school meal programs on children's food security in a time of crisis.

The Global Survey of School Meal Programs gathers information on the scope of school feeding activities in each country in a consistent, comprehensive, and recurring manner. The survey captures detailed information on the characteristics (including age and gender) of beneficiaries; the avenues through which school meal programs procure and distribute food; funding; the extent and nature of government involvement with school feeding; job creation in school meal programs and engagement with farmers and the private sector; related health and sanitation interventions; and impacts of the COVID-19 pandemic.

The Global Survey of School Meal Programs has multiple objectives. First, the responses to this survey have been used to develop and periodically update a database on the current state of school feeding programs in many countries of the world. This survey database enables a participating country to share information about its school meal programs with stakeholders around the world; identify trends, strengths, and weaknesses within specific programs; and learn from the experiences of other countries. Importantly, the survey captures this information in a standardized way to best ensure that information from one country or program can be reasonably compared to other countries and programs and can be reasonably tracked over time. A second aim of the survey is to help countries recognize and remedy gaps in data collection and monitoring. Thus, wherever information is sparse in the survey, we encourage governments to gather information for a more complete understanding of their school feeding activities going forward. A final aim of the survey is to make the database available to the public for use by researchers and other interested parties.

A key challenge in the field of school feeding is the lack of a shared vocabulary among practitioners, policy makers, and donors around the world. As one example, what one actor or institution refers to as "local" food sourcing may not align with another's use of the term, resulting in myriad misunderstandings. GCNF has addressed the lack of a shared vocabulary by developing a detailed glossary of terms associated with school meals. This offers a consistent understanding of the terminology used in the Global Survey of School Meal Programs. This glossary is available at **survey.gcnf.org**.

Box 1. What is a large-scale school meal program?

The Global Survey of School Meal Programs is inclusive of all large-scale school meal programs operating in each country. While the boundaries of a program are obvious in some settings, they can be ambiguous in other settings. For example, one program may include the provision of free meals to students, while another may allocate resources to ensure access to food in schools, but still require that students' families pay full price for the food. Yet another program may be limited to public boarding schools, providing free meals for students three times per day throughout the week. Some programs are active in a sizable share of a country's schools, while others operate in just one or two schools and would not be considered large in scale.

In an effort to standardize the data on school meal programs, GCNF has included a definition of a large-scale school meal program in the survey glossary.

NATIONAL OR LARGE-SCALE SCHOOL FEEDING PROGRAM

This may take the form of:

A school feeding program that is managed and/or administered by the national government, using national resources

A large school feeding program that is managed and/or administered by regional or local governments, using government resources

A large school feeding program that is managed by a non-governmental entity, but in coordination with the national government

Any large school feeding program that does not involve the government but reaches a substantial proportion of students in the country, or covers a substantial geography

LOOKING BACK: A BRIEF RECAP OF THE 2019 SURVEY

The previous iteration of the survey was administered over the course of 2019, with low-income and lower middle-income countries prioritized in survey outreach. GCNF requested that each government designate an individual who was knowledgeable about school feeding activities in the country and/or could gather needed information from other sources to complete the survey, and who could also obtain government clearance for the results to be included in the global database. This person is referred to as the country's "focal point". In total, a response was received from 105 countries, 87 of whom had at least one large-scale school feeding program in operation. The 2019 survey asked for data from "the most recently completed school year", which for most countries was the 2017/2018 school year. The survey collected data on 160 individual school meal programs that provided food to an estimated 297.3 million children of all ages. The survey results have been summarized in an earlier report, "School Meal Programs Around the World: Report Based on the 2019 Global Survey of School Meal Programs," which is available at **survey.gcnf.org.**

Data from the 2019 Global Survey of School Meal Programs formed a foundation for the State of School Feeding Worldwide 2020 report, authored by the World Food Program (2020), and the African Union Biennial Report on Home-Grown School Feeding (2019-2020) (African Union 2021). The data are also used in the Global Status Report on School Health and Nutrition, authored by UNESCO (forthcoming); the National Information Platform for Food Security and Nutrition (NIPFN 2022); and the Data for Decisions to Expand Nutrition Transformation program (DataDENT 2022). The survey has been referenced by analysts at the World Bank, the Food and Agriculture Organization of the United Nations (FAO), and various universities and research institutions (e.g., Cupertino et al. 2022; Gelli et al. 2021; Hock et al. 2022; Mkambula et al. 2022; Ruetz and McKenna 2021; Shrestha et al. 2020; Xu et al. 2021).

The survey has also been used to create a set of short, colorful country reports (fact sheets) that document, in a standard format, the status of school meal programs in each country that responded to the survey. These reports (available at **survey.gcnf.org/country-reports/**) have been used by ministries and program implementers around the world to communicate their successes and challenges, and to advocate for greater attention to school meal programs in their countries. Information from the country reports is also used by donors, implementers, and other partners to assist in decision making and advocacy.

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GCNF DATA COLLECTION IN 2021

The survey questionnaire was revised in 2021 to remove several questions that proved to be challenging in the earlier survey round and collect several new pieces of information, often in response to feedback from data users. In addition, a new module was designed to capture the impact of the COVID-19 pandemic and understand how school meal programs have responded to this ongoing crisis. The questionnaire and glossary used in 2021 are available at **survey.gcnf.org**.

Data collection for the 2021 Global Survey of School Meal Programs © took place from July 2021 through March 2022. The survey asked for data from the school year that began in 2020; for most countries, this was the 2020/2021 school year, while for others, the entire school year fell within the year 2020. The Global Survey of School Meal Programs is based on the United Nations listing of 193 countries, as well as Palestine, which has observer status at the United Nations. As in 2019, the survey team reached out to governments in 2021 to secure their participation. GCNF requested that each government designate a "focal point", an individual who was knowledgeable about school feeding activities in the country and/or could gather needed information from other sources to complete the survey, and who could also obtain government clearance for the results to be included in the global database. This survey respondent also provided commentary on school feeding in their country and identified research needs.

The survey "focal point" is an individual designated by the national government to complete the Global Survey of School Meal Programs for their country. Because the survey gathers information on each large-scale school feeding program in the country, the focal point often needs to gather information from various sources, such as ministries and program implementers.

The survey was available in three formats—as a PDF form, a Word form, and an online survey. In PDF and Word format, the survey was available in the seven languages of the United Nations (Arabic, Chinese, English, French, Portuguese, Russian, and Spanish). Upon submission, surveys were reviewed to ensure the clarity of responses to the greatest extent possible. There was often dialogue with the focal point to confirm or clarify responses, sometimes with attention to the country's Global Survey of School Meal Programs submission in 2019.

In addition to the data gathered in the Global Survey of School Meal Programs, several other sources are used in

2 Two countries were unable to provide data for the requested year, but instead provided data for the school year that began in 2021.

this report to augment the analysis. In many countries, the population of school age children and numbers of enrolled students in different school levels are drawn from the UNESCO Institute of Statistics database (UIS 2022). In addition, the World Development Indicators (World Bank 2022b) are used to categorize countries by their income level.

Box 2. The importance of neutrality when collecting data

When collecting data on school meal programs, remaining neutral and non-evaluative is critical. Governments may be less forthcoming if they feel they are being evaluated, and survey respondents may not provide complete and accurate information if they assume their responses will sway the entity gathering data. The Global Survey of School Meal Programs is thus designed to be non-evaluative and non-judgmental, and the survey team is encouraged to maintain a neutral and supportive stance. The Global Child Nutrition Foundation (GCNF), which spearheads the Global Surveys, is neither a funder nor a program implementer. It therefore serves as a neutral organization and works in partnership with any and all with similar goals for the world's schoolchildren. GCNF and the 16 members of its survey team have sought to build relationships with focal points that are mutually respectful, supportive, kind, and lasting. We hope that this will contribute to survey focal points viewing themselves as an important part of the collective, worldwide effort to gather accurate and informative data on school food programs.

LIMITATIONS

Several limitations of the database and this report should be acknowledged. First, the survey data are self-reported from national governments. Although efforts were made to ensure that the survey responses were clear and that discrepancies with a country's 2019 survey submission were explained, it was not possible to verify the accuracy of all responses received. Second, due to the comprehensive nature of the survey and the unavailability of some data, not all questions were answered by all countries. Analysis is limited in each case to the countries and/or programs for which a given question received a response. Generally, the questions analyzed in this report received a response in all or at least a large majority of survey submissions. Third, at several points, this report includes a comparison of the data collected in 2019 and 2021. However, it should be emphasized that the set of countries in each wave differs slightly, and a more rigorous evaluation of trends over time needs to account for differences in the composition of the sample.

DATA COVERAGE

Of the 194 countries eligible to participate in the 2021 survey, outreach was extended to 192 countries (with no outreach extended to Afghanistan and North Korea, as no government contact could be identified). A survey response

was received from 134 countries (Figure 1). Among these, 14 countries responded that they did not have any large-scale school meal programs in operation. Information for three additional countries (Australia, Greece, and Kyrgyzstan) was received via third party submission, whereby NGOs completed portions of the survey. For countries that did not participate in the 2021 survey, a desk review was undertaken in March 2022 in search of official government sources of information that could be used to complete the survey questionnaire. Just two countries (India and New Zealand) were found to have an accessible portal of sufficiently complete information for the 2020/2021 school year (India Ministry of Education 2022; New Zealand Ministry of Education 2022). In this report, information gathered through third party submission and desk reviews is analyzed alongside the survey responses received, summing to 139 countries for which there is detailed information on school meal programs. A breakdown of survey submission formats and the status of each country is provided in Tables A1 and A2 in the Annex.

Figure 1. Data coverage for the 2021 Global Survey of School Meal Programs ©

A summary of data coverage is presented in Table 1. In total, data are available for 72% of the countries, which together held 81% of the world's population as of 2020. Responses were received (or data retrieved) from 83% of the countries in Sub-Saharan Africa; 63% of the countries in South Asia/East Asia/Pacific; 43% of the countries in the Middle East/North Africa; 70% of countries in Latin America/Caribbean, and 80% of the countries in Europe/Central Asia/North America. The countries with data represented the greatest share of the total population in South Asia/East Asia/Pacific and Sub-Saharan Africa (at 90% each). Whereas the 2019 survey response rate was relatively higher for countries in the lower income brackets, this is not the case in 2021.

As it is possible for multiple programs to operate within a given country (often operating in different geographies or with different target populations or implementers), Table 2 presents the number of countries with school meal programs (excluding those that responded to the survey by reporting that no such programs were in operation) and the number of programs for which detailed information is available. In total, information is available for 183 programs

Table 1. Data coverage of the 2021 Global Survey of School Meal Programs

		Number of countries	Number of surveys*	Share of countries with data (%)	Population share of countries with data (%)
Region	Sub-Saharan Africa	48	40	83	90
	South Asia, East Asia & Pacific	38	25	66	90
	Middle East & North Africa	21	9	43	23
	Latin America & Caribbean	33	23	70	80
	Europe, Central Asia & North America	54	42	78	62
Income group	Low income	27	22	81	84
	Lower middle income	55	40	73	82
	Upper middle income	54	32	59	84
	High income	58	45	78	65
All		194	139	72	81

**The number of surveys is inclusive of 134 surveys received from national governments, three third party submissions from NGOs, and two desk reviews of government-published data.*

Note: The region groupings used in this report loosely match those employed by the World Bank. However, North America is combined here with the Europe/Central Asia region to ensure a suitable number of countries in each group, and South Asia is combined with the East Asia/Pacific region for the same reason. The country income groups used in this report reflect the World Bank classifications in 2020 (World Bank 2022b) and are based on gross national income (GNI) per capita in 2019.

Table 2. Number of countries with data that have school meal programs in 2021

		Number of countries in database that have school meal programs	Number of school meal programs
Region	Sub-Saharan Africa	39	68
	South Asia, East Asia & Pacific	18	28
	Middle East & North Africa	8	11
	Latin America & Caribbean	23	24
	Europe, Central Asia & North America	37	52
Income group	Low income	22	40
	Lower middle income	33	47
	Upper middle income	27	33
	High income	43	63
All		125	183

In total, 91 countries participated in the Global Survey of School Meal Programs in both 2019 and 2021; 48 countries participated for the first time in 2021; 14 countries participated in 2019 but not in 2021; and 41 countries did not participate in either survey wave. As the set of countries in each wave differs slightly, a comparison of the sample over time would not necessarily indicate a trend until differences in the sample are accounted for. Notably, although countries that participated only in 2019 are distributed evenly across income categories, it was more common for high-income countries to join the sample in 2021.

DATA ACCESS

As noted, the responses received (or data retrieved) in the 2021 Global Survey of School Meal Programs are summarized in a set of country reports (standardized fact sheets) that are available for download at survey.gcnf.org. The formatted data behind these country reports, as well as the raw survey data, are available to the public upon request (info@gcnf.org). GCNF has also created a set of short summaries of the survey containing highlights on specific topics or geographies.

- ☑ **This report is available for download at survey.gcnf.org.**
- ☑ **Country reports are available at survey.gcnf.org/country-reports/.**
- ☑ **Regional and topical infographics are available at gcnf.org/infographics-and-tools/.**
- ☑ **The Global Survey for School Meal Programs database is available to the public upon request. Please inquire at info@gcnf.org.**
- ☑ **The questionnaire and glossary are available at survey.gcnf.org.**

KEY INDICATORS AND STATISTICS

Statistics derived from the Global Survey of School Meal Programs database are alternately reported at the level of school meal programs, at the country level, at the level of regions, or at the global level. Cross-country averages and cross-program averages are calculated by weighting each country or program equally, while some aggregate values (such as the aggregate school feeding coverage rate in a given region) weight each country by its population. Unless otherwise specified, country-level statistics are derived from the full set of countries in the database (n = 139 when an analysis is inclusive of countries without any school feeding; n = 125 for most analyses that are limited to the countries with school feeding). Similarly, unless otherwise specified, program-level statistics are derived from the full set of programs in the database (n = 183). Where a statistic is based on a subset of countries or programs, this is generally indicated below the relevant table or figure.

Several key indicators are used to analyze patterns of school feeding activities. First, coverage measures the reach of school meal programs in a given country or population. The country-level definition of "coverage" is detailed in Box 3 and refers, in this report, to the share of all children of primary and secondary school age who receive any food through their schools.

Second, the modality of food delivery is another variable with some ambiguity, as there is no global definition for the difference between a meal and a snack. Furthermore, in the context of COVID-19, when many programs prepared meals at school for students and their families to eat at home, the difference between an in-school meal and a take-home ration sometimes became blurred. In our analysis, we accepted the survey respondents' determination of whether the modality used was a meal, snack, or take-home ration.

Third, the degree of diversity in a school meal program's food basket (i.e., on the school menu) is captured in this report with a count of different food categories. This is similar to (but not identical to) the Household Dietary Diversity Score (Swindale and Bilinsky 2006). However, this simple measure does not account for variety within each food category or the quantities of food in each category.

Box 3. What is school meal program "coverage"?

School meal program coverage is a key indicator that captures the extent to which children have access to school meals in a given country—usually framed as the share of children that are reached by school meal programs. However, many choices underlie the construction of a measure of school meal program coverage. The denominator can be the number of school age children in the country, the number of enrolled students, the number of children of a particular age group or school level (often primary school), the number of children that meet a certain level of need for food assistance, or the aggregate number of days children attend school (among other options). The numerator can be the number of children in each category that receive any food through their schools, or the aggregate number of days children receive food. These choices can affect the measure of school meal coverage within and across countries, particularly in settings where there are many out-of-school children and many children who attend primary school but do not proceed to secondary school, and where school meal programs do not operate every school day.

In this report, the country-level measure of school meal program coverage is defined as the share of all children of primary and secondary school age who receive any food through their schools. However, alternative constructions of this key indicator will also be employed to characterize the reach of school meal programs in different populations.

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School Meal Programs Around the World in 2020/21

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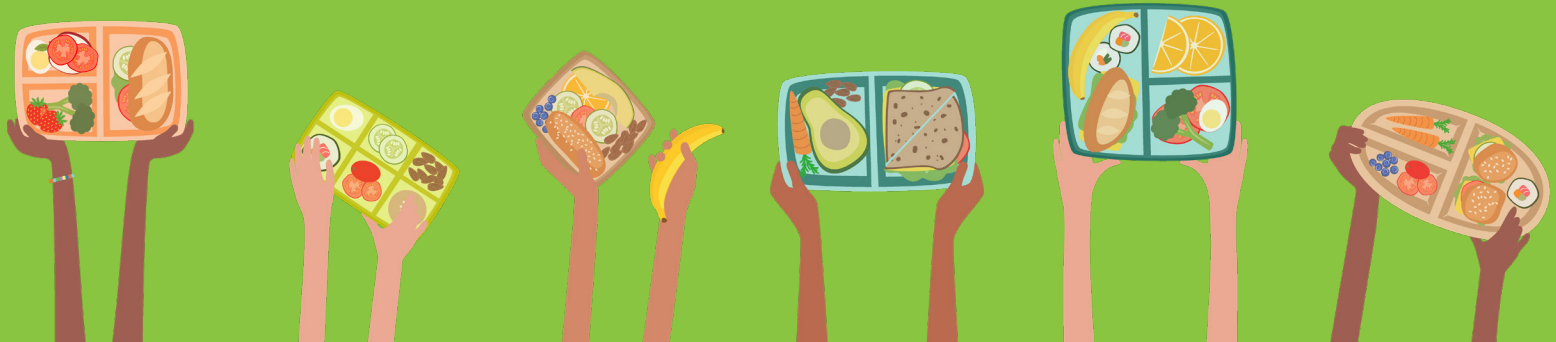


COVERAGE OF SCHOOL MEAL PROGRAMS AND CHARACTERISTICS OF BENEFICIARIES

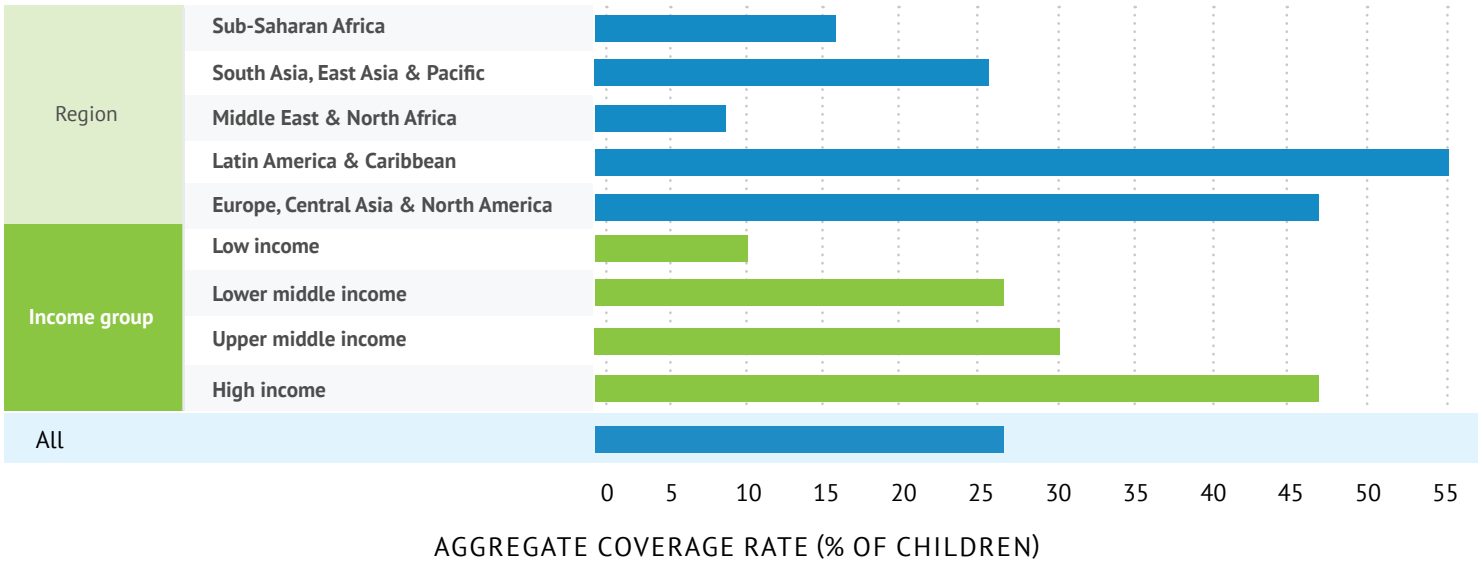
Number of children fed

Across the 139 countries in the 2021 Global Survey of School Meal Programs database, an estimated 330,283,870 children of all ages received food through school meal programs in the school year that began in 2020 (Table A3 in the Annex). (In four countries, including Grenada, Kazakhstan, Kuwait, and Serbia, survey respondents were unable to estimate the number of children that received food, often because schools in different regions opened and closed asynchronously in response to the COVID-19 pandemic.) In absolute terms, the three countries (among those for which data are available) with the greatest number of student beneficiaries include India (with 106.3 million children), Brazil (with 40.2 million children), and China (with 37.0 million children). In total, the countries shared information on 183 school meal programs; most countries have one program (68%), 22% have two programs, and 10% have three or more programs.

Coverage of primary and secondary school age children

The school feeding coverage rate is defined here as the share of children of primary and secondary school age that received food through school meal programs. Among secondary school aged youths, this is inclusive of food received through vocational/trade schools. Aggregating across all 139 countries in the database, there are approximately 1.1 billion children in this age range (which excludes pre-school), among whom 309.3 million received food through school meal programs. In aggregate, then, the school feeding coverage rate for the reference year was 27% (Figure 2). Not surprisingly, this value varies across regions and across country income classifications. While just 8% of children of primary and secondary school age in the Middle East/North Africa benefit from school meal programs, this value is 16% in Sub-Saharan Africa, 26% in South Asia/East Asia/Pacific, 47% in Europe/Central Asia/North America, and 55% in Latin America/Caribbean. The aggregate school feeding coverage rate also rises with higher levels of income. Across low-income countries, 10% of children of primary and secondary school age benefit from school meal programs, while this value is 27%, 30%, and 47% across lower middle-income, upper middle-income, and high-income countries, respectively.

Figure 2. Aggregate school feeding coverage rates



Note: The denominator in this figure is all children of primary and secondary school age among the 139 countries in the survey database.

The school feeding coverage rate is also calculated separately for each country, and Table 3 presents the five countries in each region with the greatest coverage (among those countries for which information is available). Although the largest program is found in India, the country-level coverage in India is 35% on account of the primary school focus of the PM Poshan (Pradhan Mantri Poshan Shakti Nirman) program, the number of out-of-school students in the country, and the number of students in private schools.

Table 3. Countries with the greatest school feeding coverage rates in 2020/21 (% coverage)

Sub-Saharan Africa		South Asia/East Asia/ Pacific		Middle East/North Africa		Latin America/ Caribbean		Europe/Central Asia/ North America	
Botswana	91	Timor Leste	82	Malta	43	Brazil	92	Portugal	100
eSwatini	87	Palau	58	United Arab Emirates	24	Chile	68	Finland	97
South Africa	72	Bhutan	57	Syria	16	Honduras	65	Monaco	97
Cabo Verde	64	Mongolia	56	Tunisia	14	Barbados	65	Iceland	94
Lesotho	60	Brunei	38	Israel	10	Ecuador	62	Luxembourg	93

Note: This table is limited to the 139 countries in the 2021 Global Survey of School Meal Programs database and does not account for coverage rates among the 55 countries that are not included in the database. In 2019, Egypt (which was included in the 2019 database but not the 2021 database) reported a coverage rate of 44% (GCNF 2021a).

Coverage rates by age group

The coverage rate can alternately be calculated for each age group separately, and Figure 3 presents aggregate age-specific coverage rates, disaggregated by country income classification. The age groups refer to the ages at which children in each country typically attend a given school level. A strong positive relationship between wealth level and coverage rate is evident among children of pre-school, primary school, and secondary school ages. In all income groups, the coverage rate for primary school age children is higher than for other ages. It is particularly uncommon for children of pre-school or secondary school age in low-income countries to benefit from school meal programs. Given the importance of both early childhood development and adolescent nutrition (Norris et al. 2022), this points to a serious gap in coverage.

Age-specific coverage rates disaggregated by region are presented in Figure 4. Here, Latin America/Caribbean stands out for the relatively high coverage rate for children of primary school age (88%) and pre-school age (51%). At the same time, just 24% of children of secondary school age in this region receive school food. Across regions, the lowest coverage rate for pre-school age children is seen in South Asia/East Asia/Pacific, while the lowest coverage rate for secondary school age children is found in the Middle East/North Africa.

Coverage rates for enrolled students

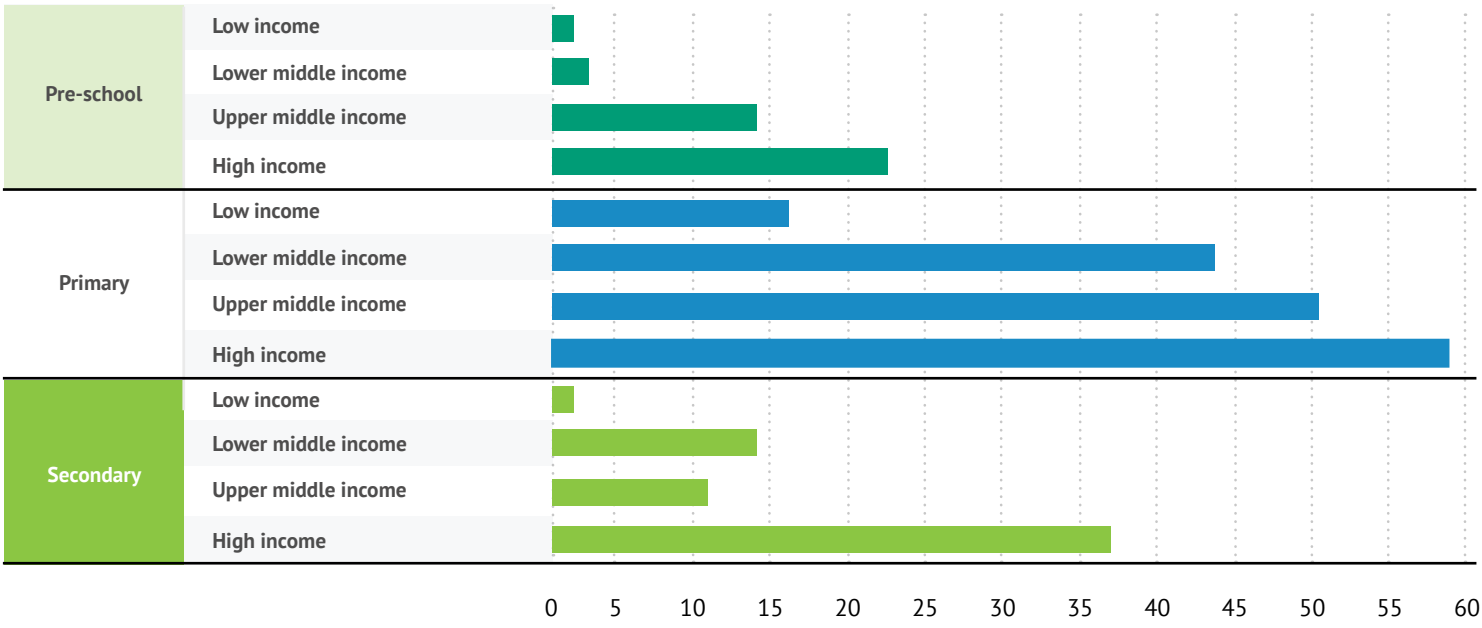
These values are higher when the coverage rate is calculated specifically for enrolled students, thus excluding from the denominator any out-of-school children. For example, while just 3% of children of pre-school age in Sub-Saharan Africa receive school food, this value is 12% of enrolled pre-school students, and for secondary school, these values are 3% and 7%, respectively. In Latin America/Caribbean, a much higher share of enrolled pre-school students (72%) received school food, compared to the share of the pre-school age population. In total, 26 countries in the 2021 Global Survey of School Meal Programs database reached at least 95% of their enrolled primary school students with school food. These countries are Barbados, Botswana, Brazil, Burkina Faso, Chile, Estonia, Finland, Guatemala, Iceland, Latvia, Lesotho, Lithuania, Luxembourg, Monaco, Mongolia, Palau, Portugal, Romania, Saint Kitts and Nevis, San Marino, Sao Tome and Principe, Slovenia, Sweden, Timor Leste, United Arab Emirates, and eSwatini.

Trends over time

The survey also captured information on the number of children in each country that received school food three years prior to the reference year. For countries reporting on the 2020/21 school year, this was 2017/18. Among the 104 countries that could provide this retrospective information, the aggregate number of children fed increased by 6.9% over this three-year interval. A sizable share (43%) of responding countries reported an increase of at least 5% in the number of children reached, while 27% reported a decrease of at least 5%. This pattern varies considerably across regions, as shown in Figure 5. A striking 71% of countries in Sub-Saharan Africa reported a positive trajectory in school feeding numbers. Countries that experienced the fastest growth in percentage terms included Mauritania, Congo, Mozambique, Nepal, and Cameroon. Even as populations have grown in most regions, it was relatively more common for countries in the Middle East/North Africa (33%) and Latin America/Caribbean (45%) to report a decline in numbers.

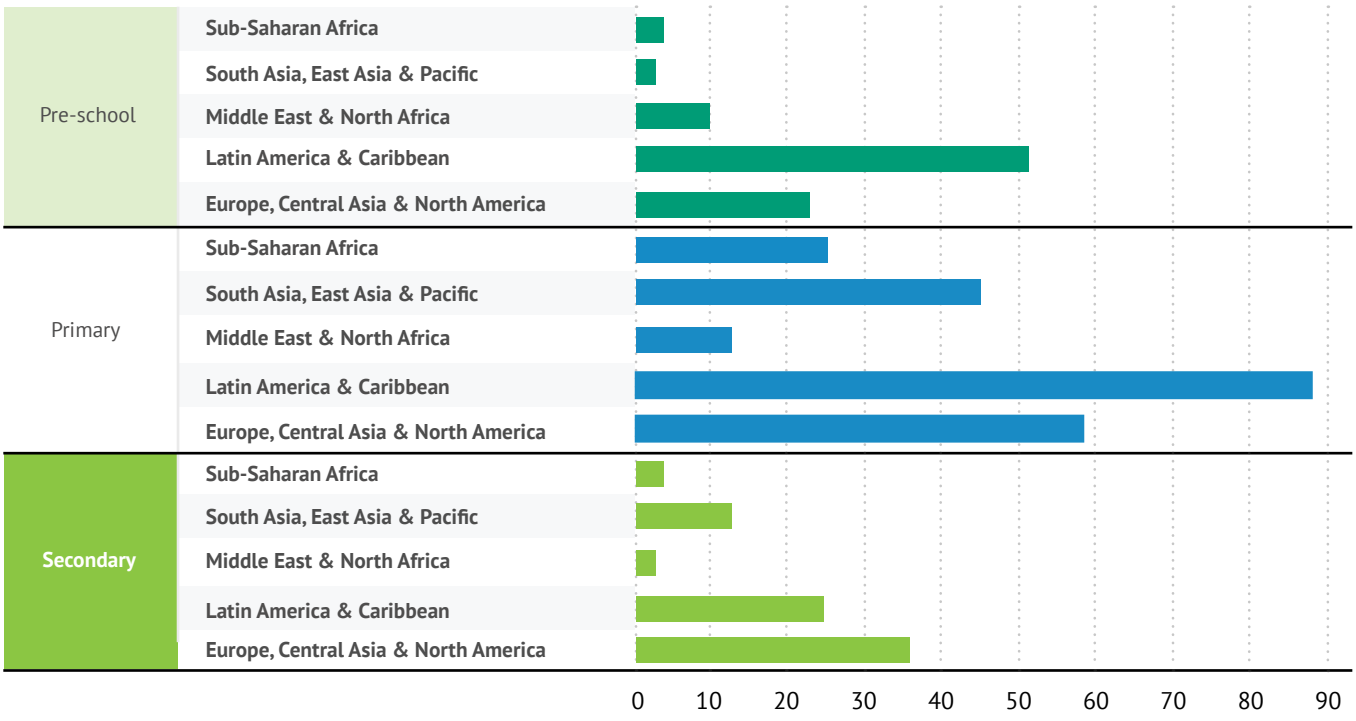
Some of these trends may reflect the destabilizing impact of the COVID-19 pandemic. However, the survey also asked respondents to estimate the number of children reached in each program in the school year that began in 2021 (subsequent to the survey's reference year). Over half (53%) of the countries anticipated that the number of children reached would increase by at least 5% between 2020 (or 2020/21) and the subsequent year. This includes 65% of countries in Sub-Saharan Africa.

Figure 3. Aggregate school feeding coverage rate across income groups, disaggregated by age group



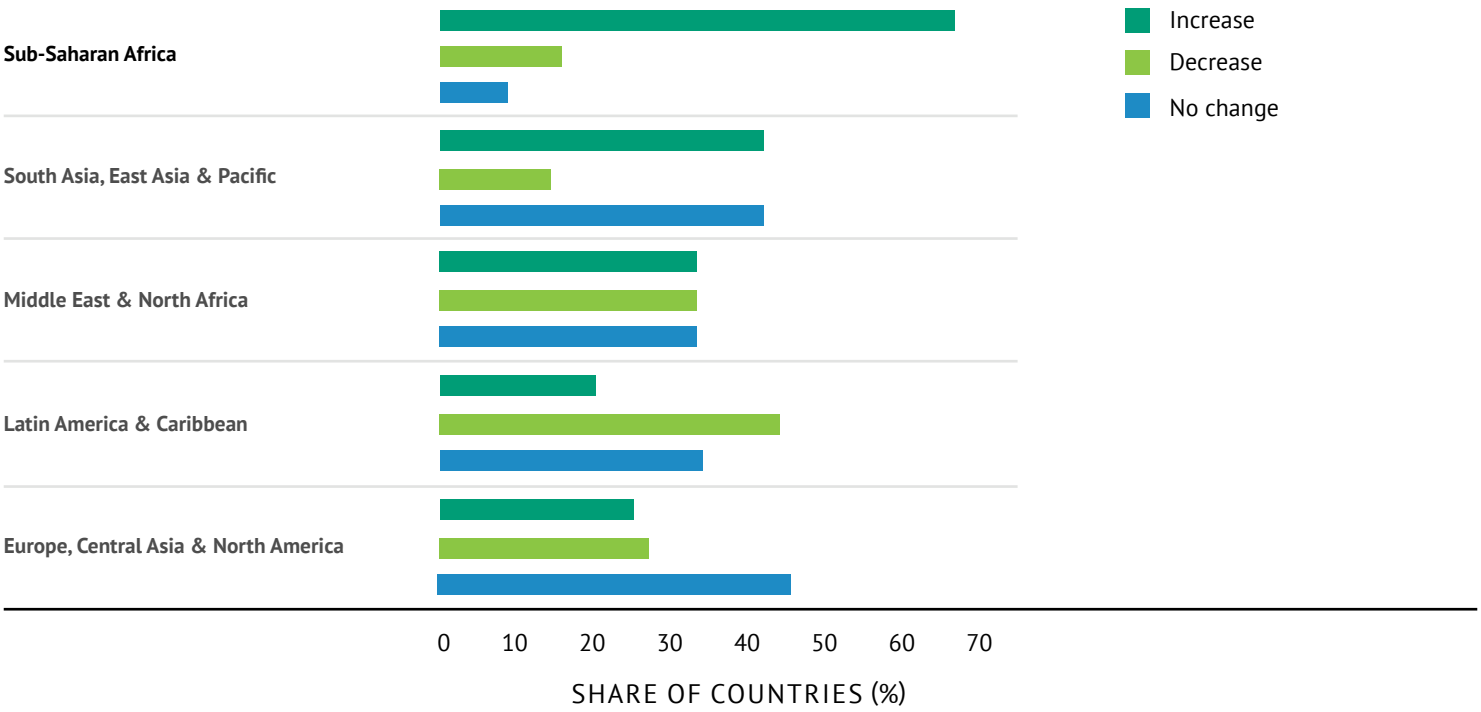
Note: The age groups refer to the ages at which children in each country typically attend a given school level. For example, pre-school usually refers to children ages 3–5. The denominator in this figure is all children of a given age group.

Figure 4. Aggregate school feeding coverage rate across regions, disaggregated by age group



Note: The pre-school numbers for South Asia/East Asia/Pacific do not include children served through India's large Integrated Child Development Scheme (ICDS), a program that provides nutritional and other health and developmental services for children under six years of age and their mothers. Similarly, the school feeding-focused survey may not have captured other (day care or community-based) programs benefiting pre-school children but not considered to be school-based feeding programs.

Figure 5. Change from three years prior in the number of students fed



Note: In this figure, a country is considered to experience an "increase" when the total number of students fed is at least 5% greater than it had been three years prior. Likewise, a "decrease" is seen when the number of students fed is at least 5% less than it had been three years prior. A status of "no change" is assigned to countries that remained within a band of 5% of their number of three years prior.

CHARACTERISTICS OF SCHOOL MEAL PROGRAMS

Objectives

School meal programs can exhibit a wide range of objectives, with program designs that reflect their diverse priorities. Across the 183 school meal programs captured in the 2021 Global Survey of School Meal Programs, 93% report an objective to meet nutritional and/or health goals (Figure 6). This can include, inter alia, a goal to reduce undernutrition and address micronutrient deficiencies. Notably, programs in all country income classifications are equally likely to cite a focus on nutrition. At the same time, just 35% of programs report an explicit goal to prevent or mitigate obesity; this value ranges from 5% of programs in low-income countries to 17%, 30%, and 70% of programs in lower middle-income, upper middle-income, and high-income countries, respectively (Figure 7). As will be discussed in section 3 ('Health and Nutrition'), the potential for school meal programs to be employed as a strategy to combat obesity is less recognized in lower-income settings where concerns of undernutrition remain salient, even as rates of obesity are rising (Muthuri et al. 2014; Popkin et al. 2020).

A large majority of programs cite an objective to meet educational goals (82%), and 71% of programs serve as a social safety net. Both aims are more likely to be held in relatively low-income settings. Programs in lower-income settings are also much more likely to report an objective to meet agricultural goals, likely reflecting the dominance

of agriculture in countries that are not industrialized and the potential for school meal programs to stimulate the rural economy through local procurement, especially where agrifood value chains tend to be short (Fernandes et al. 2016; Singh 2021; Sumberg and Sabates-Wheeler 2011). Interestingly, programs in the Middle East/North Africa are especially unlikely (at 9%) to cite an agricultural goal, perhaps revealing an untapped role for school meal programs in this region.

Some programs also cite other priorities, such as addressing gender gaps in educational attainment and welfare. In India, the PM Poshan program, also known as the Mid-Day Meal Scheme, places an emphasis on children eating together in order to attenuate class/caste differences and reduce prejudices (GCNF 2021b). In Chad, the Support Program for Primary Education and Girls' Schooling (Programme d'appui à l'enseignement primaire et à la scolarisation des filles) regards narrowing gender disparities as a key objective; this program provides take-home rations for girls in certain grades that attend at least 80% of school days and provides cash transfers to households of adolescent girls. In Finland, there is an emphasis on cooperation and the creation of an "ecosystem" around school meals to promote well-being and learning, particularly for sustainable ways of living, cultural competence, and instruction in good manners.

School levels

As expected, and consistent with the pattern seen in 2019 (GCNF 2021a), nearly all programs serve primary school students, either on their own or in addition to other school levels (Table 4). Exceptions include the Healthy Diet for Pre-school Children program (Smjernice / propisi za zdravu ishranu djece predskolskog uzrasta) in Bosnia and Herzegovina, which began operating in 2017 and serves only those in pre-school. In fact, it is more common for programs to reach pre-school students than to reach secondary school students, although this gap narrows in higher-income countries. In Europe/Central Asia/North America, 29% of programs also reach some youths in vocational/trade schools. Other levels/types of school that are sometimes served include orphanages and special education schools. For example, the National School Nutrition Program (NSNP) in South Africa operates in "special schools," in addition to primary and secondary schools.

Figure 6. Objectives of school meal programs

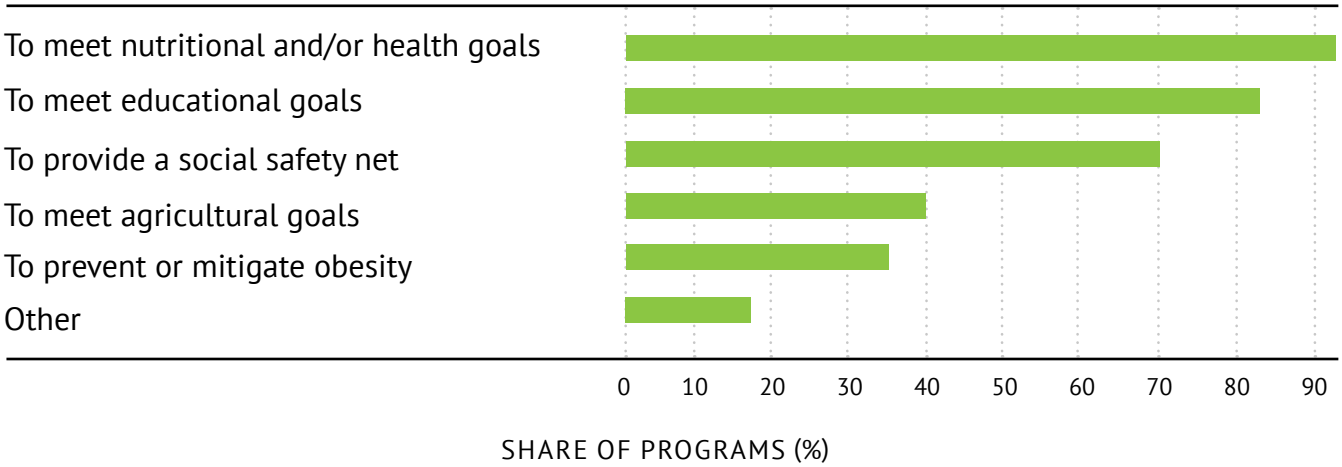


Figure 7. Objectives of school meal programs, disaggregated by income classification

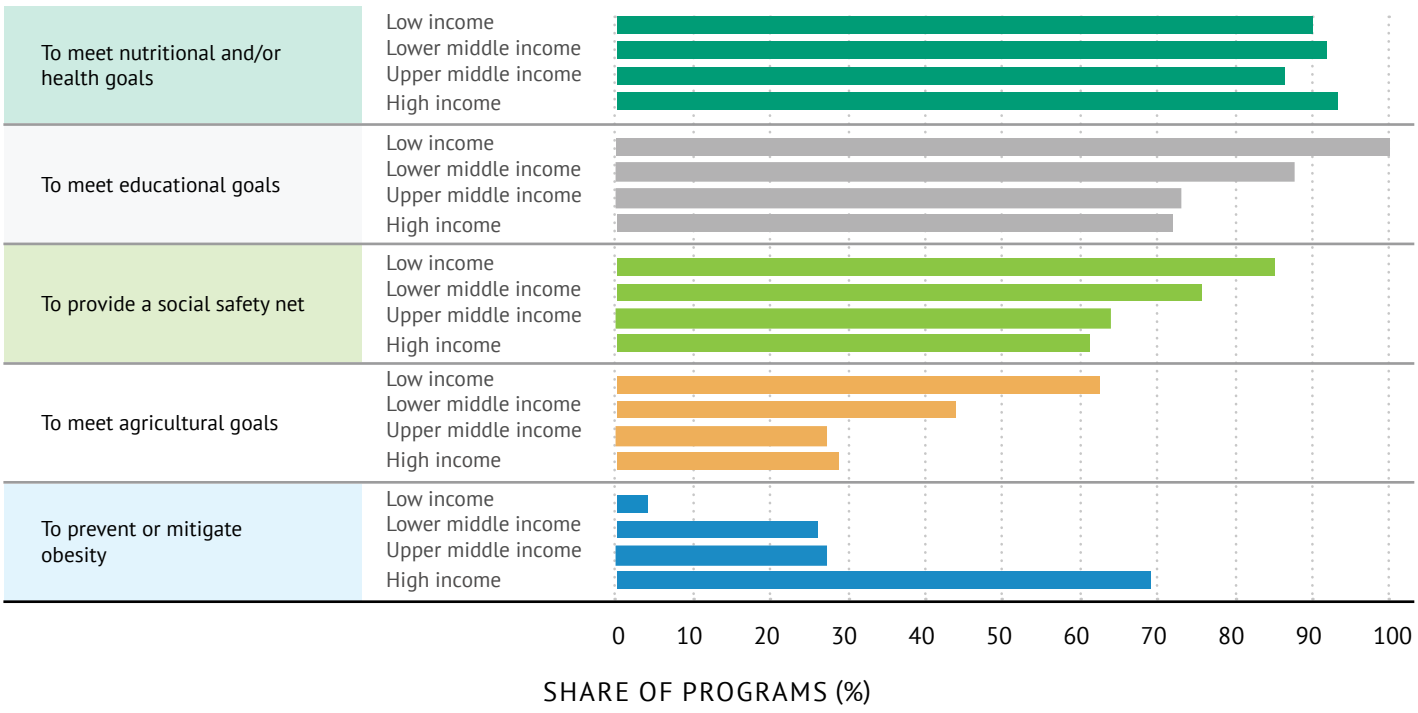


Table 4. School levels receiving food through school meal programs (% of programs)

		Pre-school	Primary school	Secondary school	Vocational/ Trade school	Other levels
Region	Sub-Saharan Africa	49	96	22	3	4
	South Asia, East Asia & Pacific	54	86	36	4	0
	Middle East & North Africa	64	91	18	0	0
	Latin America & Caribbean	75	100	58	8	4
	Europe, Central Asia & North America	85	96	63	29	2
Income group	Low income	50	98	20	5	3
	Lower middle income	49	96	21	0	2
	Upper middle income	73	88	45	9	3
	High income	79	95	65	24	3
All		64	95	40	11	3

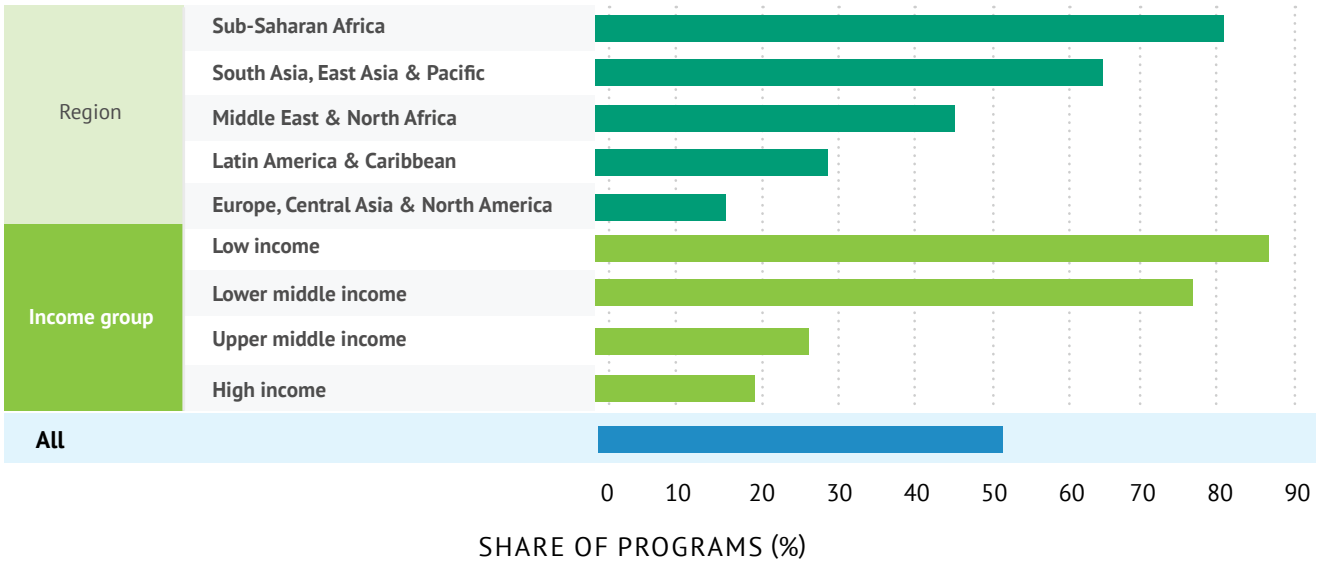
Note: "Other levels" may include special education schools or universities.

Gender-disaggregated data

As in 2019, just half of the programs in the 2021 Global Survey of School Meal Programs were able to report any gender-disaggregated numbers of student beneficiaries. Stark patterns in the availability of gender data are evident across income groups and regions (Figure 8). Specifically, while gender data was submitted for 87.5% of programs in low-income countries, this value was 79%, 27%, and 19% for programs in lower middle-income, upper middle-income, and high-income countries, respectively. Programs that are funded by donors and implemented by external entities, such as the World Food Program or Catholic Relief Services, may be more often required to collect gender data. Acknowledging that it is not necessarily the same set of countries in the 2019 and 2021 survey waves, a comparison over time in gender data reveals that while 64% of programs in low-income countries could provide gender data in 2019, this value was 23.5 percentage points higher in 2021. This may reveal a learning curve, whereby countries that participated in the Global Survey of School Meal Programs more than once were better able to gather and supply the requested information.

Programs were most likely to report gender-disaggregated numbers for primary school and less likely to do so for secondary or vocational schools. As school meal programs can incentivize adolescent girls to stay in school, with implications for their human capital as well as their likelihood of early marriage or pregnancy (Gelli 2015), gender data even at the secondary school level is critical.

Figure 8. Share of programs that report gender-disaggregated student numbers



Targeting of beneficiaries

A wide range of approaches to targeting beneficiaries are employed in school meal programs (Grosh et al. 2022). In some cases, targeting is universal, reaching all children in the country in the targeted school levels. Universal targeting also includes, for example, reaching all children in a targeted school level that attend public schools, or all children in public boarding schools.

In some contexts, beneficiaries are targeted based on geography, often with consideration given to local measures of poverty, food insecurity, nutritional status, school quality and enrollment rates, and gender equality. Geographic targeting can alternately be applied to regions, districts, or smaller (more local) geographic units, such as chiefdoms. In many programs, school children are targeted based on their individual characteristics, such as household incomes and other individual-level indicators of need. This may take the form of a sliding scale for cost recovery, with needy students receiving a partial or full subsidy. Examples of targeting criteria are enumerated in Box 4.

Box 4. Targeting criteria for school meal programs

Some programs target students based on geography, with consideration of local measures of poverty, food insecurity, and malnutrition; rates of school absenteeism, dropout, and completion; gender ratios in schooling; status as a conflict zone; and accessibility and existence of running water at or near the school. Often, all schools within a selected area receive school meals. Examples of programs that employ a geographic approach to targeting can be found in Bangladesh, Burundi, Armenia, Cameroon, Central African Republic, Chad, China, El Salvador, Ethiopia, Ghana, Guinea, Iraq, Ireland, Kenya, Mexico, Mozambique, Niger, Republic of Congo, Romania, Sierra Leone, South Africa, Syria, and Togo.

Some programs are targeted at the school level, as in Namibia and New Zealand, where school feeding programs are targeted towards schools with a high concentration of needy learners, and all students in each targeted school receive school meals. Some programs are open to all schools but require that schools apply to participate in the program, with examples found in Austria, Belgium, Bulgaria, and the Netherlands.

Some programs are targeted towards students at the individual level, based on household income, indicators of economic and social vulnerability, beneficiary status in other social protection programs, individual measures of malnutrition, special needs, and membership in indigenous or other marginalized groups. Often this takes the form of a sliding scale for cost recovery. Examples of programs that employ an individual approach to targeting can be found in Argentina, Cabo Verde, Chile, Malaysia, Panama, the Philippines, Poland, Trinidad and Tobago, and Tunisia, among others. Sometimes, take-home rations are targeted towards girl students, or are conditional on students maintaining a certain attendance rate.

Some programs achieve universal targeting by reaching all enrolled students in a targeted school level/grade. Examples of such programs can be found in Barbados, Bosnia and Herzegovina, Brazil, Czech Republic, Estonia, Finland, Guatemala, Honduras, Iceland, Kiribati, Latvia, Lesotho, Lithuania, Luxembourg, Palau, Portugal, Romania, São Tomé and Príncipe, Slovenia, Sweden, Thailand, Timor Leste, and Zimbabwe. Note that universal targeting does not mean that all enrolled students in the country receive school meals, only that all students in a given school level/grade are reached.

Modalities of food delivery

As in 2019, in-school meals are the most common modality of food delivery in 2021 (Figure 9). In-school snacks are also served in 29% of the programs, with programs in upper middle-income and high-income countries more likely than others to serve snacks. This pattern may be at least partly attributed to the E.U. school fruit, vegetables, and milk scheme, which operates in 25 European countries and supports the distribution of fresh fruits, vegetables, milk, and certain milk products in participating schools (European Commission 2022). National governments sometimes considered this scheme to be appended to another program and sometimes regarded it as a distinct school meal program.

While in the 2019 survey, 25% of programs reported that they regularly provided take-home rations, in 2021 this value was 39%. The high usage of take-home rations in the school year that began in 2020 very likely reflects the impact of the COVID-19 pandemic. As will be discussed in section 3 ('COVID-19 and Other Emergencies'), many school meal programs across almost all regions and income groups responded to the pandemic and associated school closures by shifting towards take-home rations. Sometimes this was in the form of packages intended to support students' families for a period of weeks or months. In the context of this public health crisis, take-home rations have also taken the form of meals prepared at school and either delivered to students' homes or made available to be picked up. In the United States, the National School Lunch Program pivoted in early 2020 to make meals available to students even when schools operated remotely. In Lesotho and Namibia, rations were distributed when school closures were announced to ensure that food stocked for the school meal programs did not go to waste.

Among the programs that serve in-school meals, 89% serve lunch, 40% serve breakfast, and 11% serve an evening meal (dinner)—the latter most often in boarding school settings (Figure 10). In-school meals or snacks are served (or intended to be served) at least five times per week in 86% of the programs that served meals/snacks. Given the diverse forms that take-home rations could take during the COVID-19 crisis, it is not surprising that the frequency of provision varied from five times per week (in 22% of cases) to weekly/biweekly (11%), monthly (19%), and quarterly/biannually (21%). An additional 25% of these programs reported other frequencies, such as one-off food distributions.

Figure 9. Modalities of food delivery across programs

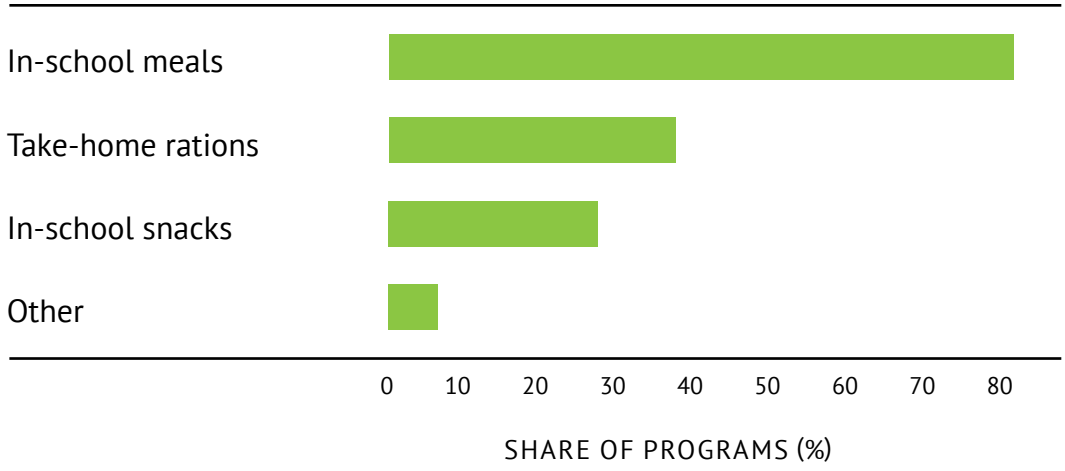
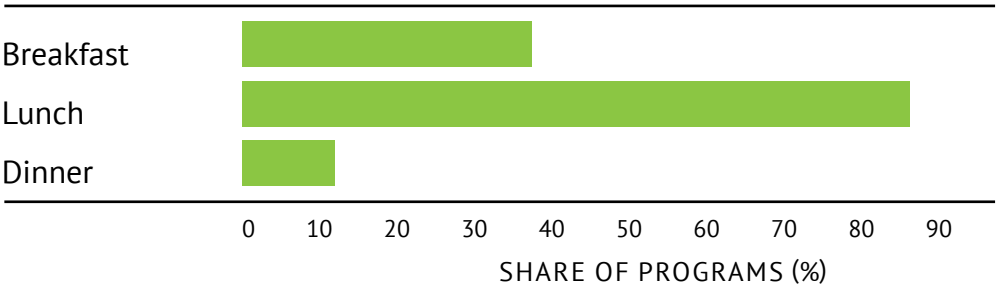


Figure 10. Meals served in schools



Note: These percentages are of programs that serve in-school meals (n = 150).

FOOD BASKET AND FOOD SOURCES

Importance of the food basket

The school menu, or the content of the "food basket," is a fundamental element of any school meal program. As 93% of programs report an objective to meet nutritional and/or health goals, programs often aspire to offer diversified meals made of food groups that children may not receive at home. A varied diet adequate in micronutrients (such as iron and vitamin A) is necessary for children's growth and development (Aliyar et al. 2015; Singh and Fernandes 2018). Meat, poultry, eggs, dairy products, and legumes serve as key sources of protein, and fruits and vegetables (particularly green leafy vegetables) are important sources of vitamins and minerals. Especially for programs that aim to prevent or mitigate obesity, the inclusion of fresh foods may help further their goals. Indeed, it is less common for programs with a focus on obesity to report that "most" or "all" foods are packaged/processed (16%), compared to programs without a focus on obesity (34%).

Content of food baskets

The content of food baskets is presented in Figure 11, with a pattern very similar to what was noted in the 2019 survey. The most common food category or item provided to students is grains/cereals (in 87% of programs), followed by oil (78%), legumes (75%), and salt (70%). Fruits and vegetables are provided in 63–65% of the programs, while animal-source foods are less common. The menus vary by income classification, as illustrated in Figure 12. Grains/cereals, oil, legumes, and salt are each more commonly found on the menu of programs operating in low-income or lower middle-income settings. All other categories/items, however, are more commonly found on the menu of programs operating in upper middle-income or high-income settings. Poultry, for example, is served in 69% of programs in high-income settings but just 5% of programs in low-income settings. The gap is even larger for fruits, which are served in 97% and 22.5% of programs in high- and low-income settings, respectively—a gap of 74.5 percentage points.

Beverages served with meals/snacks can alternately be an important source of macro- and micronutrients or a source of sugars. As shown in Figure 13, 37% of programs serve unsweetened milk, while 11% serve milk with added sweetener, such as sugar or chocolate syrup. Yogurt drinks are also served, most commonly in Europe/Central Asia/North America. Programs also serve fruit juice, with 20% and 10% serving unsweetened and sweetened juice, respectively.

Food diversity

A simple count of different categories in the food basket of a school meal program is one measure of the menu's diversity. This measure is in the spirit of the Household Dietary Diversity Score (Swindale and Bilinsky 2006), although the categories used here differ slightly. The number of food categories served across programs is presented in Figure 14, which shows that programs serve, on average, 6.9 different food categories. Not surprisingly, this average value is higher in high-income settings (at 8.3) and lower in low-income settings (at 5.2). Across regions, South Asia/East Asia/Pacific exhibits the greatest food diversity (at 8.6 food categories, on average), and Sub-Saharan Africa sees the least food diversity (at 5.3). There is also a positive and statistically significant correlation between this measure of food diversity and whether a country has a national policy related to nutrition in school meal programs (correlation coefficient = 0.155, P-value = 0.037).

Across modalities of food delivery, the food basket tends to be considerably more diverse for in-school meals/snacks than for take-home rations. Apart from grains/cereals and oil, all other items are far more prevalent in in-school meals/snacks. For example, green leafy vegetables are found in 64% of in-school meals/snacks and 10% of take-home rations, and eggs are included in 45% of in-school meals/snacks but just 21% of take-home rations.

Figure 11. Food items served in school meal programs

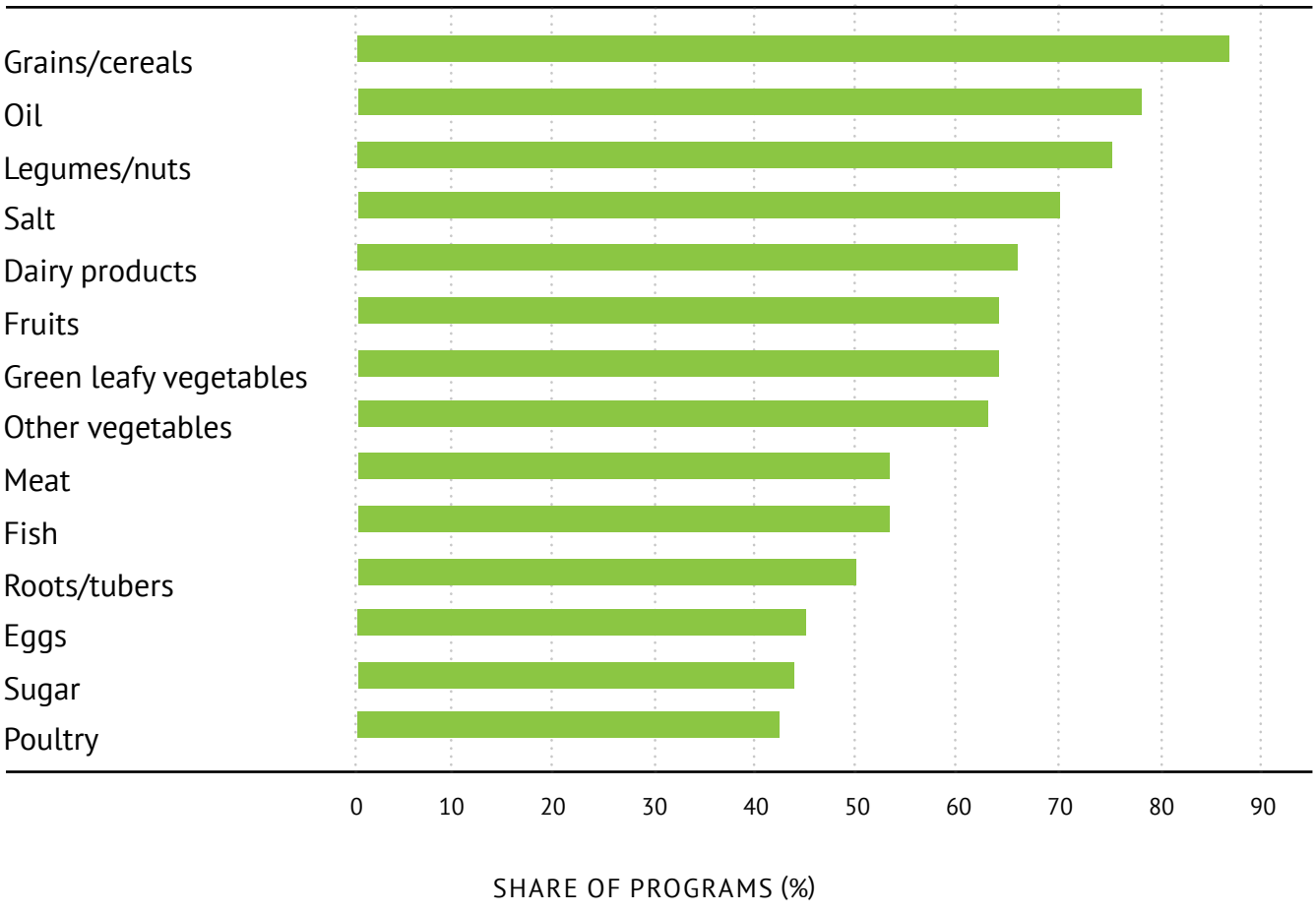


Figure 12. **Food items served in school meal programs, by income group**

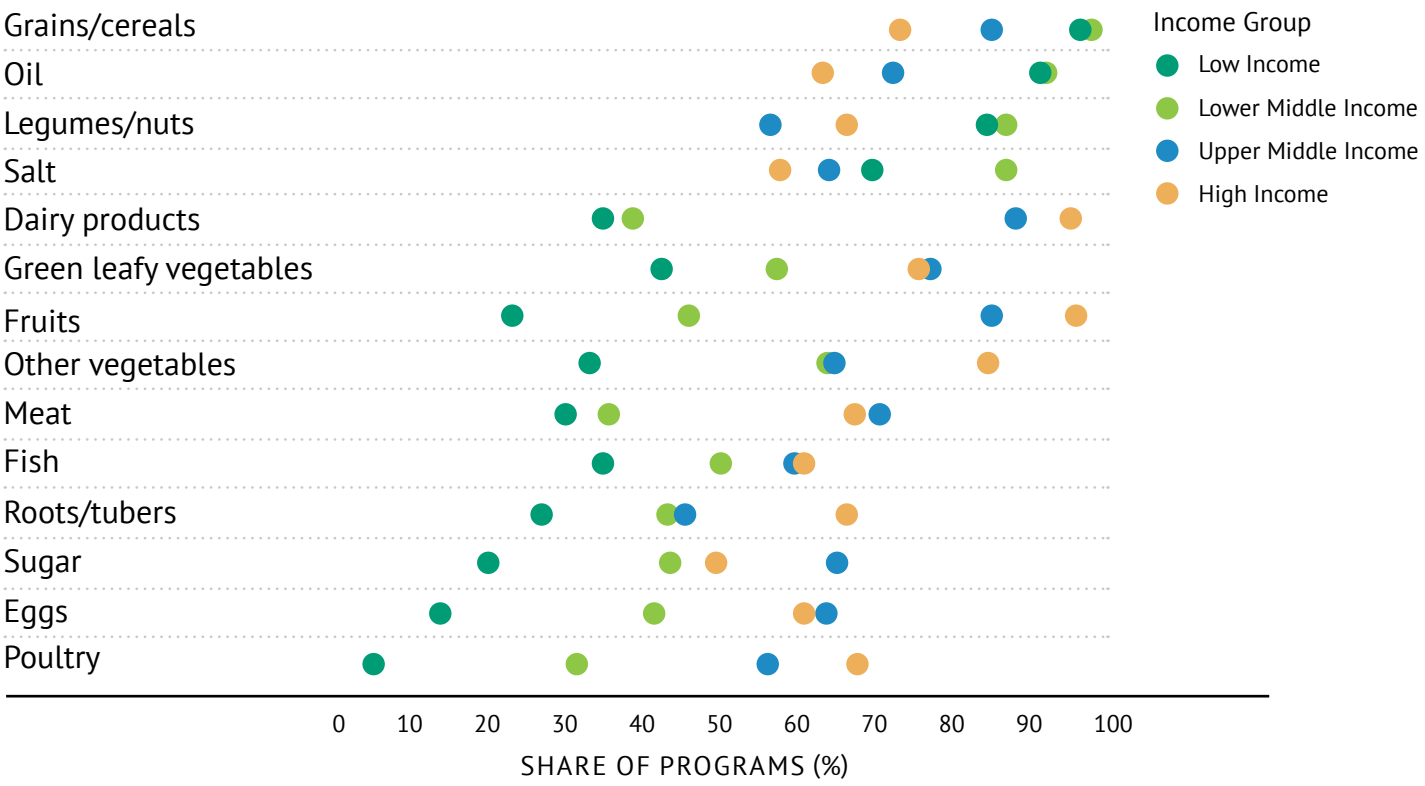
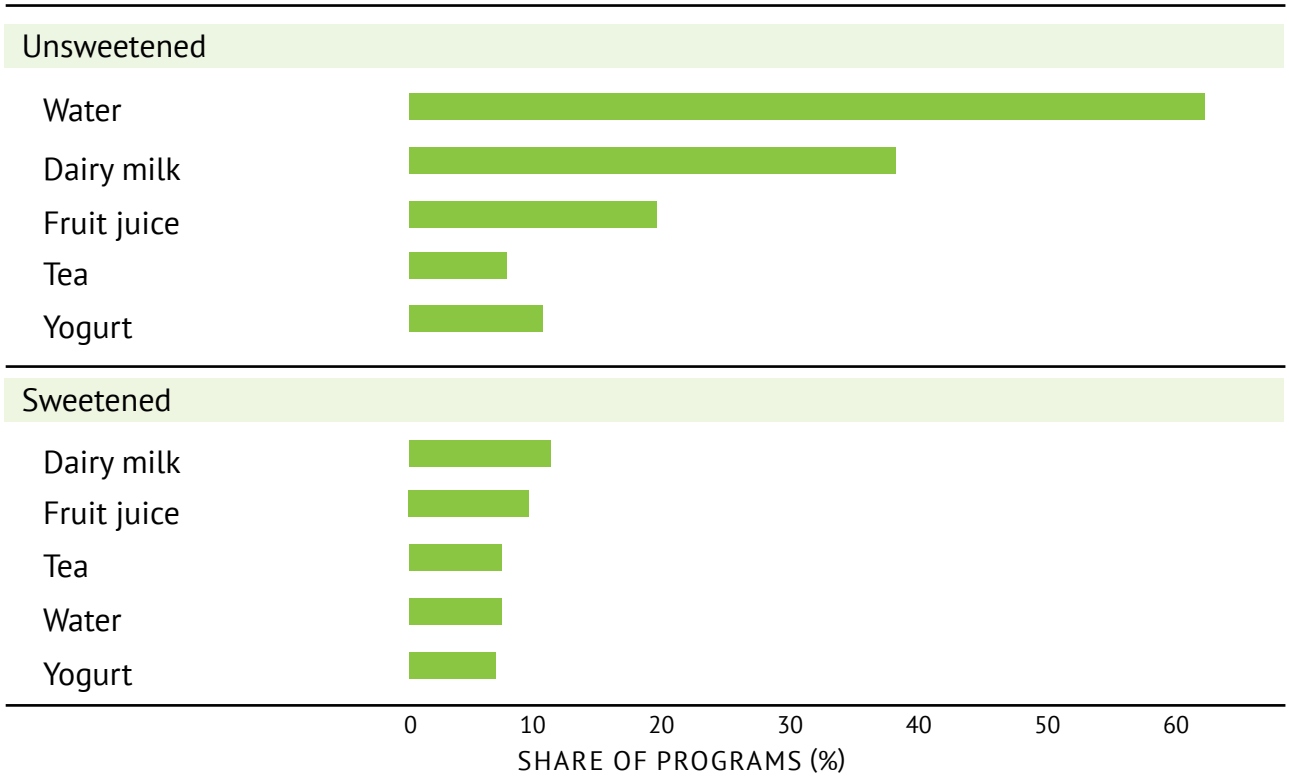
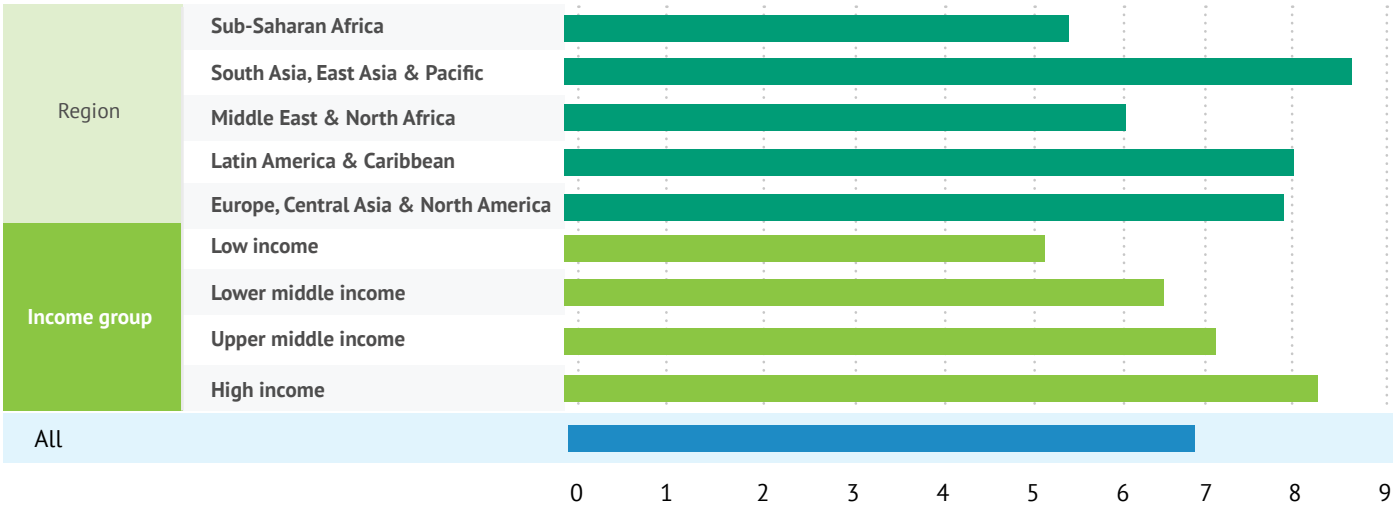


Figure 13. **Beverages served in school meal programs**



Note: These percentages are of programs that served in-school meals or snacks (n = 177). It is unclear how survey respondents interpreted the provision of water with school meals/snacks, and some respondents may have only selected this option if the water was bottled.

Figure 14. Food basket diversity across programs



Note: Beverages, such as dairy milk, yogurt, or fruit juice, are accounted for in the calculation of food basket diversity. The maximum possible number of categories is 12, with sugar and salt excluded from this count.

Avenues of food procurement

In all regions and income groups, the most common avenue through which food is procured is through market purchases (Figure 15). Specifically, 87% of all programs procure at least some food through the domestic market, and 38% procure at least some food through purchases from foreign countries. In-kind contributions from foreign sources (23%) and domestic sources (21%) are less common. As expected, in-kind donations from foreign sources are more common in programs operating in low-income and lower middle-income settings, with donors providing food items, such as corn-soy-blend (CSB), as a form of foreign aid. At the same time, purchases from foreign countries are far more common in high-income settings.

In-kind donations from domestic sources tend to come from within the local community, often with students' parents providing condiments to supplement staple foods. Thus, in Benin, Mali, and Togo, community members are encouraged to provide in-kind contributions (including salt, vegetables, and other ingredients for sauces) to support and ensure local ownership of the school feeding programs. In-kind donations from domestic sources also come from the private sector, as in the National School Nutrition Program (NSNP) in South Africa, which provides school lunches and is supplemented by private companies' in-kind contributions for school breakfasts.

Reliance on domestic procurement/production versus foreign in-kind donations

Narratives submitted in the 2019 survey indicated that programs are increasingly prioritizing domestic procurement of food, often in an explicit effort to invigorate local economies. To understand the relationship between food sources and food basket diversity, programs are classified here as relying on domestic procurement/farmers if they draw at least 70% of the value of their food through purchases from domestic sources and if farmers are engaged by selling directly (or through their farmer organization) to the program or the schools. (Note that not all programs were able to provide a numeric breakdown of their food sources, and this analysis is necessarily limited to the 56% of programs that could do so.) Programs are alternately categorized as relying on foreign in-kind donations if they draw at least 70% of the value of their food through donations from foreign sources (often through the World Food Program, Catholic Relief Services, or similar organizations).

Programs that either rely on domestic markets/farmers or that rely on foreign in-kind donations are more common in low-income or lower middle-income settings (Figure 16). Such programs are especially prevalent in Sub-Saharan Africa. Examples include the National Home-Grown School Feeding Program (NHGSFP) in Nigeria, for which all foods are procured domestically with about 90% coming from local sources. Although many programs in higher-income settings do procure food through domestic markets, it seems that few directly engage with farmers in the process. Programs that rely on foreign in-kind donations are most prevalent in Sub-Saharan Africa (28%) and South Asia/East Asia/Pacific (21%).

An analysis of the relationship between food sourcing and food basket diversity shows that programs that rely on foreign in-kind donations serve an average of 5.9 food categories, while those that rely on domestic markets/production serve an average of 7.1. A similar pattern was seen in 2019, including when the analysis was restricted to Africa (Wineman et al. 2022). This provides suggestive evidence that domestic procurement—and engagement with farmers—is associated with more diverse and healthier food baskets (Fernandes et al. 2016; Singh 2021; Sumberg and Sabates-Wheeler 2011).

Figure 15. Sources of food for school meal programs

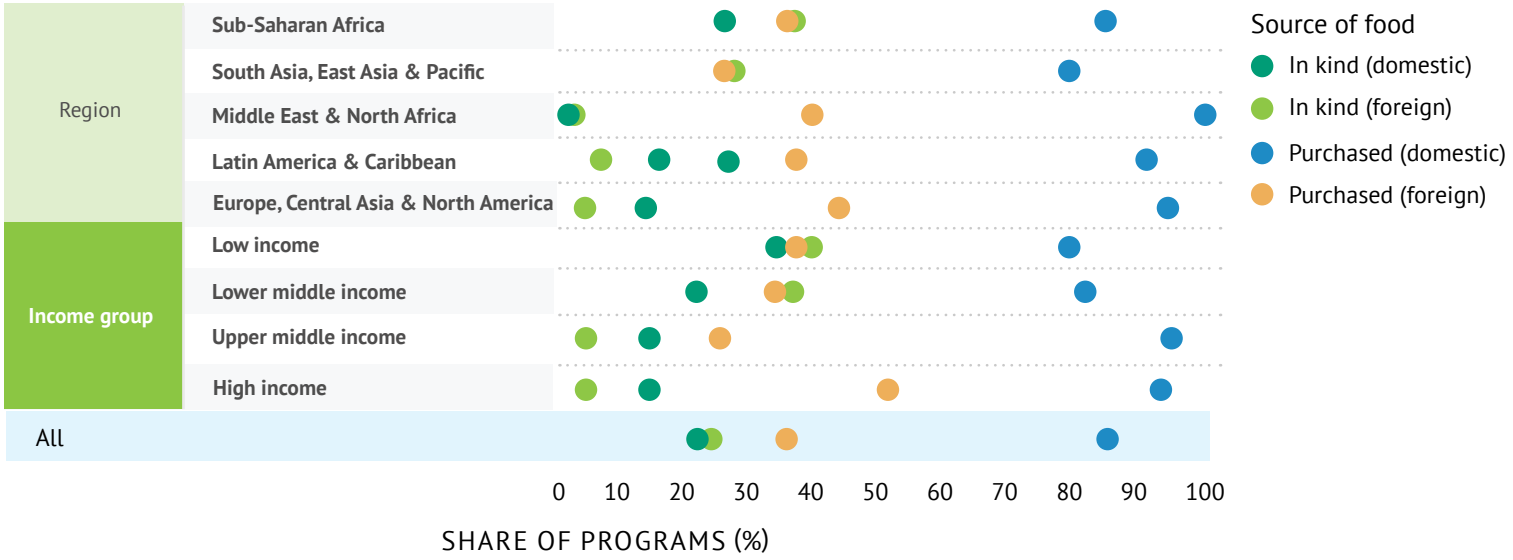
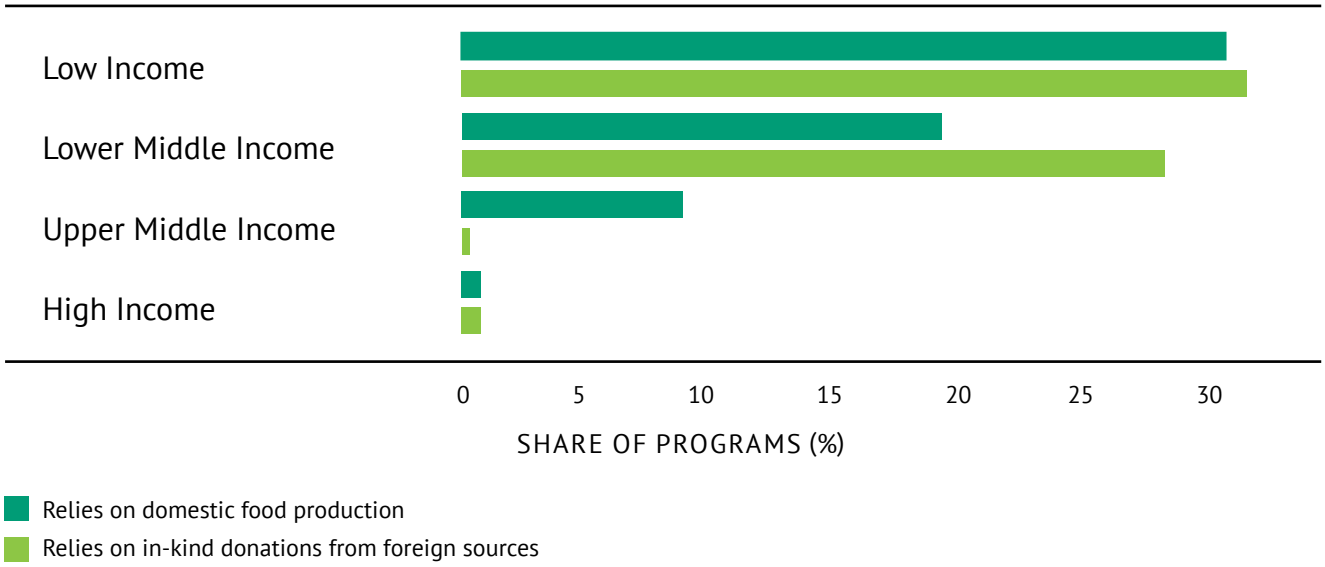


Figure 16. Reliance on domestic food production and reliance on in-kind foreign donations

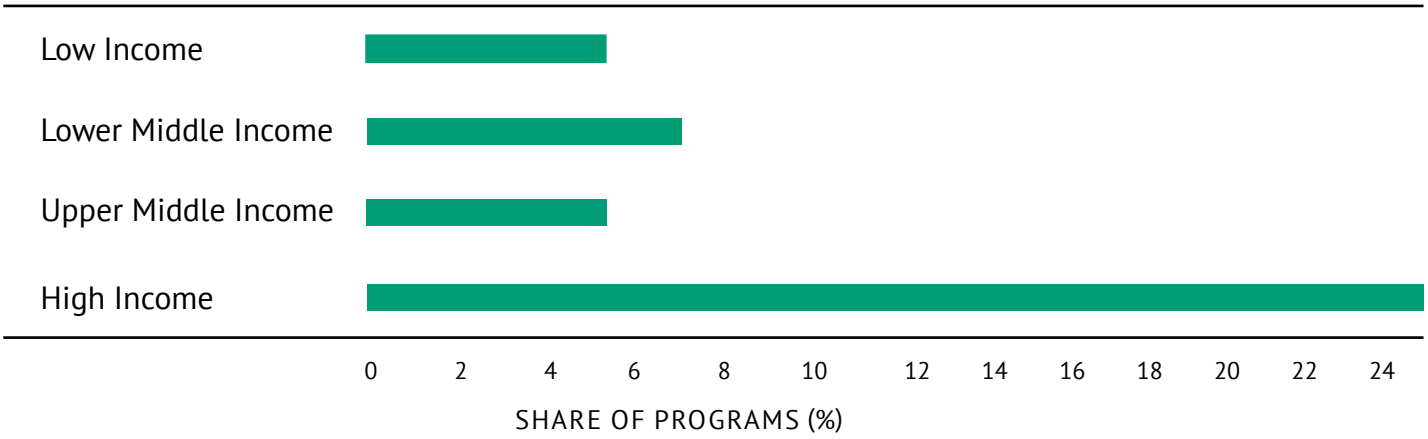


Food banks and school meal programs

The 2021 Global Survey of School Meal Programs also explored the link between food banks and school meal programs. A food bank is defined in the survey glossary as a place where stocks of food—typically basic provisions and nonperishable items—are supplied free of charge to people in need to address local food insecurity. Most food is donated by non-government sources, including supply chain actors from farm to retail. Based on the survey responses, food banks are far more common in higher-income settings, with 14% of low-income countries and 69% of high-income countries reporting that they have community-led, non-government food banks.

It follows that it is far more common for high-income countries to report a link between food banks and their school meal programs (Figure 17). Often, this link takes the form of leftover school food being shared with food banks. In Poland, educators from food banks have conducted meetings with students in a campaign to reduce food waste. In Australia, however, the relationship between food banks and school meal programs runs in the other direction, and Foodbank Australia receives government funding in some states to administer school breakfast or lunch programs. In the Philippines, products from school gardens are distributed to families through the community pantry, which may be considered a form of food bank. Sometimes, the relationship between food banks and school meals is less productive, as in Argentina, where food banks do not play a role in school feeding because they tend to donate highly processed foods, which are discouraged in schools.

Figure 17. Link between food banks and school meal programs



FUNDING AND COSTS

Global budget for school feeding

The 2021 Global Survey of School Meal Programs captured the budget for school feeding activities in the school year that began in 2020, disaggregated by program and by source of funding. Detailed budget information was provided for 87% of the programs and 80% of the countries (with some countries presenting partial budget data for some but not all of their programs). These values, often reported using multiple currencies for each country, have been converted to USD using the average exchange rate for the relevant school year in a given country. Across the 125 countries in the survey database, the aggregate budget allocated for school feeding in the reference year was at least USD 35.3 billion.

Government share of funding

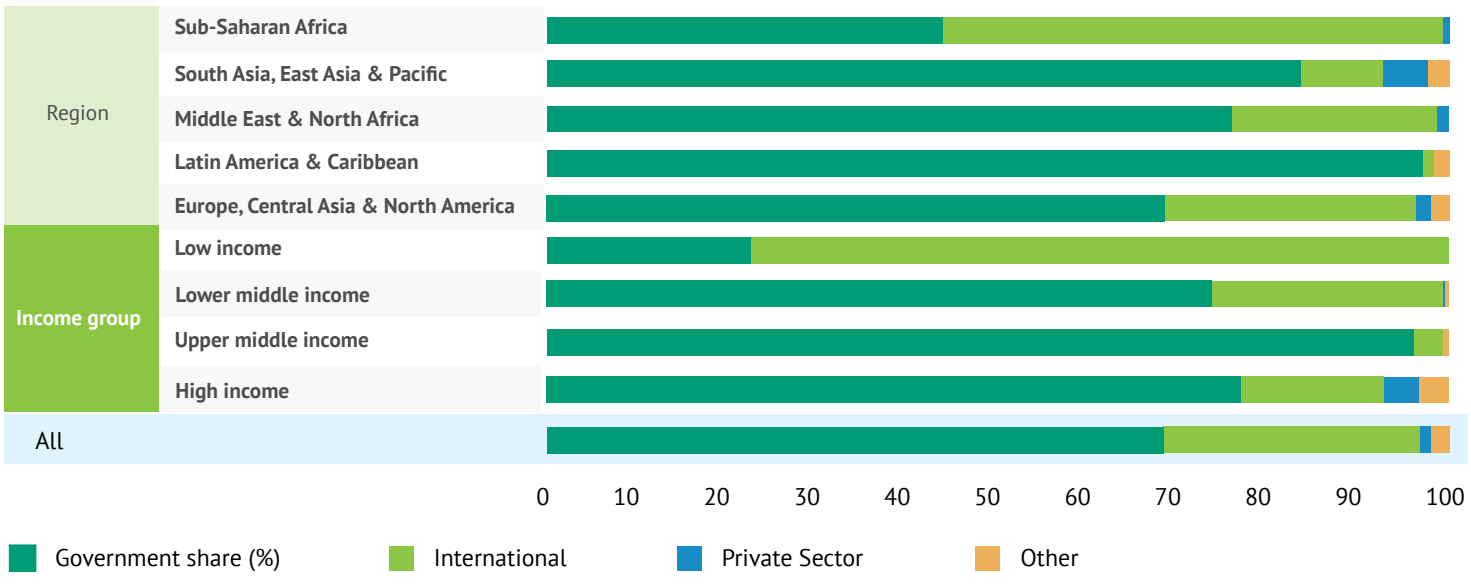
Many governments in all regions and income groups contribute a sizable share of the funding for school meal programs (Figure 18). Thus, across all countries, an average of 70% of funding comes from government (inclusive of both national and subnational levels), and 53 countries (including some from all regions) contribute 100% of the

funding. On average, the share of funding contributed by government is lowest in low-income countries (at 24%), though this value increases to 74% for lower middle-income countries. Conversely, on average, a much higher share of funding in low-income countries comes from international sources (at 76%), a value higher than in other income groups. Across regions, countries in Latin America/Caribbean tend to contribute the greatest share of funding for school feeding, with an average contribution of 98%. Although countries in Sub-Saharan Africa are most reliant on international funding, it is noteworthy that the governments also contribute an average of 46% of the cost. This value had been 42% in the 2019 Global Survey of School Meal Programs, which may point to a gradual shift towards government ownership of school feeding programs in this region. Overall, the pattern seen in Figure 18 is consistent with that observed in 2019.

Because countries with relatively large programs and budgets tend to have a higher share of government funding, this pattern differs somewhat at the aggregate level. A parallel analysis at the aggregate level reveals that, globally, 99% of funding comes from country governments (Table 5). This value is 82% for Sub-Saharan Africa, 86% for Middle East/North Africa, and 99–100% for the other regions. This underscores the extent to which school meal programs, in aggregate, are government-owned in all regions.

Regression analysis can shed additional light on the relationship between government funding for school meal programs and the school feeding coverage rate. As seen in Table 6, even when the size of the school feeding budget is controlled for, along with the country's income level, the government share of funding is a positive and statistically significant correlate of the coverage rate. When population weights are used in column 2, this relationship becomes even stronger, indicating that an additional percentage point increase in the government share of school meal funding is associated with an additional 0.237 percentage point increase in the coverage rate. This shows that government funding is impactful for school feeding outcomes, even beyond its dollar value.

Figure 18. Sources of funding for school meal programs (cross-country averages)



Note: Cross-country average values are calculated by weighting each country equally, regardless of its size.

Table 5. Share of funding from government sources (aggregate values)

		Government share (%)
Region	Sub-Saharan Africa	82
	South Asia, East Asia & Pacific	100
	Middle East & North Africa	86
	Latin America & Caribbean	100
	Europe, Central Asia & North America	99
Income group	Low income	32
	Lower middle income	97
	Upper middle income	100
	High income	100
All		99

Table 6. Relationship between government share of funding and school feeding coverage (linear regression)

	(1) Coverage rate (%)	(2) Coverage rate (%)
Government share of school feeding budget (%)	0.201**	0.237***
	(0.014)	(0.006)
School feeding budget per child beneficiary (USD)	-0.020**	-0.038
	(0.047)	(0.247)
1= Lower middle-income	6.968	2.998
	(0.356)	(0.721)
1= Upper middle-income	15.448*	6.822
	(0.084)	(0.560)
1= High-income	20.472**	43.945***
	(0.013)	(0.004)
Constant	10.188*	4.683
	(0.056)	(0.138)
Population weights	No	Yes
Observations (countries)	100	100
R-squared	0.248	0.260

P-value in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Note: Complete information on the school feeding budget is available for 100 of the 125 countries with school feeding activities in the database. Partial information is available for many others.

Budget per child beneficiary

Among the 125 countries for which information is available on school feeding activities, 330.3 million children received school food. In aggregate, then, the budget allocated per year per child who received school food was USD 108.

However, this value varies considerably across regions and income groups. (Note that this analysis does not account for purchasing power parity.) The value ranges from USD 18-23 per recipient child in lower-income and lower middle-income countries to USD 400 per recipient child in high-income countries. Across regions, school food investments per recipient child per year in Sub-Saharan Africa are the lowest, on average, at USD 30. This value is USD 54.5 in South Asia/East Asia/Pacific; USD 58 in Latin America/Caribbean; USD 109 in Middle East/North Africa; and USD 382 in Europe/Central Asia/North America. Again, these patterns are very similar to those captured in the 2019 survey.

Adequacy of budget

For each school meal program, the survey asked whether the amount of funding was considered adequate to meet the program's own targets in the reference school year. Across all programs, 64% regard their funding as adequate (Figure 20). This value is 44% in low-income countries and increases to 51%, 68%, and 90% in lower middle-income, upper middle-income, and high-income countries. As in 2019, programs in Europe/Central Asia/North America are most likely to report adequate funding (at 92%), followed by those in South Asia/East Asia/Pacific (at 82%). There is a positive correlation between adequacy of funding and having a national school feeding policy, although this relationship is not statistically significant (correlation coefficient = 0.086, P-value = 0.276).

Line item in national budgets

Across the 125 countries, school feeding has a dedicated line item in 69% of the national budgets. This is most common in Latin America/Caribbean (at 96%) and least common in Europe, Central Asia, and North America (at 49%). In several regions, there is a positive relationship between having school feeding as a line item in the budget and the school feeding coverage rate. Specifically, in South Asia/East Asia/Pacific, countries with a line item had an average coverage rate of 33%, compared to 14% for those without a line item—a gap of 19 percentage points. This gap is 16 percentage points in Sub-Saharan Africa. Within most regions, countries with a line item allocate a larger budget per beneficiary child than those without a line item. For example, in Sub-Saharan Africa, countries with a line item have an average budget per child of USD 46, while this value is USD 23.5 for those without a line item.

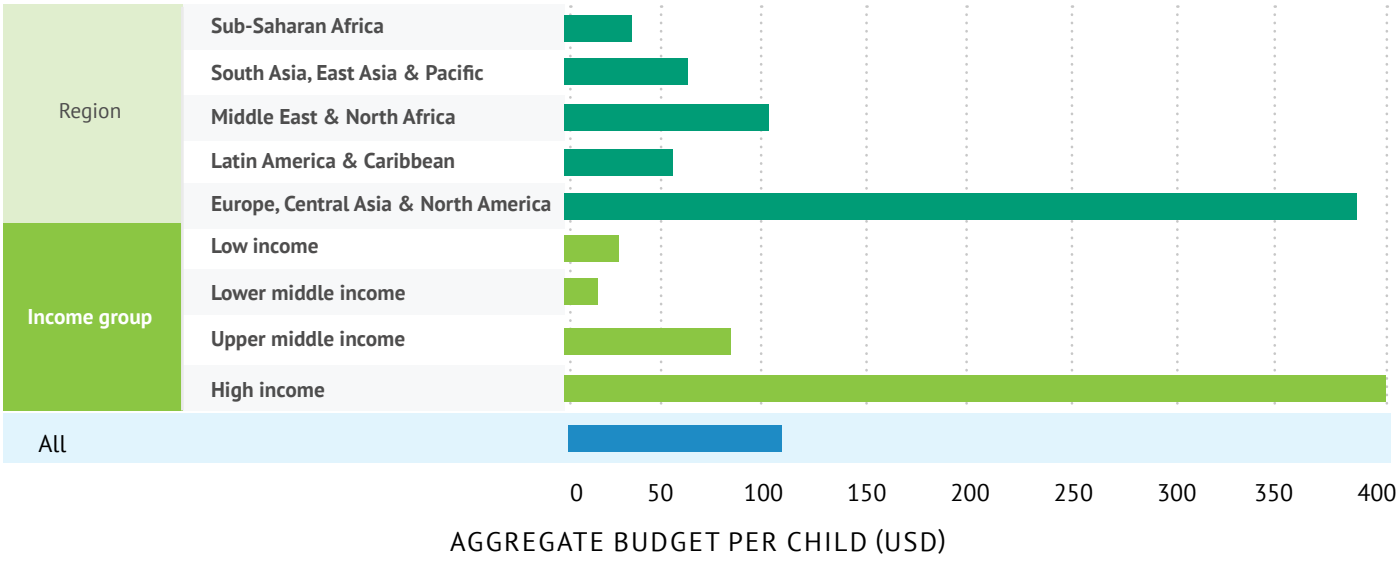
Family contributions

Students' families contribute to the cost of school meals in 56% of the programs. Among these, families sometimes pay the full price for the meal, as in Bosnia and Herzegovina, where the cost of school feeding for pre-school students is included in the monthly school fees. In the United Arab Emirates, students who purchase food in the canteens also pay the full price, and in the Czech Republic, students' families or guardians pay only the price of the food in the National School Feeding Program (Školní stravování), and the remaining costs (including wages and overhead costs) are paid

from the state budget and other programs. A similar arrangement is found in Poland's School Meals Program/Meals at School and at Home (Posiłek w szkole i w domu). In North Macedonia, students' families pay the full price of school meals if they choose to participate in the School Meal and Snack program.

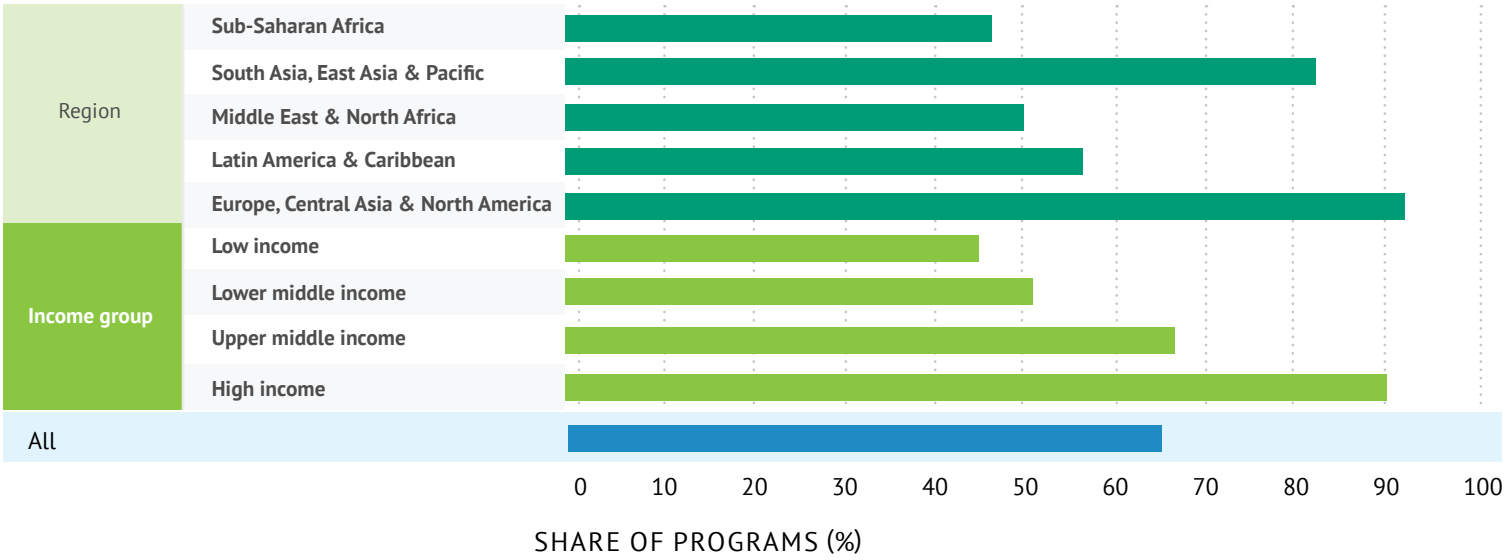
In other cases, parents/guardians pay a partial price for the food. For example, in Barbados, students contribute a small sum per week toward the meals, though a child is not denied a meal if they cannot afford to pay. In the United States and France, students' families sometimes pay a reduced price for school meals, depending on their income. In Burundi, students' families support the program by voluntarily providing in-kind contributions, such as water, firewood, vegetables, and labor for cooking. In Israel, students' families pay a partial price for the lunches in the NIZANIM + MILAT program. In Jamaica, students' families contribute to school meals in the Program of Advancement Through Health & Education (PATH) – Nutritional Subsidy and Breakfast Program by paying a partial price for meals. In Latvia, while all students in grades 1–4 receive free lunches through the free meal for elementary school students (Brīvpusdienas) program, students of other grades may sometimes access lunches; each municipality determines whether food for these other children is paid for by the municipality, by the students' parents, or by the municipality and parents together. In Malaysia, in the Boarding School Meal Program, students' families pay an amount for school meals based on the parents' salary scale. In Portugal, students' families pay a partial price for school lunches, depending on their income level.

Figure 19. School feeding budget per child per year (aggregate values)



Note: Exchange rates were used to convert currencies to USD, but this analysis does not account for differences in purchasing power parity.

Figure 20. Share of programs that reported adequate funding



MANAGEMENT AND IMPLEMENTATION

Governing policies, laws, and standards

The existence of policies, laws, and standards around school feeding can produce a supportive structure to facilitate and guide school meal programs in a positive direction (Cruz 2020). For example, a national school feeding policy can help solidify a country's commitment to school feeding, while standards related to nutrition can steer programs to meet their nutrition objectives (Fernandes et al. 2016).

The 2021 Global Survey of School Meal Programs collected information on whether countries have policies on various topics that are directly related to school feeding. Across the 125 countries in the survey database, 80% report that they have a national school feeding policy (Table 7). Interestingly, the likelihood of such a policy does not seem to be associated with a country's income classification. However, the likelihood of a nutrition policy related to school feeding does increase as wealth increases, and the same is true for policies related to health and to food safety. For example, while 41% of low-income countries report a food safety policy, this is the case for 56%, 63%, and 67% of lower middle-income, upper middle-income, and high-income countries. This reveals a relative gap in policies of nutrition, health, and food safety in lower-income settings.

On the other hand, the likelihood of having a policy related to agriculture and school feeding is relatively lower in high-income settings. Recall that this was mirrored in the priorities of school meal programs (Figure 7), in which programs in higher-income settings are incrementally less likely to state an objective of meeting agricultural goals. To the extent that policy influences priorities and drives outcomes, high-income countries may consider the development of agriculture-focused policies as a lever to strengthen the link between school meal programs and the agriculture sector. Finally, just 18% of countries seem to have had a policy related to private sector involvement in school meal programs, even as the private sector was reported as being involved in school meal programs in 71% of the countries (as detailed in section 3, 'Agriculture, Employment, and Community'). This may indicate an area of inadequate policy oversight.

Program management

Across programs, the most common management system is one of centralized decision-making (managed by the national government), which characterizes 54% of programs (Table 8). This is most common in Latin America/Caribbean. Regional and local governments are involved in a (decentralized) management capacity in 8% and 7% of cases, respectively, and an additional 8% of programs describe themselves as being in transition between centralized and decentralized decision-making. One such example is the National Home-Grown School Feeding Program (NHGSFP) in Nigeria. An international donor agency or other implementing partner is involved in program management in 17% of the programs; this is the case for 41% and 26% of those operating in low-income and lower middle-income settings.

Transition to government ownership

Many programs described transitions that have occurred in their management. For example, in 2010, Bangladesh gradually began taking over responsibility (from the World Food Program) for the School Feeding Program in Poverty Prone Areas (SFPPPA). In 2016/17, The Gambia took over management of two regions of the Home-Grown School Feeding Program, formerly managed by the World Food Program. In 2019, Kenya similarly took over management of the Home-grown School Meals program; to date, the government provides resources for purchasing food commodities while the World Food Program provides technical assistance.

Inter-agency engagement

The survey also asked about the government ministries/departments/agencies or other entities that are involved in the school feeding program, either as key decision makers or in a more supportive role through the provision of technical support or resources. These decision makers are presented in Figure 21. Not surprisingly, it is most common for Ministries of Education to be engaged (at 90%), followed by Ministries of Health (67%) and Agriculture (58%). Although a majority of school meal programs noted that they serve as a social safety net (Figure 7), Ministries of Social Protection are engaged in just 20% of programs as decision makers or supporters. This may point to a disconnect between oversight and intent, with implications for how well school meal programs can serve their social safety net function. Ministries of Youth, Gender Affairs, and Labor are least likely, among those listed, to be directly involved as decision makers.

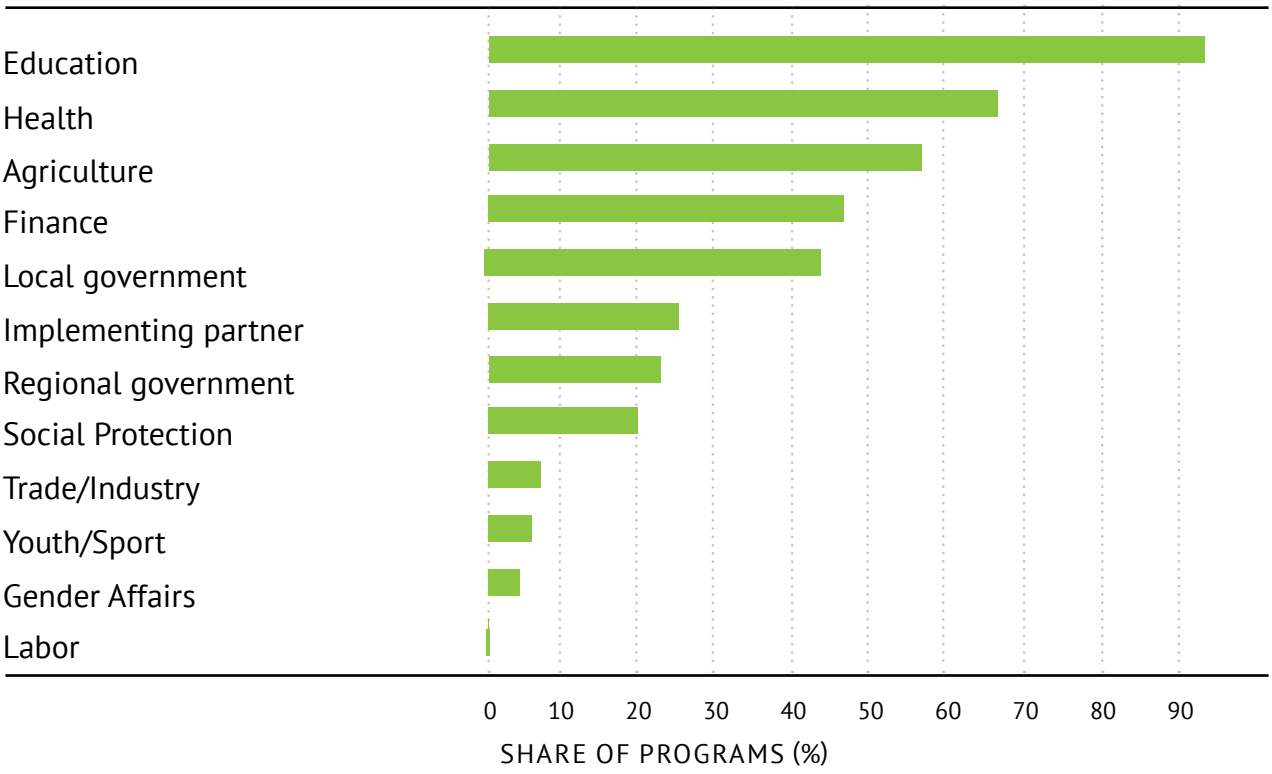
Table 7. National laws, policies, or standards related to school feeding (% of countries)

		National school feeding policy	Nutrition	Health	Food safety	Agriculture	Private sector
Region	Sub-Saharan Africa	80	59	46	51	49	15
	South Asia, East Asia & Pacific	94	94	59	76	38	19
	Middle East & North Africa	75	38	25	50	13	0
	Latin America & Caribbean	74	65	35	57	30	22
	Europe, Central Asia & North America	76	89	72	61	39	23
Income group	Low income	77	50	41	41	36	14
	Lower middle income	88	69	41	56	45	16
	Upper middle income	74	85	63	63	41	22
	High income	78	79	60	67	32	20
All		80	72	52	59	39	18

Table 8. Characterization of program management (% of programs)

		National government managed the program (Centralized decision-making)	Regional governments managed the program (Decentralized decision-making)	Local governments managed the program (Decentralized decision-making)	In transition between centralized and decentralized decision-making	An international donor agency or other implementing partner managed the program	Other
Region	Sub-Saharan Africa	35	12	6	8	35	3
	South Asia, East Asia & Pacific	64	4	4	11	4	14
	Middle East & North Africa	70	0	0	0	20	10
	Latin America & Caribbean	83	4	0	9	0	4
	Europe, Central Asia & North America	56	7	16	7	7	9
Income group	Low income	24	16	5	8	41	5
	Lower middle income	49	4	6	9	26	6
	Upper middle income	63	7	7	10	7	7
	High income	72	5	9	5	0	9
All		54	8	7	8	17	7

Figure 21. Key government decision makers responsible for functions of school meal program management



HEALTH AND NUTRITION

Relevance to nutrition

Ninety-three percent of school meal programs report an objective to meet nutritional and/or health goals. Especially in lower-income settings, this may take the form of reducing hunger and undernutrition and addressing micronutrient deficiencies. At the same time, the potential role of school meal programs in improving nutrition has only sharpened in the context of countries undergoing urbanization and a "nutrition transition" in favor of purchased and highly/ultra-processed foods, contributing to high intake of sugar, unhealthy fats, and salt, with limited consumption of fruits and vegetables (Keding 2016; Popkin et al. 2020). Rates of child/adolescent overweight and obesity are rising in many regions of the world, including in Sub-Saharan Africa where concerns about undernutrition remain quite salient even as rates of overnutrition are accelerating (Adom et al. 2019; Muthuri et al. 2014; Popkin et al. 2020). The establishment of healthy eating habits among children and adolescents is imperative for improving their health both in the near term and in later years (Norris et al. 2022), and school meal programs can play a role in this regard (Aliyar et al. 2015).

Fortification, biofortification, and micronutrient supplementation

The prevalence of nutrition-related components of school meal programs are presented in Table 9. As noted, a large majority of programs, including 100% of programs in South Asia/East Asia/Pacific, cite an objective to meet nutrition goals.

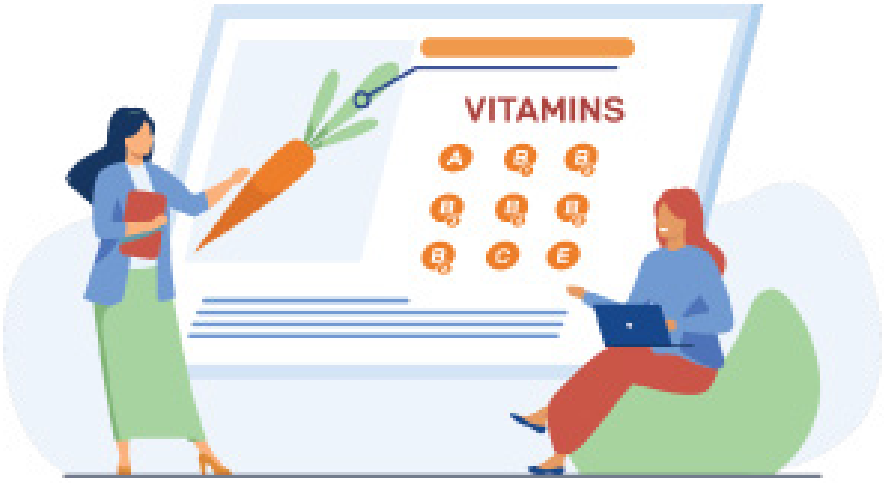
To address micronutrient deficiencies, 51% of all programs serve fortified foods, with this rate far higher in lower-income settings. Specifically, 80% of programs in low-income settings serve fortified food products, while this drops to 72%, 42%, and 21% in lower middle-income, upper middle-income, and high-income settings. Fortified food items commonly include grains/cereals, oil, and salt. Some other items, such as fortified milk, are also served in Sweden and other countries. Among programs that serve fortified foods, the most common fortificants are (in order of frequency) vitamin A (74%), iodine (52%), iron (50%), vitamin D (39%), and zinc (34%), with other micronutrients included less commonly (Figure 22).

Biofortified foods are included on the menu of 18% of the programs in low-income countries but no programs in high-income countries. Vitamin A-rich orange flesh sweet potatoes are served in Mozambique and Gambia, while other items, such as vitamin-A rich maize, iron lentils, and zinc sorghum, are served in Burkina Faso, Cameroon, El Salvador, South Africa, and Togo.

A similar pattern is seen with micronutrient supplements, which are provided to children in 45% of programs in low-income settings but just 2% of programs in high-income settings.

Involvement of nutritionists

To help school meal programs meet their nutrition objectives, nutritionists are involved in 63% of programs, including 91% of those in the Middle East/North Africa and 88% of those in Latin America/Caribbean. In addition, 40% of programs indicated that cooks/caterers receive some training in nutrition.



Obesity

There is a very strong association between income level and the likelihood of having an objective to prevent obesity (Table 9). This is most common in the Middle East/North Africa and in Europe/Central Asia/North America. Even programs that do not explicitly identify a goal of obesity prevention can take steps to reduce obesity. As shown in Figure 23, 59% of programs provide nutrition education with the aim of preventing or mitigating overweight/obesity. It was also fairly common for programs to incorporate (or be paired with) health education and physical education, to implement nutritional requirements for food baskets, and to impose restrictions on foods in or near the schools. As one example, in Portugal, pastries, biscuits, sweets, bread with sweet filling, savory snacks (such as french fries), fast food (such as hamburgers), and soft drinks are prohibited in school feeding programs.

Box 5. Efforts to tackle overweight/obesity through school meal programs

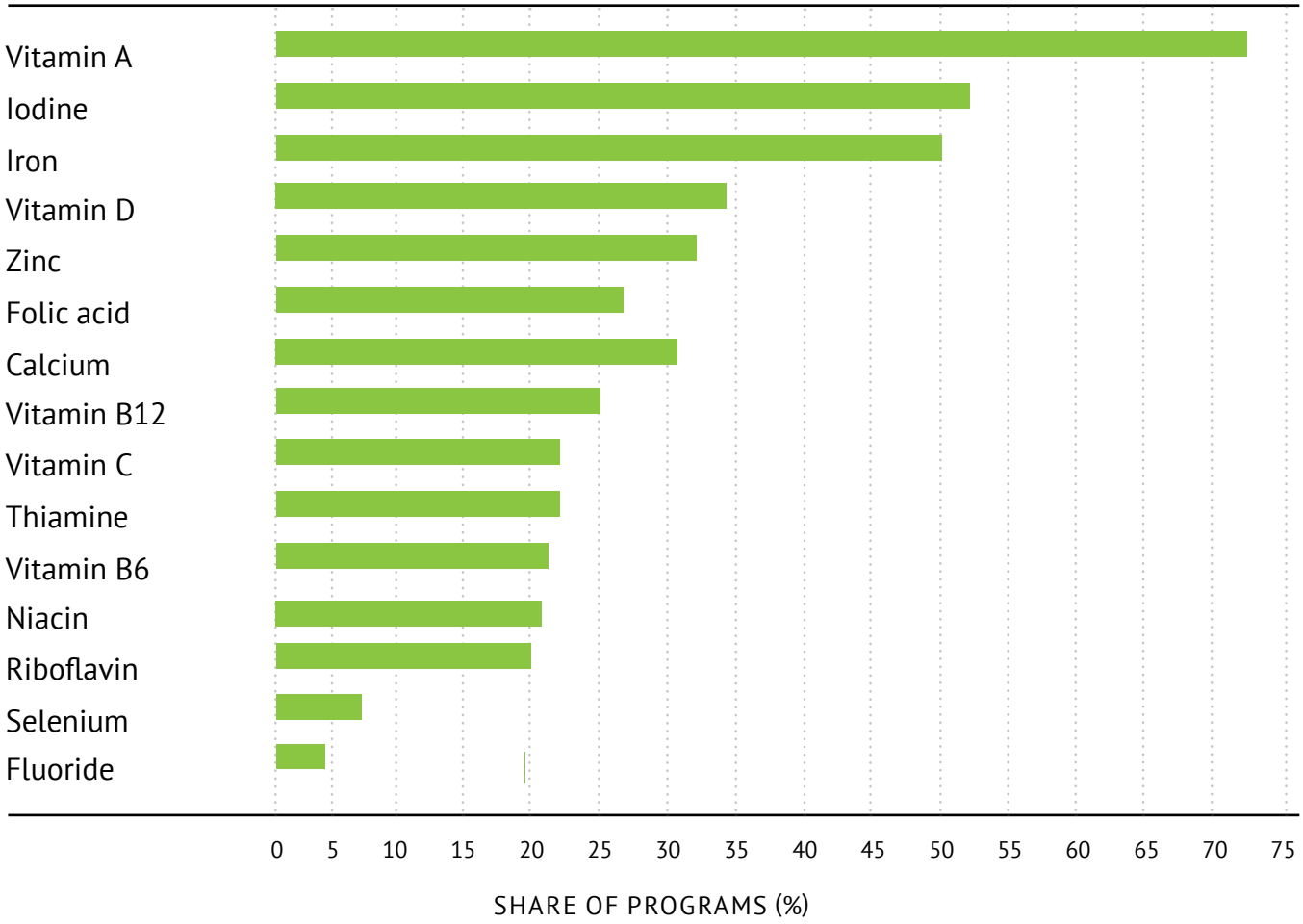
School meal programs are increasingly faced with the challenge of supporting the prevention of overweight/obesity. Some examples of these challenges and efforts to address them are given below.

- In Chile and the United States, survey respondents noted that the biggest challenge related to school feeding is the prevalence of childhood obesity, presenting a need to shift norms and improve children's eating behavior.
- In Israel, challenges faced by school feeding programs include the receptiveness of children and staff to efforts to address nutritional changes (e.g., sodium reduction, use of whole grains, vegetarian foods day).
- In Austria, parents report that students' awareness of healthy dietary practices has increased in response to their participation in the E.U. School Scheme for Fruits, Vegetables and Milk, and school staff estimate that the scheme led to an increase in students' consumption of fruit, vegetables, and milk. Nevertheless, as consumption behavior is difficult to change, a challenge remains that students prefer sweetened cocoa to unsweetened dairy milk.
- In Barbados, the National Nutrition Center has worked with the School Meals Department to review the school menus each term, with the aim of bringing meals in line with the National School Nutrition Policy. Consequently, consumption of sugar sweetened beverages, sodium, and fat in schools has been considerably reduced.

Table 9. Prevalence of nutrition-related components of school meal programs (% of programs)

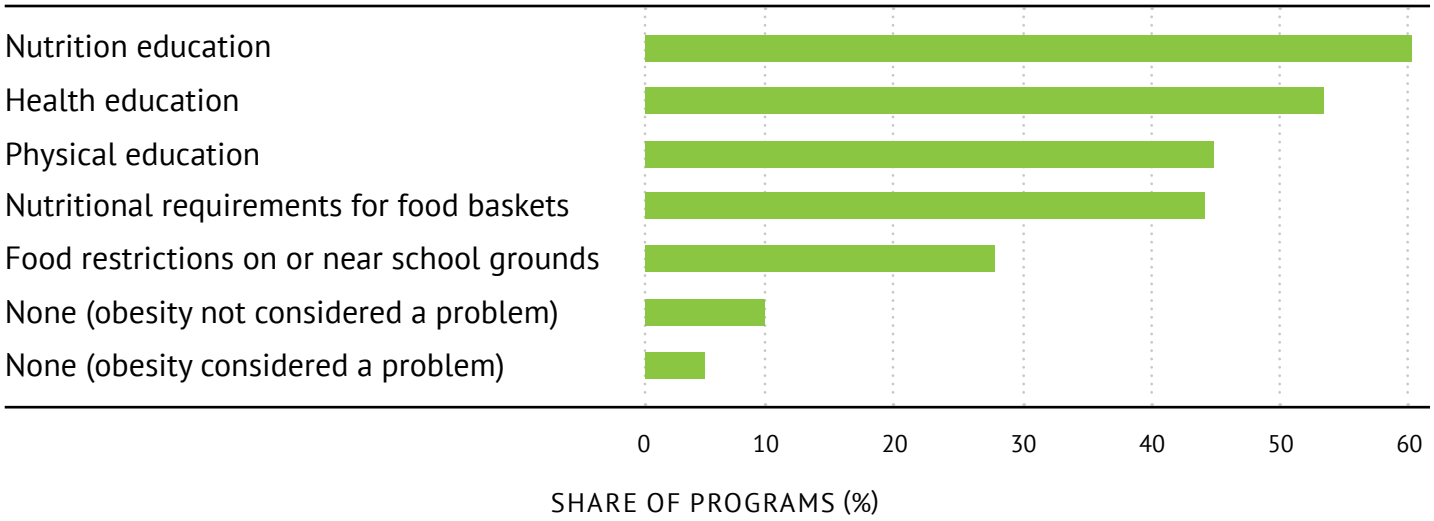
		Objective to meet nutrition goals	Objective to reduce obesity	Fortified foods	Biofortified foods	Micronutrient supplements	Nutritionists involved	Training for cooks/caterers in nutrition
Region	Sub-Saharan Africa	91	9	78	13	29	59	43
	South Asia, East Asia & Pacific	100	32	50	0	18	57	50
	Middle East & North Africa	91	64	27	0	9	91	18
	Latin America & Caribbean	88	42	58	4	8	88	42
	Europe, Central Asia & North America	96	62	17	0	2	54	37
Income group	Low income	90	5	80	18	45	58	40
	Lower middle income	96	17	72	4	17	62	55
	Upper middle income	94	30	42	3	6	67	24
	High income	94	70	21	0	2	65	38
All		93	35	51	5	16	63	40

Figure 22. Fortificants used in fortified foods



Note: These percentages are of programs that served fortified foods (n = 93).

Figure 23. Approaches to prevent or mitigate overweight/obesity

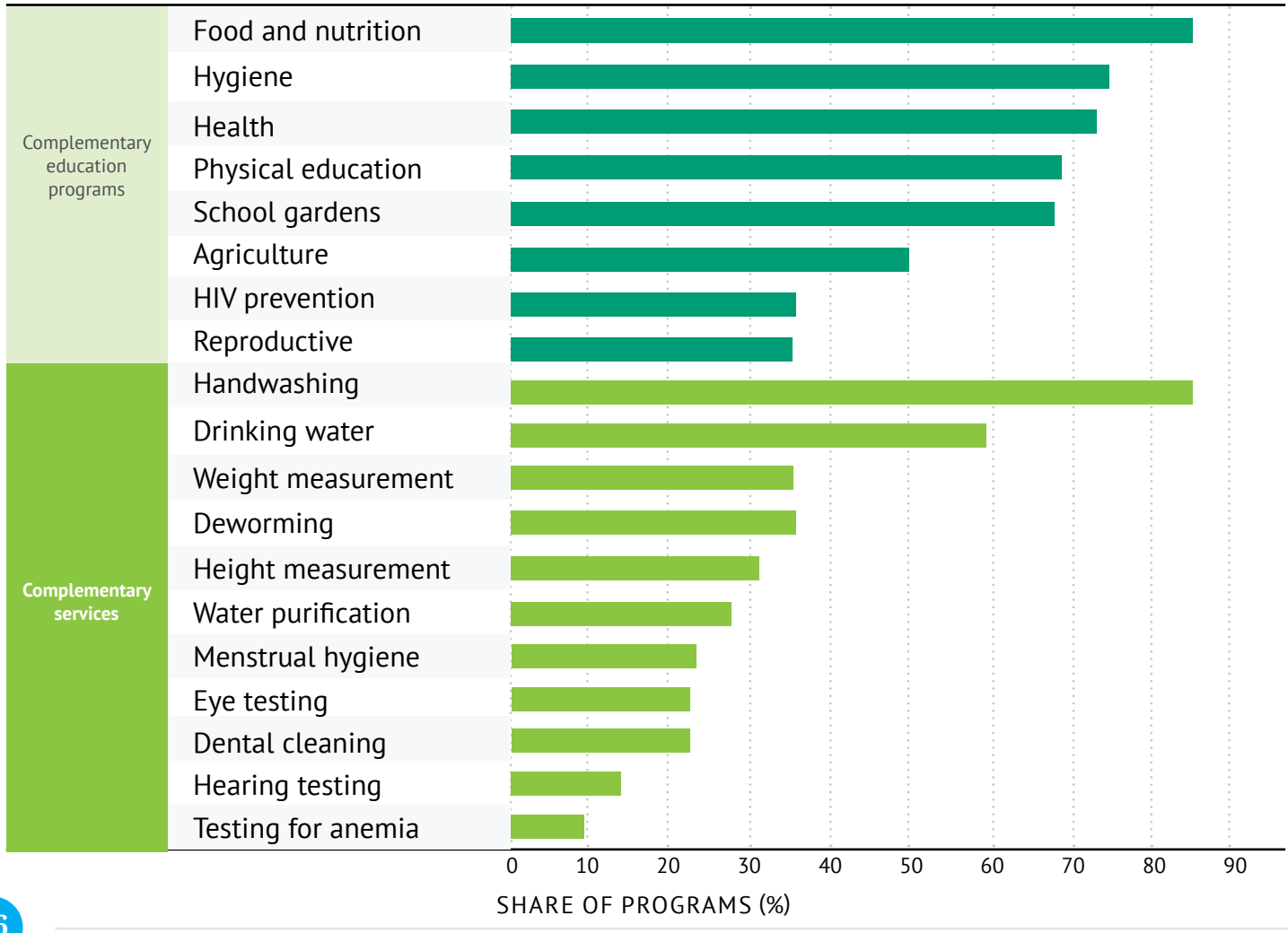


Complementary programs and services

The impacts of school meals on children's nutrition are mediated by other aspects of health, including, inter alia, the availability of clean water on the school premises, the prevalence of parasitic worms among the children, and knowledge of nutrition and hygiene. For this reason, the survey also gathered information on complementary programs and services offered in schools. A large majority (87%) of programs incorporate some food and nutrition education (irrespective of whether this is oriented around preventing overweight/obesity) (Figure 24). In addition, 68% of programs are paired with school gardens, which serve as sources of fresh food for the school meals as well as avenues of teaching about agriculture. In some cases, as in Cameroon, the school farms/gardens also serve as a source of income to support the programs. In Tunisia, school gardens are operated by rural women's cooperatives; the women use the school garden for free and donate 30% of the production to the school canteens, while the rest of the produce is sold on the local market to support the cooperative.

Some programs also offer (or are paired with) other services that complement the school food. For example, 84% of programs offer handwashing facilities, 59% ensure there is drinking water, and 28% offer water purification in the schools. (Note that these services may not be relevant in all settings.) Deworming treatment is offered with 36% of programs, and 9% of programs also test children for anemia. Children's height and weight are tracked by 31-35% of the programs, and in some cases, as will be discussed in section 3 ('Monitoring, Evaluation, and Learning'), this data has proven instrumental to evaluate the impact of school meal programs on children's health.

Figure 24. Prevalence of complementary services and education programs



INFRASTRUCTURE

School infrastructure

Supportive infrastructure—such as kitchens, food storage facilities, and refrigeration—is necessary for the operation of school meal programs. The 2021 Global Survey of School Meal Programs collected information on the availability of key pieces of infrastructure in schools in each country. Across the 125 countries, the availability of infrastructure aligns closely with income levels (Figure 25). Among low-income countries, just 5–9% report that "all" or "most" schools have electricity, piped water, dedicated eating spaces/cafeterias, and flush toilets; 23% report that "all" or "most" schools have clean water; and 41% report that "all" or "most" schools have kitchens. Each of these incrementally increases in prevalence among lower middle-income, upper middle-income, and higher-income countries.

Sites of food preparation

Across school meal programs, most of the food distributed to children is prepared on-site (i.e., on school grounds). This is most common in low-income countries and incrementally less common at higher levels of wealth (Figure 26). Thus, 92.5% of programs in low-income countries prepare food on-site, while this value is 87%, 64%, and 56% for programs in lower middle-income, upper middle-income, and high-income countries, respectively. The second most common location of food preparation is off-site in centralized (not private) kitchens, which is relatively more common in higher-income settings. Examples include the PM Poshan (Pradhan Mantri Poshan Shakti Nirman) program in India, the School Feeding Program (Programme d'alimentation scolaire) in France, and the School Meals Program in Barbados.

The third most common location of food preparation is off-site in private facilities (i.e., preparation by caterers), with examples that include the National Home-Grown School Feeding Program (NHGSFP) in Nigeria and the NIZANIM + MILAT and YOCHA programs in Israel. The least common modes of food preparation include the distribution of foods that were purchased in processed forms and foods that were purchased and distributed in unprocessed forms. The latter most often characterize snack programs, such as the E.U. School Scheme for Fruits, Vegetables and Milk or the School Milk Program (Kan Ahanserm (Nom) Rongrian) in Thailand. In Spain, some autonomous regions employ catering services to supply food for the school lunches. In this model, the food is pre-prepared/cooked in central kitchens and stored in trays that are cooled. The food is then transported, without breaking the cold chain, to warehouses and then to schools, where the trays of food are reheated.

Kitchen amenities

Kitchen amenities vary across different settings (Figure 27). It is very common for kitchens (whether on-site or off-site) in low-income countries to have open cooking areas. While storage facilities and serving utensils are mostly common, the type of stove in use varies with wealth. For example, charcoal or wood stoves are very common in lower-income and lower middle-income settings, but rarely found in high-income settings, and the opposite is true for gas stoves and electric stoves. In low-income settings, such as Burkina Faso, Nepal, and Sierra Leone, students must sometimes provide fuel for the stoves used to prepare school meals. Refrigeration is also much more prevalent in high-income settings (in 95% of programs), but less common in less wealthy settings (at 77%, 25%, and 0% in upper middle-income, lower middle-income, and lower-income countries, respectively). This has implications for the ability of school meal programs in lower-income countries to preserve foods and serve perishable (but often nutritious) foods, such as milk and vegetables.

Figure 25. Rate at which infrastructure is found in "all" or "most" schools

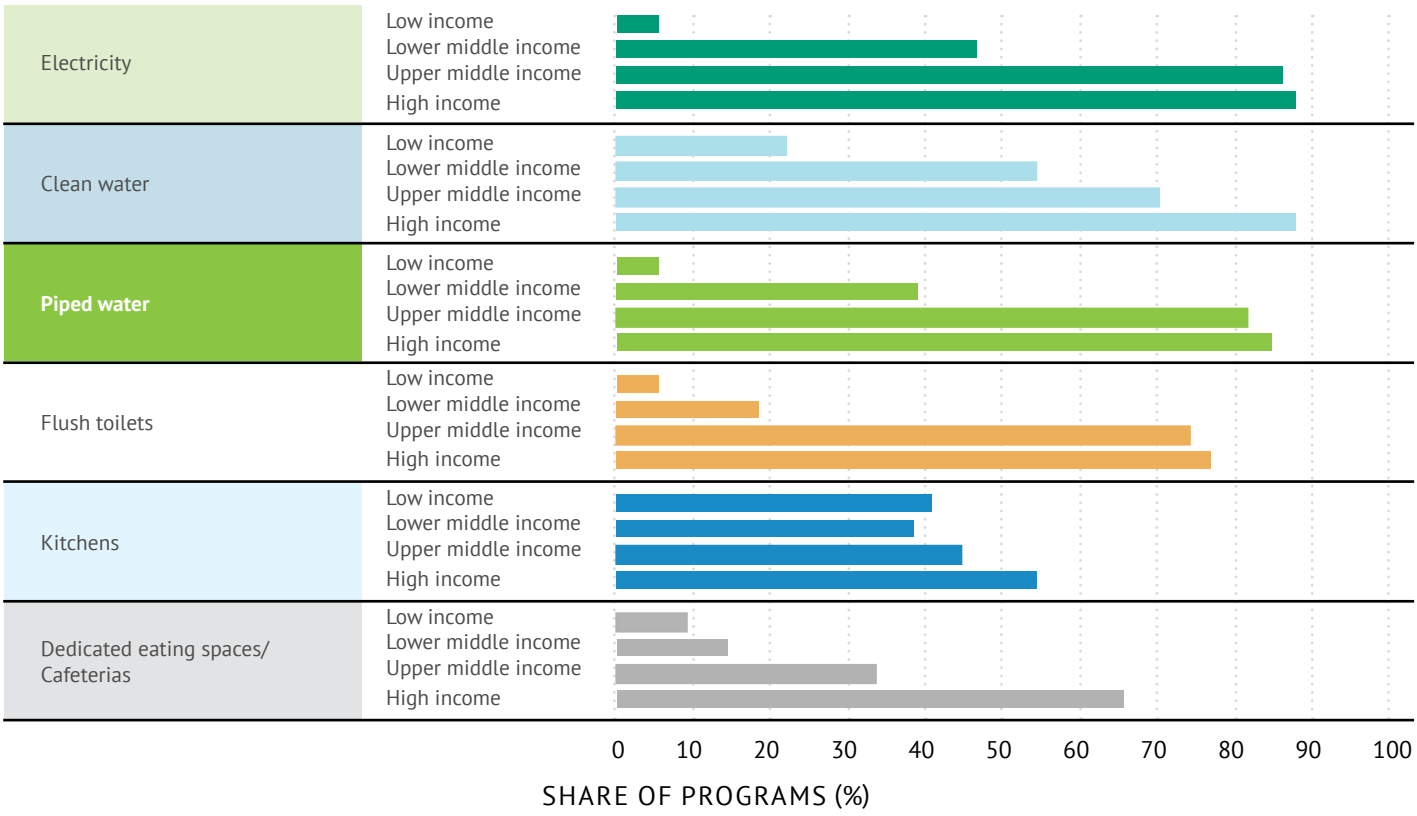


Figure 26. Location of school meals/snacks preparation

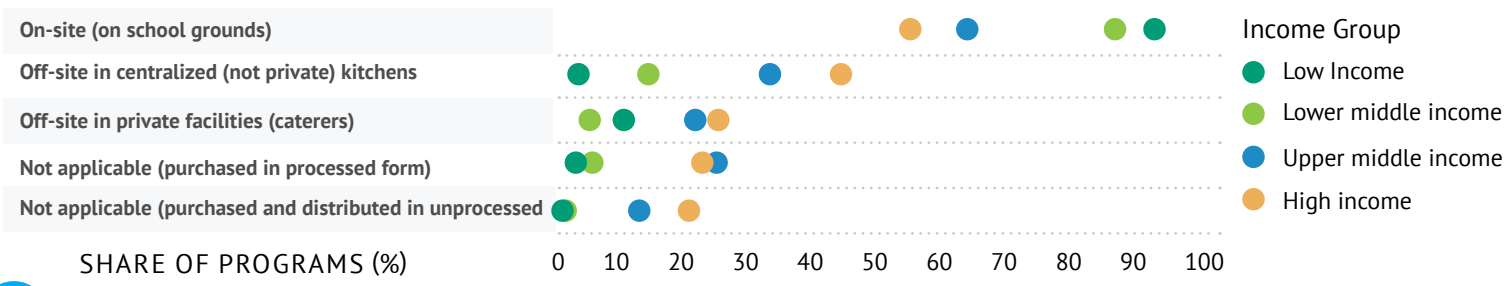
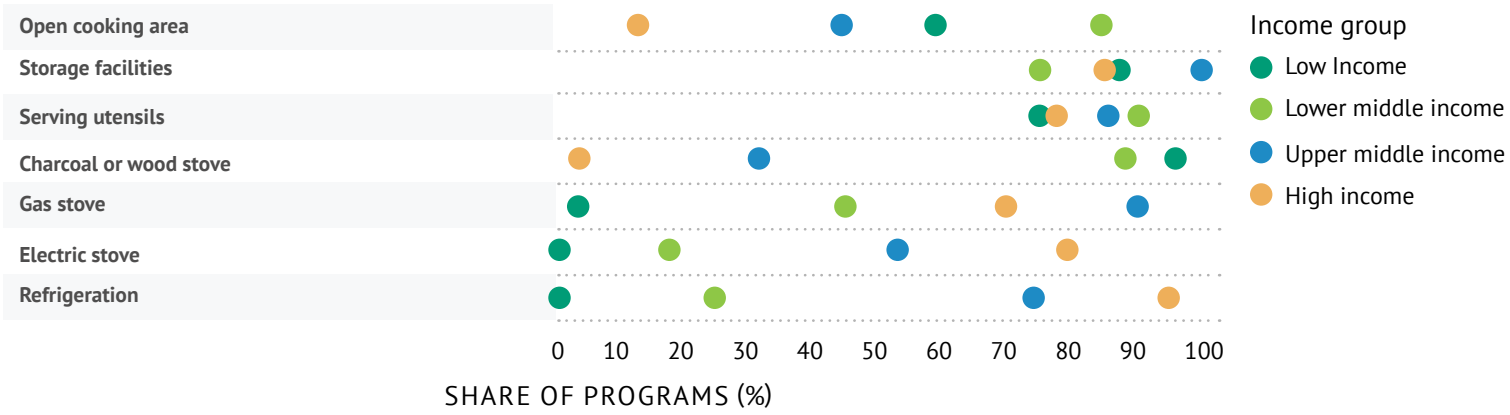


Figure 27. Kitchen amenities



Food and packaging waste

The 2021 Global Survey of School Meal Programs found that many school meal programs (79%) make an effort to limit food waste, and over half (57%) make an effort to reduce packaging waste. Programs in low-income settings are most likely to limit package waste, often by re-using or selling the packaging, while programs in high-income settings are most likely to extend an effort to limit food waste (Figure 28). Note that the nature of food waste is likely to differ across settings.

Specific efforts to limit waste are depicted in Figure 29, which shows that sealed food storage and fumigation/pest control in the food storage areas are the most common procedures to reduce food waste. Other practices include the use of nearly expired products, the use of "imperfect" but edible products (such as misshapen but fresh fruits), and marketing campaigns to encourage schools and students not to throw food away. Such marketing campaigns are found in the National School Feeding Program (Programme National d'Alimentation Scolaire) in Tunisia and the School Canteen Program (Programma di Mense Scolastiche) in Italy, among other examples. In Slovenia, schools have reduced food waste by 42% as part of the "Food is Not for Waste" project by the Eco-School program, and in Poland, over 200 teachers have founded school clubs focused on waste reduction. In Argentina, food waste is also addressed by turning it into compost for the school gardens. In South Africa, food waste in the National School Nutrition Program (NSNP) is minimized by distributing any excess food to orphans and other vulnerable people. In the United States, to limit food waste, the National School Lunch Program includes a provision that allows students to decline some food items.

Efforts to limit packaging waste include the re-use of packaging and containers and, as in the case of eSwatini's National School Feeding Program, the re-sale of bags and containers to raise money for the program. In France, efforts to limit packaging waste include the use of stainless-steel trays. Similarly, in Israel, efforts to reduce plastic waste include switching to buffet style eating instead of trays. Collaboration with Israel's Ministry of Environment has made it possible to reduce plastic waste by providing schools with dishwashers and encouraging the use of reusable utensils.

Figure 28. Efforts to limit food waste or packaging waste

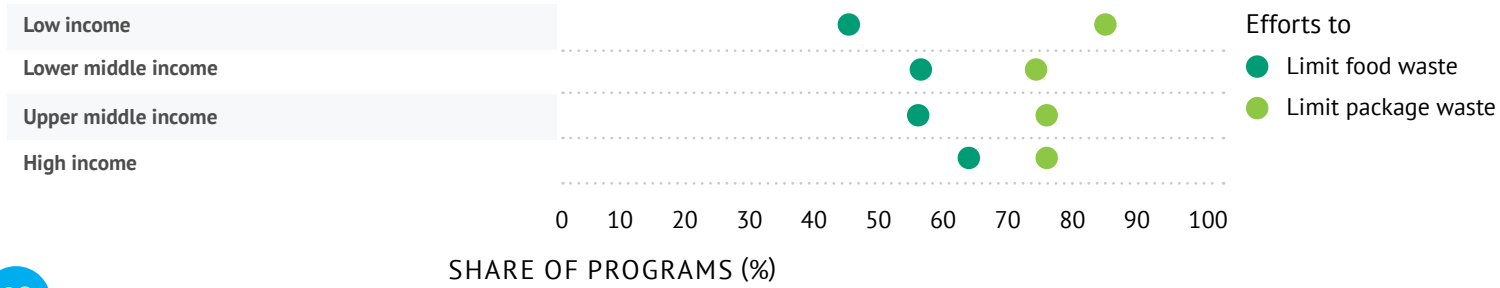
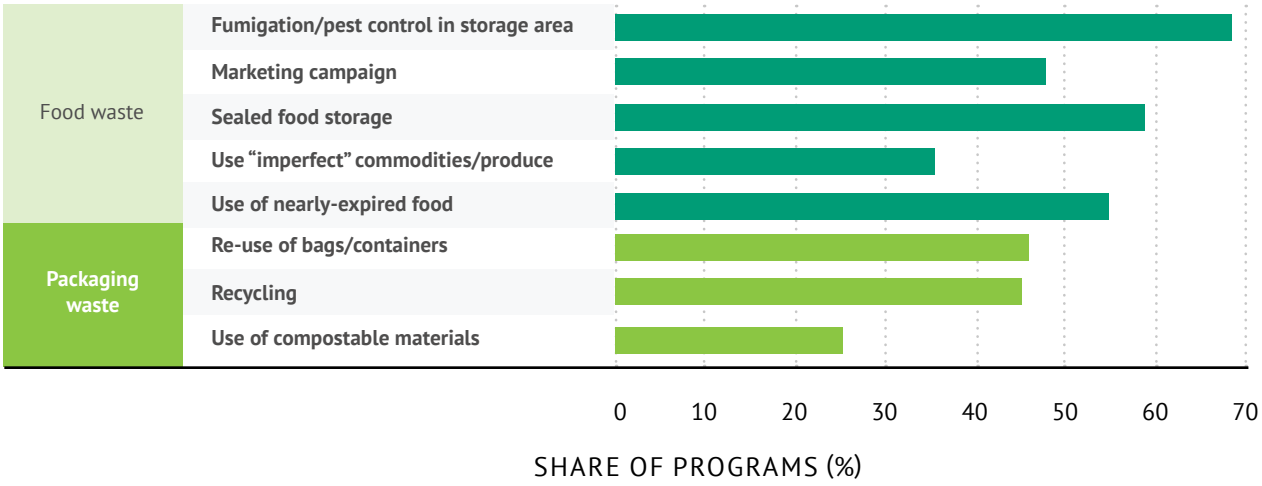


Figure 29. Practices to limit food waste or packaging waste



Note: These percentages are of programs that actively limit food waste (n=125) or packaging waste (n=89), respectively.

AGRICULTURE, EMPLOYMENT, AND COMMUNITY PARTICIPATION

Links with farms and other private sector firms

As discussed earlier, many school meal programs, especially in lower-income settings, seek to meet agriculture goals (Figure 6 and Figure 7). This can bolster the program by ensuring a more diverse and culturally appropriate menu. It is also intended to strengthen the local rural economy by opening new and more inclusive markets for farm products and creating jobs along the value chains that connect farms to consumers (in this case, the schools). In a similar vein, school meal programs may choose to engage the private sector (beyond agricultural enterprises) in their operations. They source products and services from private firms and thereby generate more business for them; this reinforces the link between school meal programs and the societies and economies in which they operate.

Agriculture, farmers, and school meals

Across all programs, 59% engage directly with farmers by having the program or the individual schools purchase food directly from farmers or from farmer organizations, and 71% engage other private businesses in their activities (Figure 30). As with many aspects of school meal programs, the likelihood of engaging with either producers or off-farm private firms varies across income groups and regions. Thus, while 69% of programs in low-income settings involve farmers, this value is lower in other income groups. Across regions, it is most common for programs in Latin America/Caribbean to engage with farmers or farmer organizations (83%), followed by programs in Sub-Saharan Africa (71%). It is less common for programs in Europe/Central Asia/North America (50%), the Middle East/North Africa (45%), or South Asia/East Asia/Pacific (30%) to engage directly with farmers or farmer organizations. This disparity may point to opportunities for programs in some regions to learn from the successes of other regions in terms of working productively with farmers.

The rate at which programs that engage with farmers interact only with farms that are considered small-scale, only with those that are large-scale, or with farms of all sizes is shown in Figure 31. It is far more common for programs

to engage only with small-scale farms (also referred to as smallholders) in lower-income settings, while at higher income levels, it becomes more likely for programs to engage with farms of all sizes. In addition to procuring food from farms, school meal programs may offer various types of support to farms, such as training or agricultural extension (Figure 32). Some programs (29%) offer purchase agreements set prior to harvest, which affords the farmers some security that they will have a market for their product.

Examples abound of linkages between school meal programs and local farms. Most commonly, farmers provide green vegetables and other vegetables, in addition to grains/cereals, roots/tubers, legumes, and fruits. There is great variation in the scope and intensity of these linkages (Box 6).

Figure 30. Involvement of farmers and the private sector

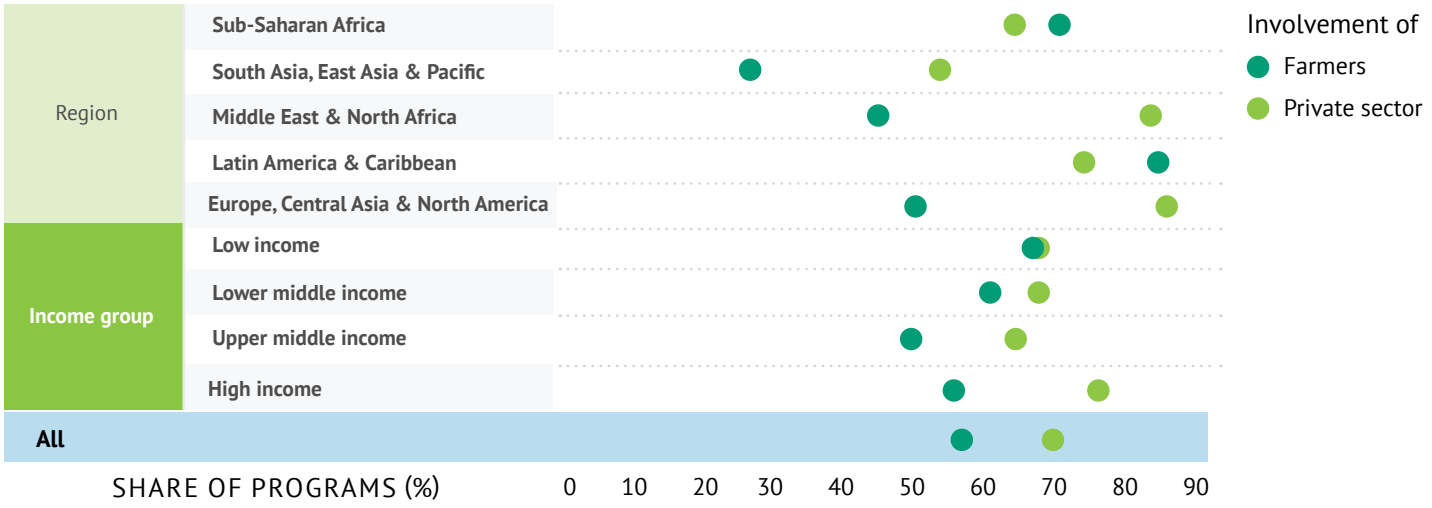
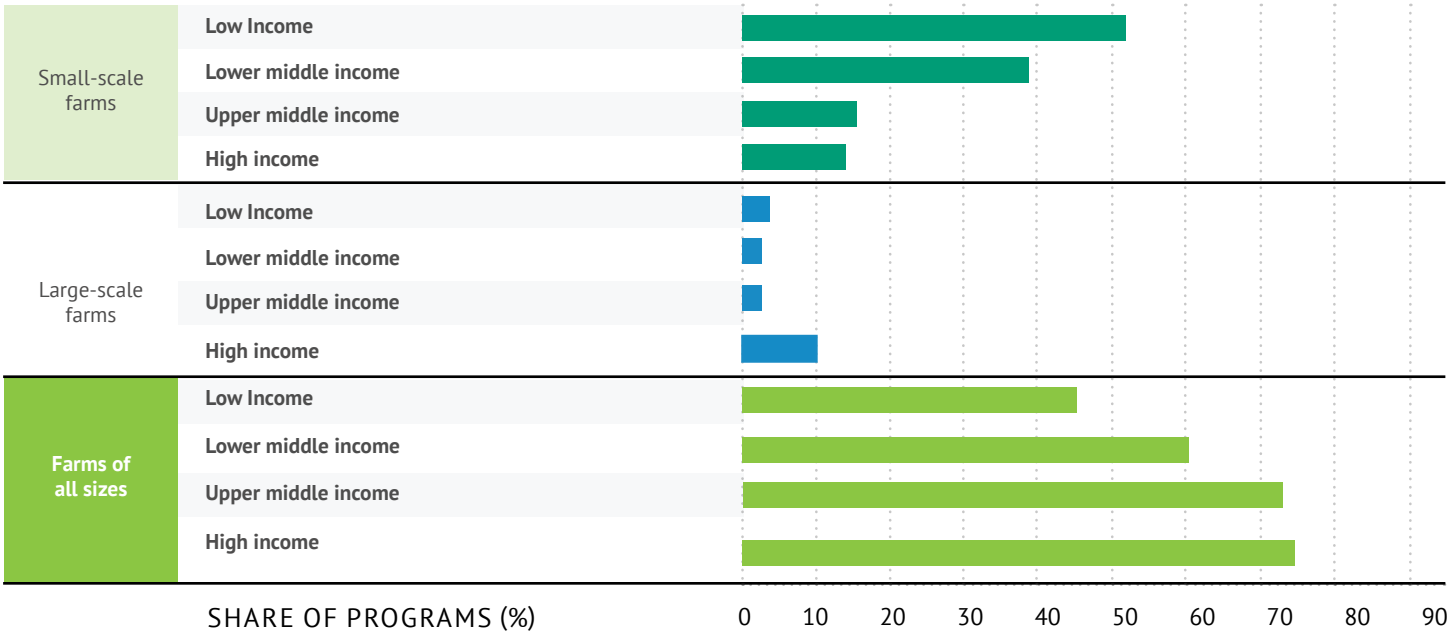
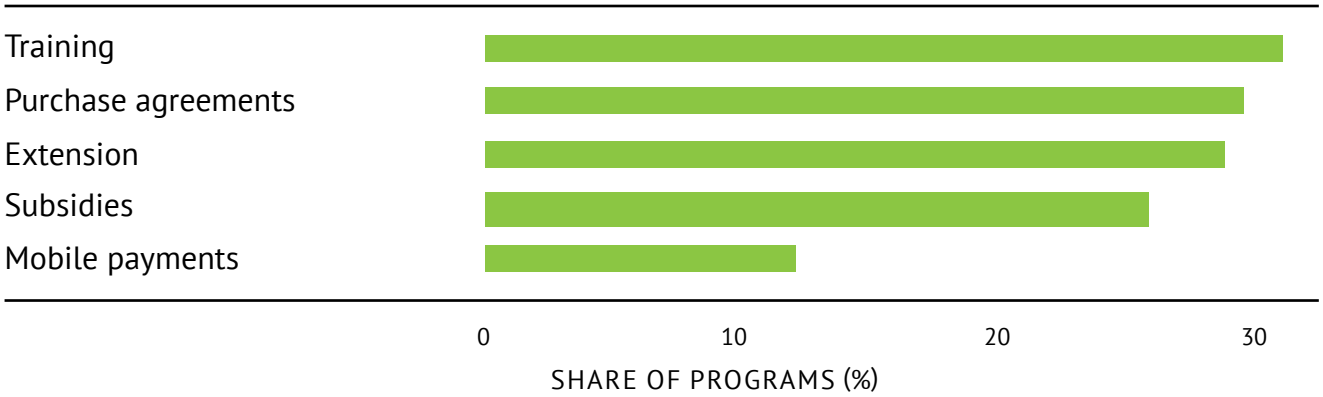


Figure 31. Farm sizes engaged with school meal programs



Note: These percentages are of those programs that engaged farmers (n = 99).

Figure 32. Types of support provided to farmers



Note: These percentages are of those programs that engaged farmers (n = 99).

Box 6. Linkages between school meal programs and farmers

There are many examples of school meal programs that source food products from local farmers. In Austria, farms of all sizes supply dairy products, fruits, and vegetables for the School Scheme for Fruits, Vegetables and Milk; in the Bahamas, farm-fresh items include poultry, eggs, green, leafy vegetables, legumes, and roots/tubers; in Bangladesh, small-scale farmers provide roots/tubers, eggs, and vegetables for the hot meal component of the school feeding program. Some noteworthy cases are highlighted below.

- In Ecuador, at least 30% of the food for the School Food Program (Programa de Alimentación Escolar - PAE) must be purchased from the Popular and Solidarity Economy (i.e., from poor and vulnerable sectors of the population) and from micro, small, and medium-sized enterprises.
- In Guatemala, family farmers accredited by the Ministry of Agriculture, Livestock and Food are prioritized in food procurement.
- In Chile, it is required that providers for the National School Feeding Program (Programa de Alimentación Escolar – PAE) make some purchases from Peasant Family Farmers or other local producers/groups, with the value ranging from 3.5%–5.25% across different territories.
- An estimated 80% of food in the Ghana School Feeding Program is procured from local sources near the schools.
- In Belgium, schools in the School Fruit, Vegetable and Milk Program select the individual producers from whom they will receive food items.
- In Latvia, procurement of food from local sources is prioritized, and farmers provide the fruits, vegetables, and roots/tubers used in the school milk and fruit (piens un augļi skolai) program. These products are sourced within 300 kilometers of each school.
- In Malta, milk for the School Milk Scheme is procured from a local cooperative of dairy farmers.
- In the United States, "Farm to School" programs have brought tasty and fresh food into schools and have also forged important links between schools and local producers. While USDA has provided some funding and support for these efforts, the real energy is found at the local level.

The non-farm private sector and school meal programs

The likelihood of engaging with the private sector also varies across regions, with the highest levels of engagement seen in Europe/Central Asia/North America (86%) and the Middle East/North Africa (82%) (Figure 30). This most often takes the form of hiring private companies for food transport and food trade (Figure 33). Private food processors and private caterers are contracted in 43% and 29% of these programs, respectively. In Bangladesh, the Department of Primary Education procures fortified biscuits from a set of enlisted biscuit manufacturers. Examples of programs that engage private caterers to serve food in schools include the School Feeding (Prehrana u .koli) program in Croatia and the School Cafeterias (Refeitórios Escolares) program in Portugal.

Cooks and caterers

Another avenue through which school meal programs may connect with their local economies is through the employment of personnel, including cooks. Programs that engage cooks or caterers (excluding, for example, snack programs with no food preparation) reported on whether the cooks received remuneration, whether in cash or in kind. It is relatively less common for cooks to receive payment in low-income settings, with just 50% of programs indicating that at least half of their cooks were somehow remunerated (Figure 34). This value increased incrementally in higher-income settings (at 55%, 86%, and 97% of programs in lower middle-income, upper middle-income, and high-income settings, respectively).

Remuneration of cooks

In lower-income countries, many programs rely on volunteers to prepare and serve the meals, often drawing on the students' parents to provide this service. For example, in Burundi, parents volunteer to cook for the program on a rotating basis, with about 10 parents per day per school, and with some parents volunteering once per quarter. In total, 398,400 parents are involved in cooking for the National School Feeding Program, though these are not paid positions. In Guinea-Bissau, less than one quarter of the 2,550 cooks in the School Canteen Program receive any remuneration for their work. In Honduras, students' parents participate in food preparation and distribution for the National School Feeding Program (Programa Nacional de Alimentacion Escolar – PNAE), and while 20,000 cooks prepare food for the children, most are not paid. In Mexico, few cooks receive remuneration for their work either in cash or in kind. This has implications for the extent to which programs in low resource settings will have ripple effects by serving as a source of gainful employment in their communities.

In many cases, cooks are paid by the national, regional, or local governments or by an implementing partner.

In the School Feeding Program in Poverty Prone Areas (SFPPPA) in Bangladesh, cooks are paid in cash and earn USD 75–85 per month. However, in about 20% of the programs in which cooks receive some payment, this comes from the local community. Examples include the Scholarship Program for School Canteens (Programme de Bourses de Cantines Scolaires) in Andorra, where parents' associations sometimes cover the salary of cooks/caterers. In the Central African Republic, some cooks are remunerated in kind (for example, by having other community members plow their fields).

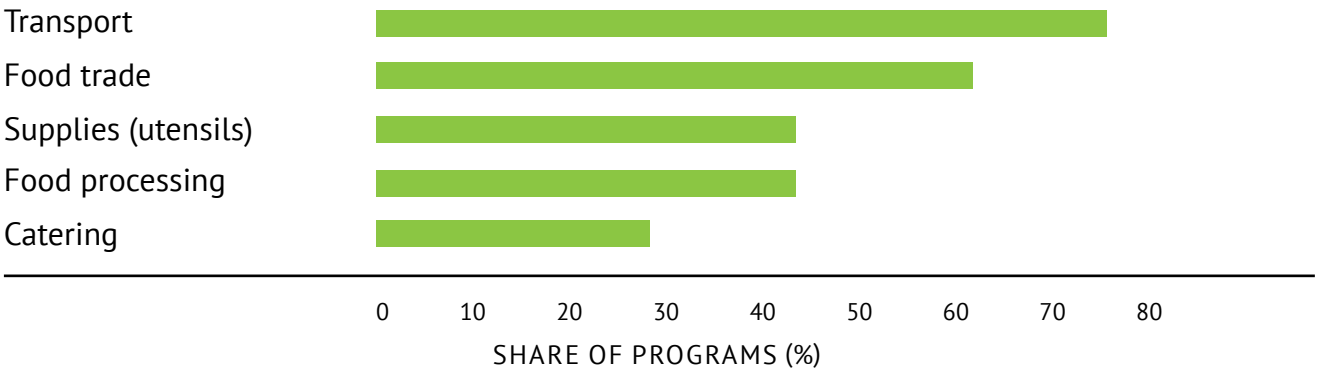
Gender of cooks

It is very common for programs across all income groups to estimate that at least three quarters of their cooks/caterers are women (Figure 35). While this is more common in lower-income settings, it is true even in high-income settings where 69% of programs characterized their cooking workforce as dominated by women. As will be discussed later, this points to the unique potential of school meal programs to empower women through employment and/or through the creation of positions of responsibility for women in the community. However, it also raises a concern given the lack of remuneration for cooks, especially in lower-income settings. Table 10 shows the distribution of programs that report that at least half of their cooks were remunerated and/or at least three quarters of their cooks/caterers are women. Programs in which relatively few cooks are remunerated are more likely to have a female-dominated labor force.

Training for cooks

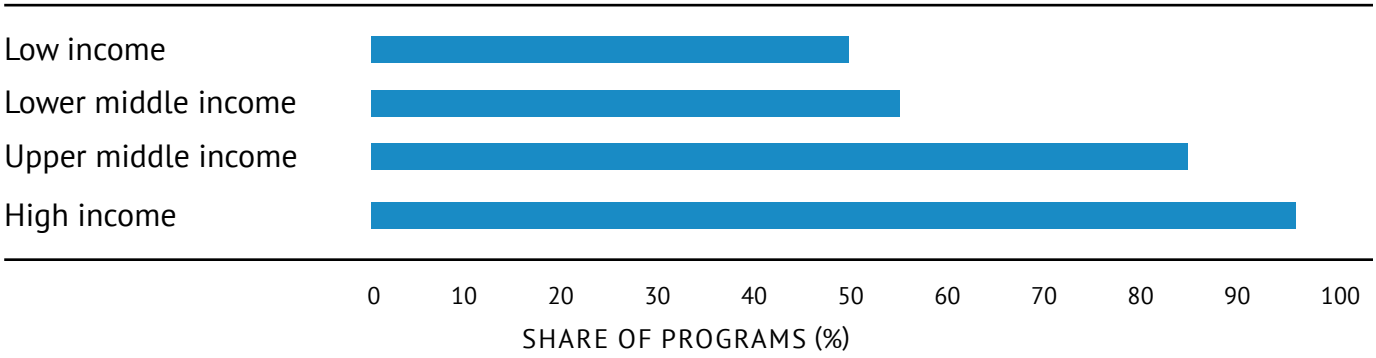
Apart from remuneration, the employment of cooks/caterers can benefit workers through the provision of training. About 80% of programs with cooks provide some training, including on the topics of food safety/hygiene, nutrition, menu planning, and portions/measurement (Figure 36). However, it is relatively uncommon for programs to provide training in business/management, even though such support could empower school cooks to launch their own catering businesses and therefore parlay their volunteer work in schools into a profitable endeavor. The impact of school meal programs on their communities through the creation of employment (especially for women) and the building of worker capacity is an under-studied aspect of this field.

Figure 33. Engagement of private sector actors in school feeding



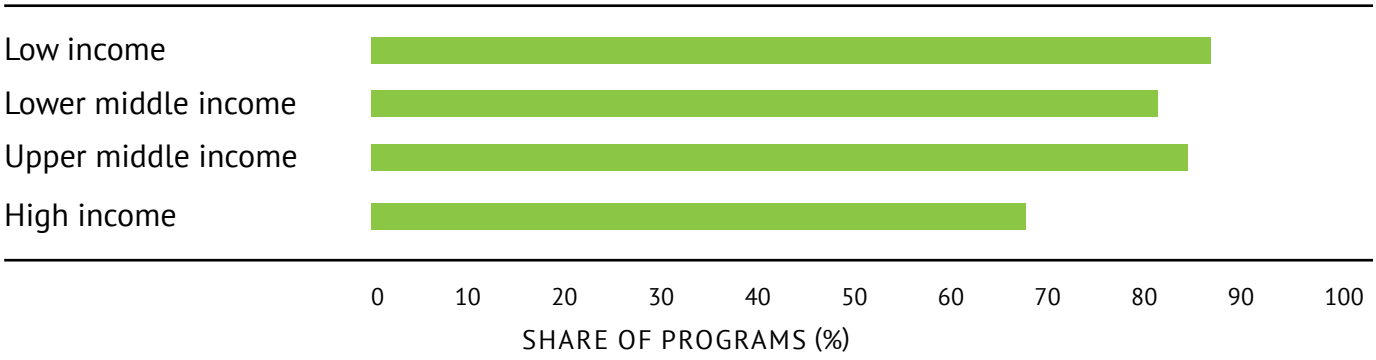
Note: These percentages are of those programs that engaged the private sector (n = 115).

Figure 34. Remuneration of cooks/caterers



Note: These percentages indicate the share of programs with cooks (n = 124) in which at least half of the cooks receive some remuneration. Some programs that serve only snacks or already-processed foods do not engage any cooks.

Figure 35. Share of programs in which at least three quarters of cooks/caterers are women



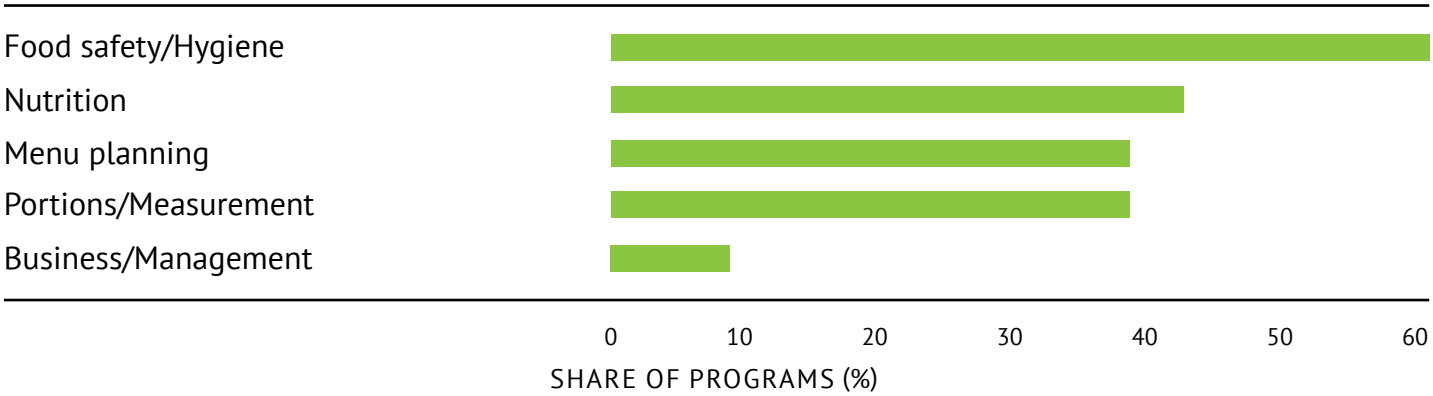
Note: These percentages are of programs with cooks (n = 124).

Table 10. Association between unpaid labor and a female-dominated workforce in school meal programs

	Share of programs (%) in which at least three quarters of cooks/ caterers are women
Less than half of cooks are remunerated	95
At least half of cooks are remunerated	76

Note: These percentages are of programs with cooks (n = 124).

Figure 36. Special trainings for cooks/caterers



Note: These percentages are of programs with cooks/caterers (n = 123).

Paid employment

The 2021 Global Survey of School Meal Programs also captured information on the number of jobs created by school meal programs. Over half (62%) of the programs were able to provide some estimate of the number of paid jobs, reporting on a total of 3.7 million jobs in the school year that began in 2020. Note that this number does not include the cooks and caterers that are not paid. Out of this total, Figure 37 displays the share of jobs that are of cooks/food preparers, as well as the jobs of food packagers and handlers, transporters, off-site processors, safety and quality inspectors, monitors, and others. In total, 95% of these jobs (3.5 million) are of cooks/food preparers. However, this varies by region. South Asia/East Asia/Pacific accounts for a very large share of all reported jobs (3.0 million), and many of these workers are employed in India's PM Poshan program, which alone reported on 2.6 million paid school cooks/caterers. It is therefore not surprising that 99% of all jobs in South Asia/East Asia/Pacific are of cooks/food preparers. At the same time, in Latin America/Caribbean, 65% of all reported jobs are of cooks and 17% are of food handlers, and in the Middle East/North Africa, 76% of all jobs are of cooks and 21% are of transporters.

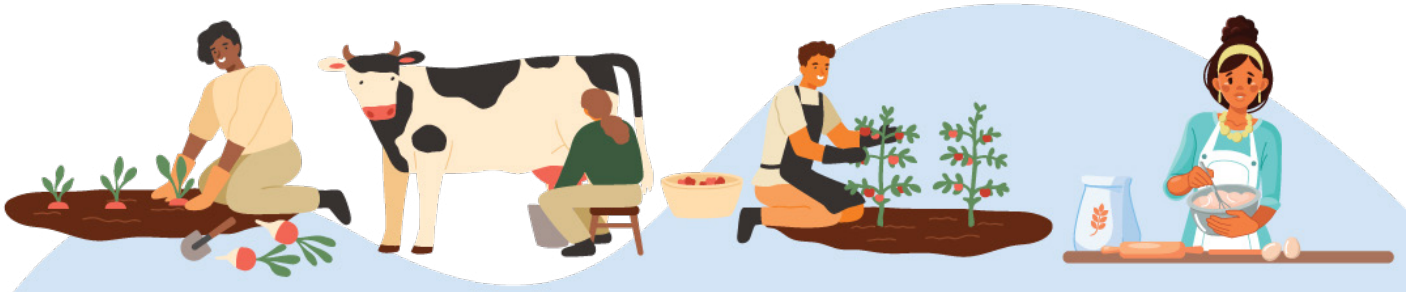
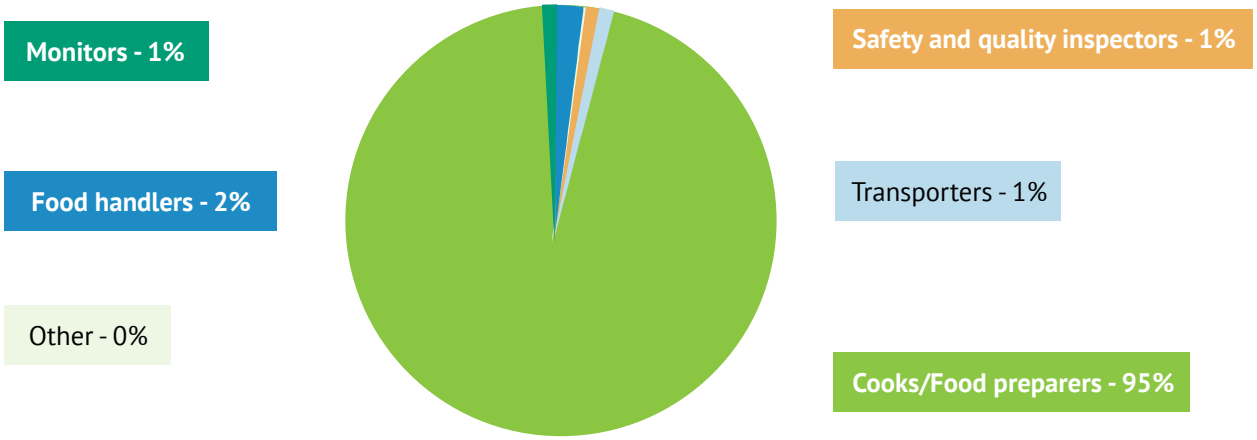


Figure 37. Distribution of paid job types associated with school meal programs

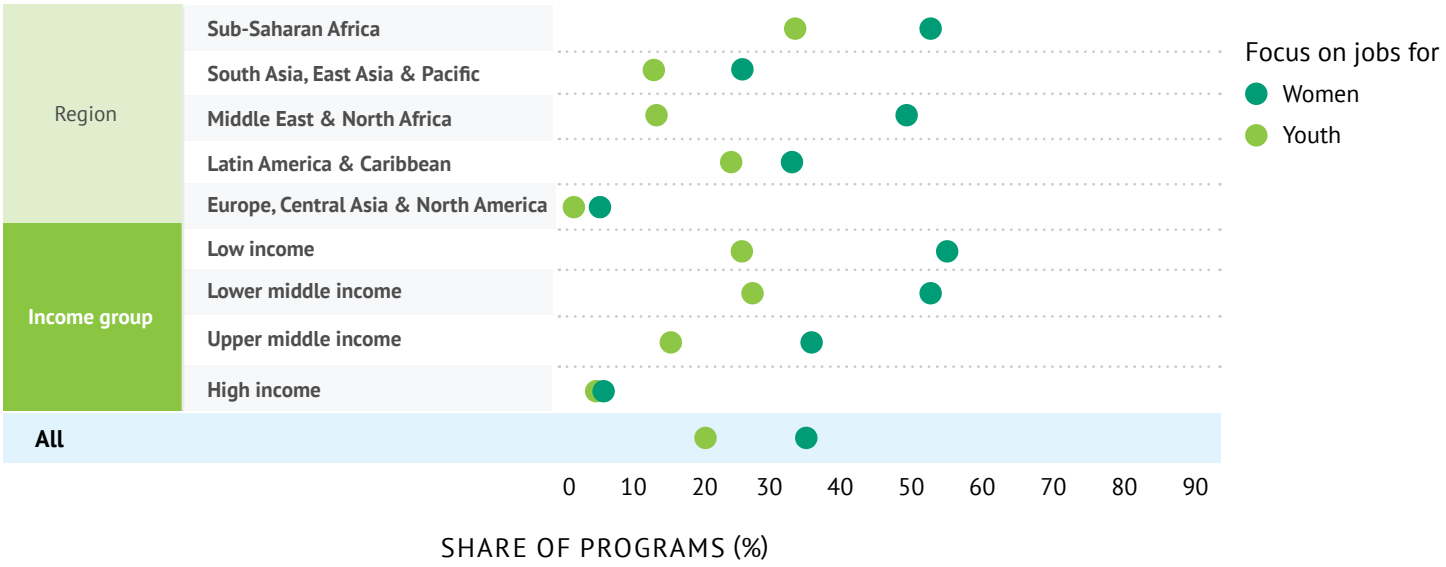


Job creation for women and youth

The survey also sought to understand whether there is a focus on creating jobs for women and youths. The share of programs that responded in the affirmative is presented in Figure 38, which shows that 37% of all programs maintain a focus on creating jobs for women, while 21% maintain a focus on youths. Both priorities are far less common in high-income settings, while programs in low-income and lower middle-income countries are likely (at 54% and 53%, respectively) to create jobs with women in mind.

Across regions, this focus on women is most prominent in Sub-Saharan Africa. In Burundi, women are encouraged to join agricultural production cooperatives connected to the National School Feeding Program (Programme National d'Alimentation Scolaire – PNAS) and lead school canteen management committees. In Iraq, women lead the monitoring of the National School Feeding Program and are involved in its management. In Syria, the School Feeding Program creates employment for women in the ready-made meals kitchen and a factory that produces date pastries (maamoul) for the program. In Israel, there has been a purposeful focus on creating jobs or income-generating opportunities for women through social enterprises in which mothers are paid in-kind for cooking in a Bedouin village.

Figure 38. Focus on creating jobs for women and youths



Community engagement

In addition to the creation of employment, school meal programs are also linked to their communities through the engagement of civil society, which was involved in about 35% of the programs, and through the broad participation of the community, which was seen in 77% of the programs. Examples of this sort of engagement are presented in Box 7.

Box 7. Community and civil society participation in school meal programs

Students' parents are sometimes involved in school meal program through parents' associations or committees.

- In Guatemala, funds are transferred to Parents' Organizations that, in turn, purchase food to be prepared in the schools.
- In Andorra, parents' associations are directly responsible for managing the Scholarship Program for School Canteens (Programme de Bourses de Cantines Scolaires).
- In Italy, parents serve on canteen committees where they qualitatively monitor and evaluate the dishes served in the School Canteen Program (Programma di Mense Scolastiche).
- In Bhutan, parent representatives are part of School Management Boards, where discussions on school feeding take place.
- In Finland, the entire school community is engaged in school feeding (Kouluruokailu), and teachers and other school personnel guide and mentor pupils during mealtimes. Some schools have school food committees comprised of teaching staff, pupils, school health care professionals, and food service providers.

Box 7. Community and civil society participation in school meal programs

Community members, inclusive of students' families, are often engaged in school meal programs through the provision of labor, services, and in-kind donations of food and associated supplies.

- Community members assist with infrastructure maintenance and food delivery and volunteer labor for food preparation and handling in Argentina and Bangladesh.
- In Belgium, parents and grandparents participate in the Goodies for the Eye (Oog voor Lekkers) program by slicing/preparing the fruits and vegetables, particularly for the younger children.
- In Mexico, parents voluntarily provide donations in-kind to support/complement school breakfasts in the School Breakfast Program (Programa de Desayunos Escolares). This in-kind support (usually comprised of fresh fruits) is not mandatory; rather, it depends on each school and the organization of each Parent Committee.
- In Cameroon, Ethiopia, Guinea, Kenya, Mozambique, and eSwatini, parents and other community members engage with the programs by providing water and/or firewood, participating in the construction of kitchens and storage facilities, providing land for the school gardens/community farms, and contributing labor to maintain the gardens/farms.
- In the Central African Republic, the community is also engaged in the school canteen program by setting up fields and gardens on behalf of the school and donating 10–20% of production to the school.
- In Lesotho, communities are engaged in the tasks of offloading food, constructing roads, and establishing a water supply in some schools, and students' families provide utensils.
- In-kind contributions of food items, particularly condiments, are noted in Niger and Togo, among other settings.

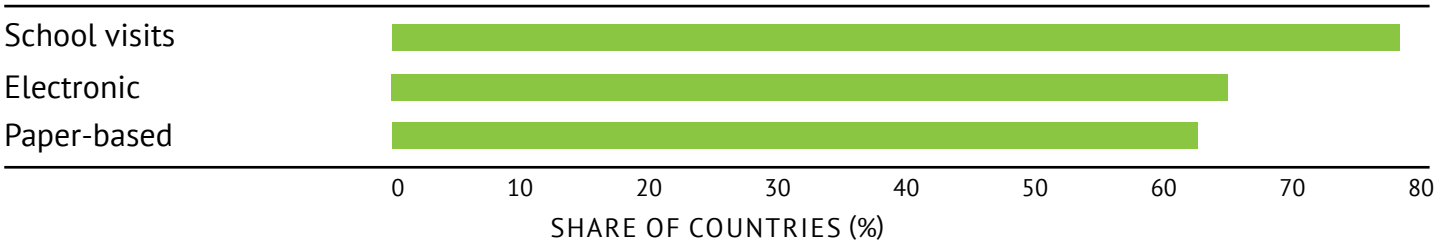
MONITORING, EVALUATION, AND LEARNING

Approaches to monitoring

Implementing effective school meal programs requires careful monitoring of budgets, logistics, targeting of beneficiaries, and feeding activities. In this context, strengthening monitoring and evaluation (M&E) systems is of paramount importance (Gelli and Espejo 2013).

Various approaches to monitoring are used to oversee school feeding activities in the 125 countries in the 2021 Global Survey of School Meal Programs (Figure 39). A large majority (87.5%) of countries have a country-wide system for monitoring school feeding programs. Among these, the most common means of monitoring is through school visits, which are conducted in 79% of countries. Electronic reporting is implemented in 67% of countries, and paper-based reporting is used in 62% of countries.

Figure 39. Modes of monitoring of school meal programs



Note: These percentages are of programs with cooks/caterers (n = 123).

In Israel, monitoring of catering sites is undertaken 2-8 times per month, and in South Africa, random and non-random monitoring is conducted at multiple levels (national, provincial, district, and school). In Bhutan, the Royal Audit Authority audits each school every year, and school visits are made by officials from the national agencies and the district education offices. In Brazil, the National School Feeding Program (Programa Nacional da Alimentação Escolar – PNAE) law mandates the creation of a school food council to monitor the entire execution of the school feeding program, including the purchase of products, the quality of food served, the hygienic and sanitary conditions in which the food is stored, prepared, and served, and the financial execution of the program. The council is also responsible for evaluating the accountability of local governments. This council is formed by civil society and is required to include a representative of parents of students enrolled in the public school system. In Ethiopia, there is an ongoing effort to integrate school feeding indicators in the Education Information Management System (EMIS) and capture school feeding data annually. Nevertheless, as will be discussed in section 3 ('Successes and Challenges'), inadequate monitoring and oversight is an oft-cited shortcoming of school meal programs.

Studying the impact of school meal programs

Countries also engage in learning about the impacts of school feeding and about the optimal program design and policy framework, and many countries employ the World Bank's Systems Approach for Better Education Results (SABER) framework to learn about their school meal programs. In South Africa, a recent impact evaluation of the National School Nutrition Program (NSNP), conducted by the Department of Basic Education, found that households and communities are reached through their children, thereby helping to break the intergenerational cycle of malnutrition, poverty, and chronic disease. In France, results of the third Individual and National Food Consumption (INCA3) Survey 2014-2015 indicate that meals served in schools were of higher nutritional quality than other types of meals consumed away-from-home.

In Poland, studies have found that relatively healthier schools tend to have written policies designed to limit consumption of unhealthy foods and encourage consumption of healthy foods. In addition, small schools tend to have poorer infrastructure and conditions that are less conducive to healthy eating and physical activity. In Serbia, the "Strength2Food" research project was launched to help purchasers develop procurement criteria to improve food quality; to help teachers raise awareness of good nutrition; and to help cooks improve the nutritional value of school meals.

In Mexico, the National System for the Comprehensive Development of Families (El Sistema Nacional para el Desarrollo Integral de las Familias – SNDIF) within the Ministry of Health, in collaboration with the Center for Research on Policies, Population, and Health of the National Autonomous University of Mexico (UNAM), coordinates the nutritional surveillance

system called the "Evaluation of Nutritional Status." Information is collected on the weight, height, and eating habits of primary and secondary school children and adolescents in the national educational system. According to the focal point (survey respondent), this data source shows that children in the School Breakfast Program experienced notable progress in weight-for-age, with an even larger impact seen among girls. In 2021, questions related to the COVID-19 pandemic as well as food safety have been added to the nutritional status evaluation.

COVID-19 AND OTHER EMERGENCIES

COVID-19 and school meal programs

The COVID-19 pandemic, which began in March 2020 and continues as of the time of writing in mid-2022, prompted a large majority of countries to implement restrictions on the economy and social gatherings in order to limit the spread of the virus (Agyei-Holmes et al. 2021). This very commonly included school closures, which varied in duration from country to country. The 2021 Global Survey of School Meal Programs captured information on the impacts of the COVID-19 pandemic on school meal programs in the school year that began in 2020—a year that was at least partly, if not wholly, affected by the pandemic. Over three quarters (78%) of countries indicated that "most" schools were either closed (apart from being closed for school holidays), operating remotely, or partly closed/partly operating remotely for at least one month in the reference school year that began in 2020. Over one third (38%) of countries indicated that schools were not open for in-person learning for at least six months. During this time, school meal programs were confronted with the immense challenge of reaching school children with food even when school was not in session.

Impact on program coverage

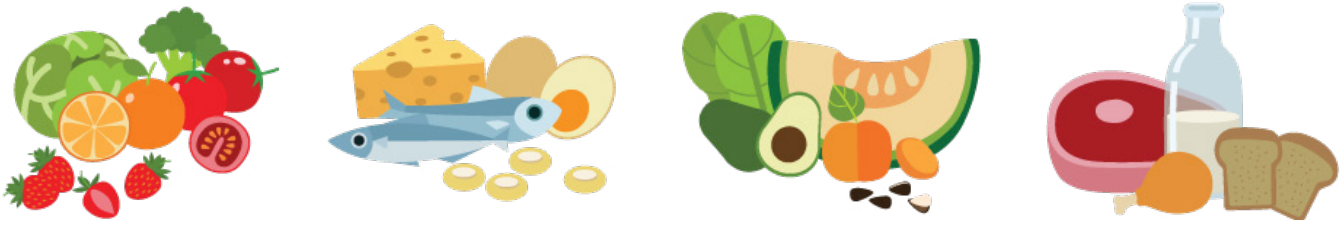
The impacts on programs are displayed in Figure 40, indicating that it was more common (at 46%) for programs to report that they at least temporarily experienced a decrease in the number of children reached with food. At the same time, 18% of programs reported that they responded to the crisis and the swelling level of need with an increase in the number of children receiving food. One such example is Argentina, where federal funding for school feeding increased, which in turn enabled the School Food Reinforcement (Refuerzo Alimentario Escolar) program to expand its reach.

Impact on frequency of food distribution

It was fairly common (at 44%) for programs to report that they decreased the frequency of school feeding in response to the disruption of the COVID-19 pandemic. Sometimes this was because of diminished or uncertain budgets, and sometimes it was because programs pivoted from in-school meals/snacks—which had often been served daily when school was in session—to take-home rations that were distributed only periodically. For example, the Sustainable School Feeding Program in Armenia did not serve its usual hot meals in the 2020/21 school year; rather, dry food rations consisting of processed or unprocessed foods were twice delivered to students' homes. In Kenya, while students in grades 4 and 8 reported back to school in October 2020 and received in-school meals through the Home-grown School Meals program, other students received take-home rations for the duration of the school year. Other programs took the opposite approach and increased the frequency of feeding: In Argentina, where students had earlier received only breakfast or only lunch, they now received both meals through their schools. In Slovenia, when children returned to school after a closure of two months, food in the School Scheme was distributed more frequently than before (2–3 times per week rather than once per week).

Impact on ration size

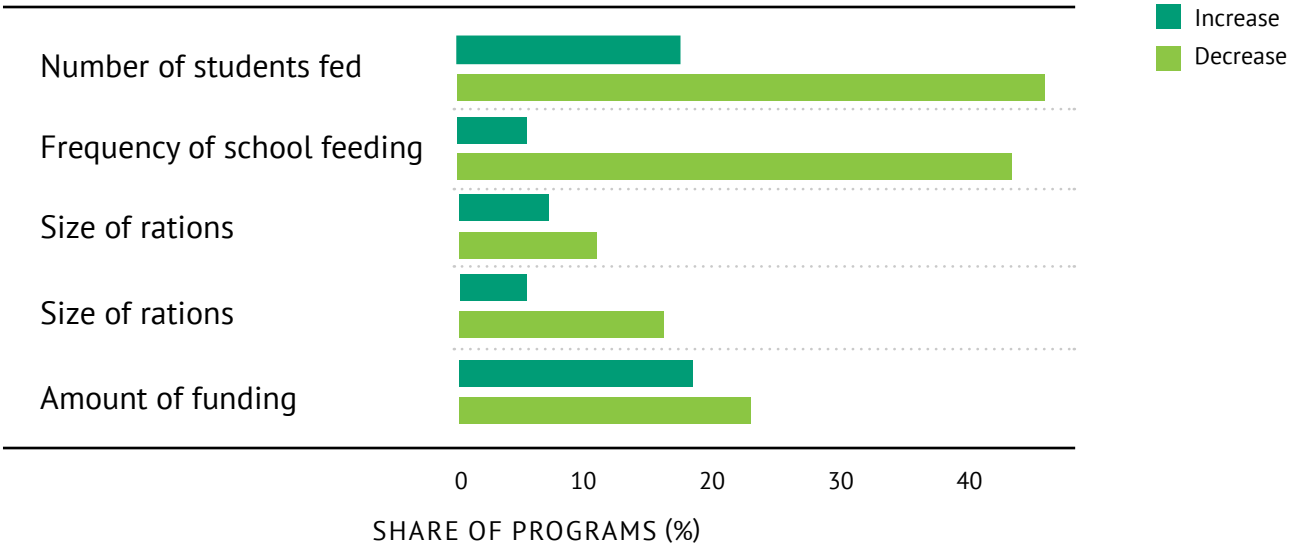
It was less common for programs to adjust the size of rations provided, although 11% of programs did report a decrease in the amount of food provided at each distribution (Figure 40). At 16%, a larger share of programs reported a decrease in the level of food basket variety. In some cases, this was itself a consequence of the pivot from in-school meals/snacks that included fresh foods to take-home rations comprised mostly of non-perishable products. However, in Barbados, the School Meals Program (SMP) found it feasible during the pandemic to re-introduce dishes that incorporate locally grown indigenous foods, as these tended to be more affordable, were usually healthier, and supported the local farming industry.



Impact on program budgets

Twenty-four percent of programs reported that the amount of funding available for their activities decreased (at least temporarily) in response to the COVID-19 pandemic, while 19% reported an increase. As an example of the latter, the pandemic had the effect of generating more donors for school feeding programs in the Republic of Congo, with new donations received from private donors and the Global Partnership for Education. Sometimes, multiple programs in the same country had divergent experiences, with one program seeing its funding source dry up while another program was able to scale up in response to the sudden need. In some cases, the sources of funding shifted, as in Guinea where government funding for the school feeding program led by the National Directorate of School Canteens (DNCaS) decreased substantially, though this funding gap was at least partly filled by the UNICEF COVID-19 emergency fund.

Figure 40. Self-reported impacts of the COVID-19 pandemic on school meal programs



School meal programs pivoted in response to COVID-19

School meal programs were far from passive in their experience of the COVID-19 pandemic. They responded actively and often with great agility to a crisis in which their services were urgently needed, even as their work was extraordinarily disrupted. These responses are laid out in Figure 41, which shows that 24% of programs adjusted their beneficiaries temporarily, and another 4% adjusted their beneficiaries "to this day" (i.e., as of the time the survey was completed in June 2021-March 2022). This change in beneficiaries commonly involved switching from targeting students to targeting their entire families. In Niger, rations in the School Feeding Program (Programme d'Alimentation Scolaire) were newly distributed to all students in canteen schools, whereas before they had been provided only to girl students. In addition, 29% of programs temporarily changed the venue (location) of distributing/receiving food, and 6% changed the venue "to this day." In some cases, this change took the form of having students eat their meals/snacks in the classroom or outside, rather than in a crowded school cafeteria.

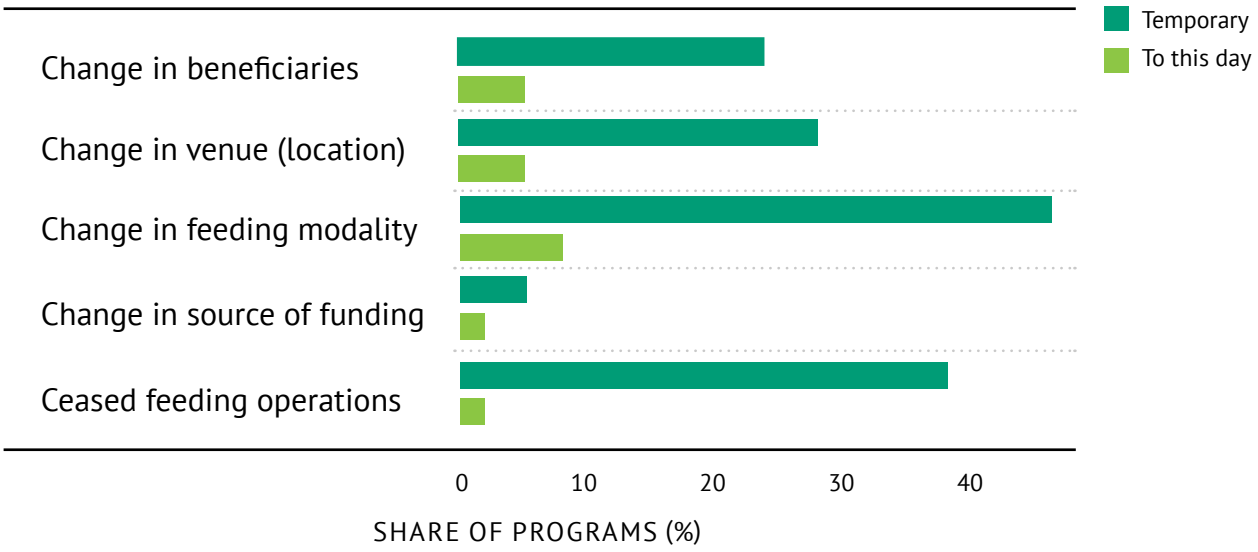
Forty-six percent of programs reported that they temporarily changed their modality of providing food to students, and for another 8%, this change has persisted "to this day." As noted, this change very often took the form of switching from in-school meals to take-home rations. For example, though take-home rations are not typically part of the National School Feeding Program in Brazil, the relevant legislation was quickly revised at the start of the COVID-19 pandemic to ensure that meals would be made available to be picked up and eaten at home while in-person classes were suspended.

Sometimes, the newly introduced take-home rations were intended for an extended period, such as several days, weeks, or even months. In Latvia, students and their families were provided with two-week packages of ingredients; in Mexico, take-home rations were provided through the School Breakfast Program on a monthly or bimonthly basis; in Nigeria, the National Home-Grown School Feeding Program (NHGSFP) provided 381,000 families with a take-home package containing grains, legumes, eggs, other vegetables, oil, and salt in a one-time event. In other cases, these rations took the form of prepared meals or ingredients that were made available for students to take home but were

intended for just one meal. In South Africa and the United States, meals which would typically be eaten in-school were made available to be picked up and eaten at home, and sometimes ingredients for a meal were made available for pick up or were delivered to students' homes.

While it was rare for programs to report a change in the source of funding, it was very common for school closures to have disrupted school meal programs to the point where they temporarily ceased their activities, as occurred in 40% of programs. In another 1% of programs, this cessation lasted "to this day." An example is the National School Feeding Program in Belize, which anticipated resuming operations sometime after the Belize focal point had completed the survey.

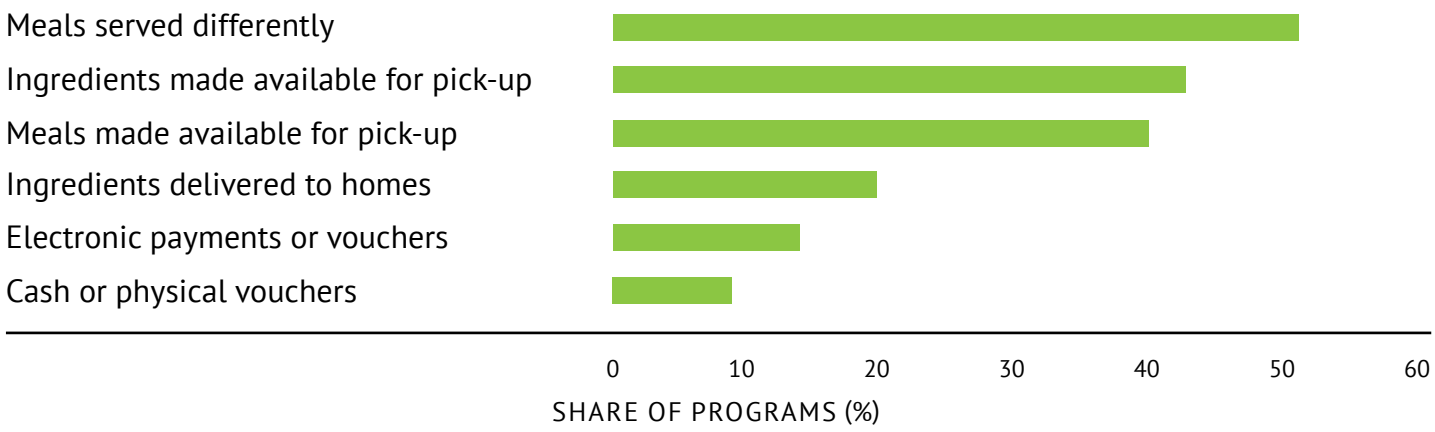
Figure 41. Responses to the COVID-19 pandemic



The changes made in modality or point of food distribution, among those programs that reported making a change, are presented in Figure 42. The most common modification was that meals were served at school in a very different way than before (e.g., fewer children eating together at the same time), as occurred in 51% of the programs that made some change. In Luxembourg, social distancing measures were implemented in schools, including the refurbishment of catering areas with tables for a smaller number of students. In North Macedonia, hot meals were served in the classrooms in a sealed plastic container together with single use utensils.

It was also common for meal ingredients to be provided to students or their parents to pick up at school to prepare and eat at home and, also, for meals to be prepared at school but similarly made available for pick-up. Less frequently, school meal programs sometimes responded by providing students' families or guardians with cash/monetary support or vouchers to purchase food. This was provided in the form of electronic payments or vouchers (14%) and cash or physical vouchers/coupons (9%). For example, feeding operations were maintained without interruption in The Bahamas when students' families were provided with cash/monetary support or vouchers to purchase food. In mid-2020, Iceland similarly joined the national free school meal voucher scheme, providing over £183 million worth of vouchers that could be converted into supermarket gift cards. In Mexico, beginning in May 2020 and with assistance from UNICEF, families in the municipalities most affected by COVID-19 received food baskets and/or pantry cards, inclusive of 30,000 grocery shopping cards.

Figure 42. Changes in modality or point of food distribution



Notes: These percentages are of programs that reported a change in modality or in the point of food distribution (n = 97).

Lessons for program preparedness

Many survey respondents observed that the ability to react and adapt quickly was key to sustaining their school meal programs during the COVID-19 crisis. Survey respondents also identified ways in which the reaction to the COVID-19 crisis could have been more effective. Respondents in Chad, El Salvador, and Mozambique indicated that national strategic reserves or a school food fund for emergencies could better support getting food to children during a future emergency, even if production or imports are interrupted. Contingency plans for school feeding, food banks, and/or a policy for local community food production would also be helpful. For example, the National School Feeding Program in Tunisia would have benefited from having in place a contingency plan for serving cold foods and packaged meals/snacks and providing cash transfers during a public health emergency. In Israel, it was suggested that the government could establish a comprehensive body for food security in times of crisis, which could ensure effective coordination across the Ministries of Finance and Welfare.

Positive outcomes from the COVID-19 experience for school meal programs

The survey also asked respondents to comment on whether any positive outcomes emerged from the COVID-19 pandemic in relation to their programs. Overwhelmingly, the responses followed two themes. First, the disruption caused by the pandemic has brought greater attention to, and appreciation for, the role of school meal programs. While these programs had always filled an important role in society—nourishing children in schools and facilitating learning—it was specifically when this service was interrupted that many people recognized its critical importance. Second, the public health crisis brought greater attention to, and appreciation for, school hygiene. Some of these reactions are enumerated in Box 8.

Box 8. Some positive outcomes of the COVID-19 pandemic

While the COVID-19 pandemic has been devastating, with an enormous death toll and immeasurable stress placed on school systems and school meal programs, it also brought some unexpected positive outcomes for these programs. The shuttering of schools in early 2020 translated starkly into a lack of food among school children; suddenly, many millions of children were not receiving food through an avenue on which they had long relied. This had the effect of raising the stature of school meal programs worldwide.

- In Lithuania, Mozambique, and Saint Kitts and Nevis, the crisis generated broader recognition of the value of school meal programs.
- In Italy, the pandemic made clear the importance of school canteens as an essential public service, and there is now greater consideration of funding the programs through taxation.
- In Niger, the pandemic resulted in a greater mobilization of resources for school feeding in 2021.
- In Palau, the crisis helped government leaders understand that some students need daily food assistance. As a result, breakfast has been added to the Food Service Program.
- In Sierra Leone, in response to the COVID-19 pandemic and the restrictions introduced (such as market lockdowns), take-home rations were provided to households in at least some project communities to alleviate food shortages. This elicited greater community interest in, and support for, the school feeding programs.

The public health crisis also prompted schools and school systems to heighten their attention to school hygiene by providing handwashing stations for students, maintaining greater cleanliness on school property, and monitoring and enforcing food hygiene in school kitchens. While school hygiene guidelines had, in many cases, existed before the pandemic, it was this crisis that prompted their firm adoption.

- In Kiribati, Malaysia, and Niger, Water And Sanitation Hygiene (WASH) compliance in schools improved.
- In Bosnia and Herzegovina, children learned through this experience to adhere to public health guidelines and care for their schoolmates from a young age.
- Schools in eSwatini saw improvements in hygiene standards and in the provision of potable water and handwashing facilities.
- Schools in Namibia saw the provision of more eating utensils to avoid sharing utensils, improvements in the provision of water and sanitation facilities, and a strong handwashing campaign.

Other crises affecting school meal programs

COVID-19 was not the only emergency facing countries during the school year that began in 2020. Flooding, tropical storms, cyclones, and other natural disasters were experienced in Bangladesh, Brazil, El Salvador, Guatemala, Honduras, Malaysia, the Republic of Congo, and Timor Leste. Slow onset emergencies, such as drought, were experienced in Ethiopia and Niger. Lesotho and Guinea were affected by health epidemics, apart from COVID-19. Armed conflict in Burkina Faso, the Central African Republic, Ethiopia, Niger, and Syria also had a negative impact on the functioning of school meal programs, with the presence of armed groups and/or the threat of attack causing insecurity and disrupting the supply of food to schools. An economic/financial crisis was experienced in Bangladesh, Brazil, Chile, Ecuador, Guinea-Bissau, Iraq, Thailand, Sri Lanka, Timor Leste, and Zimbabwe. Moreover, the stress of responding to the COVID-19 pandemic sometimes made it more difficult to respond effectively to other emergencies. Thus, in the Philippines, efforts to respond to natural disasters were hindered by the mobility restrictions associated with the COVID-19 pandemic and by the limited financial resources available to respond to multiple emergencies at once. Similarly, Mozambique was also affected by several other emergencies (including natural disaster and conflict) that challenged emergency services and exacerbated the risks associated with COVID-19.

SUCCESSES AND CHALLENGES

Achievement of targets

The 2021 Global Survey of School Meal Programs asked survey respondents to assess whether each school meal program achieved its own targets. The share of programs that achieved each target is presented in Table 11. In total, 84% of programs reported that they had achieved their target in terms of the number of students receiving food; this value is 86% for the number of school levels receiving food and 81% for the level of food basket variety. As with many aspects of school feeding, these values vary across income groups. For example, just 72% of programs in low-income settings achieved their target in terms of food basket variety, while this value was 94% for programs in high-income settings.

Links between funding and success

The survey results are indicative of a strong relationship between adequate funding and program success. Across regions, programs in Europe/Central Asia/North America and South Asia/East Asia/Pacific tended to experience the greatest achievement of targets, while those in the Middle East/North Africa scored relatively low in this regard. At the same time, programs in Europe/Central Asia/North America and South Asia/East Asia/Pacific were most likely to regard their funding as "adequate," while programs in the Middle East/North Africa were least likely to do so (Figure 20). For five of the six targets in Table 11, there is a positive and statistically significant correlation between the achievement of each target and a program's status of having adequate funding (correlation coefficient = 0.228–0.261, P-value = 0.001–0.004). Only for the number of students receiving food is this relationship positive but not statistically significant (correlation coefficient = 0.117, P-value = 0.146).

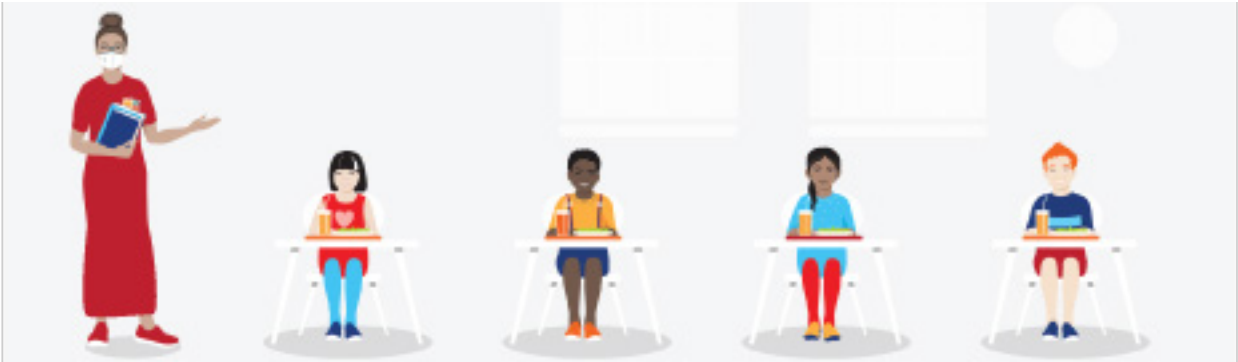
Table 11. Achievement of targets in school feeding (% of programs)

		Number of students receiving food	Number of schools receiving food	Number of school levels receiving food	Feeding frequency	Level of food basket variety	Ration size
Region	Sub-Saharan Africa	79	80	82	85	72	88
	South Asia, East Asia & Pacific	93	93	93	82	89	93
	Middle East & North Africa	56	56	67	78	78	67
	Latin America & Caribbean	77	86	86	71	79	86
	Europe, Central Asia & North America	97	97	94	92	91	97
Income group	Low income	72	79	72	87	72	82
	Lower middle income	87	84	89	78	73	89
	Upper middle income	89	88	92	81	84	92
	High income	88	90	92	88	94	93
All		84	85	86	84	81	89

Note: A target is considered to be "achieved" if its status was either "achieved" or "mostly achieved", with the remaining options being "slightly achieved" and "not achieved." These refer to the programs' own targets.

Ability to pivot

In a set of open-ended questions, survey respondents were also asked to comment on the recent successes and challenges associated with school feeding in their countries. Several key themes that emerged are highlighted below. As discussed in section 3 ('COVID-19 and Other Emergencies'), school meal programs around the world were able to respond to the COVID-19 crisis with agility, deftly pivoting from their standard procedures to ensure that children would continue to receive food even when schools were closed and when schools had reopened with new social distancing guidelines. Survey respondents emphasized the flexibility and resourcefulness shown by these programs at a time of immense upheaval and uncertainty. In addition to reaching students when they were not attending class in person, many programs (as in Cabo Verde, India, Jamaica, and Mexico) found new mechanisms to reach and support the most vulnerable. In the United States, among other such cases, the decentralized management of programs served as a strength, allowing local decision makers to act with creativity and learn from one another.



School meals support students' post-crisis return to school

Given the looming challenge of bringing children back to school after extended school closures, it is worth noting the role that school feeding has played in incentivizing a return to school following other emergencies. For example, armed conflict, terrorism, and banditry in parts of Niger have caused school closures and the consequent closure of school canteens. In these conflict zones, the survey respondent in Niger credited school feeding with facilitating an eventual return to school and the regular school attendance of children.

Expanded meal offerings

School meal programs in a number of countries recently expanded their offerings to provide hot meals where only snacks had been provided previously. In Bangladesh, where the School Feeding Program in Poverty Prone Areas (SFPPPA) operates in 104 sub-districts, cooked meals (including vegetable khichuri and khichuri with boiled eggs) have also been prepared on a daily basis in 16 sub-districts. In Romania and Ireland, hot school meal pilot programs were introduced in 2016 and 2019, respectively, and have since been deemed a success and scaled up to reach additional schools by 2020.

Other programs celebrated the diversification of their food baskets, often highlighting specific food items or categories that have been added to the school menu. For example, vegetarian meals have been introduced to the School Cafeterias (Refeitórios Escolares) program in Portugal. School meal programs in Israel have seen a greater variety of foods, including vegetarian meals, allergy-free meals (meals suitable for students with a variety of food allergies), and newly developed high-quality protein products with less processing and a higher percentage of meat/chicken.

School meals become more environmentally friendly

In some settings, school meal programs have also seen a shift towards more environmentally friendly practices. In Italy, a 2020 ministerial decree established minimum Green Public Procurement (GPP) criteria in school feeding programs. In Lithuania, the Eco-kindergarten (Ecodarželiai) program aims to promote organic products and products produced under the national agri-food quality scheme in pre-school establishments. This program operated in 10 schools in 2020–2021, and at least 45 schools applied for the program in the following year. Israel also noted a shift toward buffet style eating and reusable utensils that have the effect of reducing plastic waste. In some countries, survey respondents also applauded the introduction or scale-up of school gardens. Thus, hydroponic gardens have been recently introduced to the Namibia School Feeding Program; a vegetable garden initiative is now active in about 10 schools of the Togo School Canteen Program (Programme des cantines scolaires au Togo); and North Macedonia has been the first country in its region to establish a national protocol for edible gardens in schools.

Resource challenges

Alongside these successes, almost every survey respondent was able to identify a set of challenges faced by school meal programs. The most pressing among these is the stress of inadequate resources and unpredictable funding. Over one third (36%) of all programs did not find their funding to be adequate in the school year that began in 2020 (Figure 20). For example, inadequate resources in Kenya, coupled with an increase in school enrollment, resulted in a reduction in the number of feeding days. Similarly, in Panama, the Complementary School Food Program (Programa de Alimentación Complementaria Escolar - P.A.C.E.) suffered from a funding deficit and saw the frequency of food distribution decrease from 120 to 75 days per year. In São Tomé and Príncipe, it was noted that the budget for school feeding only covered about 20% of the program's real costs, and in Thailand, school principals had to solicit financial support from the community and the Local Administration Officer in response to inadequate funding in 2020/21. In Mexico, the School Breakfast Program (Programa de Desayunos Escolares) stopped operating in two states in response to limited resources. In Nepal, there was inadequate funding to cover the cost of transport in remote mountain regions, and in Malaysia, it was noted that the cost of ingredients has increased, making it especially challenging to improve food quality and transition students towards healthier eating habits. In Kyrgyzstan and Togo, the relatively low salaries for school cooks and senior staff resulted in high turnover or an inability to attract high-quality personnel.

Management and corruption challenges

A second area of concern in many countries relates to the need for supervision and the mismanagement of resources. In one country, the lack of resources to train food handlers (such as cooks and officers in charge of school meals) resulted in mismanagement of the program. In other countries, survey respondents acknowledged concerns about mismanagement and/or corruption among food transporters, vendors, teachers, and officers entrusted to safeguard the food. In some cases, transporters deliver insufficient food quantities to the schools with the intent to sell the rest. As noted in section 3 ('Monitoring, Evaluation, and Learning'), programs and countries continue to improve oversight and data collection, although limited resources necessarily constrain these efforts.

SECTION 4:

Research Agenda

The expansive results of the 2021 Global Survey of School Meal Programs point to areas where research is needed. The research topics outlined here are not intended to be exhaustive, but rather to build on the survey results and inspire further thought.

Impact of the COVID-19 pandemic/Role of school feeding in bringing children back to school

It is imperative to understand the impact on children of the school feeding disruptions that have resulted from the COVID-19 pandemic. Uneven and asynchronous rates of infection across different localities may present an opportunity to empirically assess the impact of interrupted access to school food, as well as the mitigating effects of school meal programs' efforts to reach children with food even when schools were closed. Some analysts have already begun this work (Abay et al. 2021). At the same time, school meal programs have the potential to play an important role in incentivizing children and adolescents to return to school after a long absence and in normalizing regular school attendance. Research is urgently needed to understand how to structure school meal programs to best ensure that children who belong in school find their way back to the classroom.

Impact of rising food prices in 2022 and beyond

Given the widespread strain of inadequate budgets on school meal programs, as discussed in section 3 ('Successes and Challenges'), the increase in global food prices that began with the COVID-19 pandemic and accelerated with the Ukraine-Russia conflict is a cause for concern. This is especially the case for programs that rely on food imports, such as Botswana, where cooking oil is at least partly imported from Ukraine (per the survey response). Going forward, it is imperative to monitor how school meal programs align their budgets, make new decisions about food sources, and adjust the contents of school menus in response to rising food prices.

Typology of Home-Grown School Feeding (HGSF) programs

The survey exposed some ambiguity regarding the definitional criteria of HGSF. Some programs are referred to as HGSF when they rely almost entirely on domestic procurement, while others are understood to follow a HGSF model when they source just a small share of food from domestic/local sources or smallholder farmers. Programs are regarded as HGSF when they source food from local markets near individual schools and, also, when they implement a fully centralized approach to domestic procurement and distribution. This ambiguity likely confounds research on the impacts of HGSF on school meal quality, dietary diversity, program costs, and local economies. Notably, it makes it difficult to extrapolate the results of one study to other programs and contexts. Clearer definitions, a shared vocabulary, and a typology of HGSF programs would shed light on this situation and feed into research on the contextually optimal HGSF program design.

Potential of local food procurement to support diverse food systems

The survey results demonstrate a strong linkage between school meal programs and agriculture, with 59% of programs engaging directly with farmers and 40% citing an objective to meet agriculture goals. While some impacts of school feeding have received considerable attention in the literature—such as impacts on children's health (Adelman et al. 2019; Fernandes et al. 2016; Gelli et al. 2018; Wang et al. 2021) and education (Alderman and Bundy 2011; Aurino et al. 2020;

Bundy 2013; Gelli 2015; Wang et al. 2021)—less effort has been made to rigorously assess the impact of school feeding on local economies and food systems. HGSF programs are intended to open a new market for farm output, with some potential to shape local food systems to produce more diverse products with a greater focus on fresh foods (fruits, vegetables, and animal-source foods). Such a broad impact could plausibly improve the diets of entire communities, not just the schoolchildren who are direct beneficiaries of these programs (Singh and Fernandes 2018). However, the scale of impact on food systems likely depends on nuances in HGSF program design and various contextual factors, and there remains limited evidence regarding HGSF impacts on agricultural development (African Union 2018). Guidance on impact evaluations of home-grown school feeding programs is provided by Giunti et al. (2022).

Tradeoffs of different program designs

The survey results reveal a wide diversity of school meal programs in terms of food sources (foreign/domestic/local), processes of food procurement (e.g., priority given to small-scale producers or companies), and modalities of food distribution (in-school meals/in-school snacks/take-home rations). More research is needed to understand the varying nutrition benefits of each of these choices, with consideration of tradeoffs that may be relevant. As an example, although the inclusion of fortified and biofortified foods is understood to improve food quality, this may be less common in school meal programs with decentralized (local) procurement. At the same time, the latter program design may include more diverse and nutrient-rich foods, thus offsetting any loss of fortified products. Research is needed to understand these benefits and tradeoffs.

Women's empowerment/Transition from volunteer to paid work

The survey results show that labor in school meal programs—especially among cooks and caterers—is dominated by women. On one hand, this presents an opportunity for these programs to serve as a platform for women's empowerment by ensuring that women earn stature (even when they do not receive remuneration) and by providing workers with knowledge and skills through relevant training. One example is business/management training, which has relevance for canteen management but can also propel the women into remunerative self-employment. On the other hand, the extent to which cooks work on a volunteer basis in lower-income settings is noteworthy and undercuts the potential for school meal programs to improve the welfare and community standing of their workforce. Research is needed to understand both how women's empowerment can be advanced through work in school meal programs, and how programs in low-resource settings can transition from volunteer to paid positions.

Detailed cost structure of school meal programs, inclusive of community-sourced in-kind contributions

While the survey collected information on program budgets, few respondents were able to estimate the monetary value of food received as in-kind contributions from the local community or food produced in school gardens. The

survey also did not ask for the monetary value of in-kind contributions in the form of labor (such as cooking) or other materials or services. However, survey results show that 21% of programs (and 34% of programs in low-income settings) procured some food in the form of domestic in-kind contributions; 68% incorporated school gardens; and 77% somehow engaged the community. A recent evaluation of a home-grown preschool meal program in Malawi found that community contributions in the form of food donations and volunteer labor accounted for about one quarter of the program's total costs (Margolies et al. 2021). This suggests that costs per beneficiary may be seriously underestimated when only pecuniary costs are considered. To better understand the costs of school meal programs and compare the cost-efficiency of different program designs, it is necessary to collect more detailed information on costs.

A better understanding of waste in school meal programs

The survey results show that 79% of school meal programs make an effort to limit food waste, and 57% make an effort to limit packaging waste. Research is needed both to understand the extent and sources of waste in different settings, and the cost savings that are realized (or are possible) through waste reduction. Peer-to-peer learning may occur when program implementers share their creative strategies for waste reduction.

Panel data analysis of drivers of school meal program success

The Global Survey of School Meal Programs, conducted so far in 2019 and 2021, presents a unique opportunity to analyze drivers of stability, growth, and quality of school meal programs within a longitudinal analysis. While the present report is mostly limited to a cross-sectional analysis of the 2021 database, future research should link the two waves of this survey to examine trends over time within the 91 countries that participated in both survey waves and often reported on the same programs at two points in time. Econometric analysis may prove useful to discern, for example, the enabling environment conditions that best empowered programs to adapt to the COVID-19 pandemic, as well as the baseline conditions that hampered programs during this crisis. The value of this data resource, and the opportunities for analysis, will continue to grow as the survey is repeated in future years.

Ways to collect data on decentralized school meal programs and programs that vary over time

In settings of highly decentralized school meal program management, some survey respondents found it challenging to gather the necessary information to complete the survey. Examples include programs in Bosnia and Herzegovina, North Macedonia, Sweden, Switzerland, and the United States, among others. In some cases, information was not available at the central government level when decisions are made by regional and local governments and individual schools. In other cases, variation in modality and food sourcing precluded the submission of a single survey response for the whole program. This extreme variation over space inspired GCNF to administer state-level surveys of the Mid-Day Meals scheme in India (GCNF 2021b). Research is needed to understand how data can best be gathered on decentralized programs such that data from these programs can be analyzed alongside that of more centralized programs.

In a similar vein, some programs vary in their structure and quality over the course of the year. For example, school meal programs dependent on local purchasing may provide a certain meal quality after the local harvest season (when foods are abundant in the market) and a different meal quality at another time of year. Programs may also suffer pipeline breaks in food supply. Thought is needed on how best to capture data on school meal programs to account for temporal variation in activities, costs, and quality.

SECTION 5:
Conclusion

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SURVEY ACCOMPLISHMENTS

The 2019 and 2021 Global Surveys of School Meal Programs document the comprehensive nature and popularity of school feeding programs globally.

The 2019 Global Survey of School Meal Programs involved over 100 national governments and more than 20 partner organizations, including UN agencies, NGOs, civil society, and the U.S. Department of Agriculture. During the 2019 survey round:

- An evolving school feeding vocabulary was made concrete in a glossary of definitions and used—in seven languages—in the survey questionnaire.
- A standardized process of global data collection was established and successfully implemented.
- A framework was established for an ongoing discussion of indicator construction for school feeding.
- A public database and survey report were made available, representing thousands of data points related to school feeding and providing detailed country- and program-level data that are comparable in content, format, and timeframe.

The 2021 round of the Global Survey deepens these accomplishments, builds on the momentum of the first survey wave, and now involves 139 countries. In the second survey round:

- The overall response rate from governments, predicted to be much lower in this round due to the toll taken by the pandemic, was higher than in 2019.
- The terminology and data collection process were well accepted by focal points and implementing partners who had been involved in the first round.
- The results can be compared against the 2019 baseline. The 2021 survey and subsequent survey rounds will allow for tracking the impact, not just of the COVID-19 pandemic, but of other factors, shocks, and changes over time.

WHAT ARE COUNTRIES AND DATA USERS SAYING?

The 2019 survey data are used by program implementers of all varieties—national governments, NGOs, and civil society. A common theme heard from government officials with multiple programs operating in-country is that the survey helped them to better understand what was happening within their own country.

It is notable that national governments treat the survey as an opportunity to own and share their data. While many government focal points needed to consult with implementing partners to gather information for the survey, this gave the government officials a reason to seek, review, and clarify information about different programs that might not otherwise have been shared with them. Having access to this information can, in and of itself, be empowering; knowledge is needed for management and decision-making.

A school feeding donor conveyed that data from the Global Survey of School Meal Programs informs decision making. The survey data extends beyond the information reported by the organizations they fund and allows them to pinpoint key gaps and opportunities across multiple countries.

In addition, several United Nations agencies, research institutions, and non-profit organizations use and value the types and breadth of data collected.

PEER TEACHING AND LEARNING

There is nonetheless much work to be done, particularly at the country level, to achieve full value of the surveys. Peer-to-peer teaching and learning has proven to be an effective method to achieve fast and positive results, and the surveys provide tools important to the task.

It is hard to share experiences, understand one another, and determine if a peer's advice is valid and appropriate to apply in your own program if there are no shared definitions of terms, data, or descriptions of context (GCNF and WFP 2021). The surveys provide the needed basic common vocabulary, measurements/indicators, and important context markers.

The country reports summarizing survey results for each country and in each survey round provide an excellent starting point for peers to quickly scan and understand one another's programs, zero in on similarities and differences, and discuss how one's experience might apply to others.

GCNF makes the country reports and full database accessible to all and is continuing to offer opportunities (such as the annual Global Child Nutrition Forum and various learning exchanges) for peers to meet face-to-face, share, and learn from one another. Several other development partners, including the World Food Program's Centers of Excellence in Brazil and Côte d'Ivoire, UNESCO, Catholic Relief Services, Save the Children, and others, are also supporting specific peer-to-peer learning and sharing opportunities. The School Meals Coalition is similarly offering opportunities for peer-to-peer sharing at the ministerial and other levels.

GOING FORWARD

Overall, the 2019 and 2021 Global Surveys of School Meal Programs document the range of benefits that can be derived from school feeding programs globally. The surveys also raise questions whose answers are beyond the scope of this report and of the survey itself. Some research needs have been raised herein, the expert reviewers of this report have highlighted some of these deeper questions, and we hope that you will as well. The surveys provide a starting point for practitioners and researchers to dig into these issues, to find data behind these data, and to contribute new and deeper levels of understanding.

The 2021 survey also begins to quantify both positive and negative effects of the COVID-19 pandemic: Amidst the unprecedented challenges posed, the programs demonstrated remarkable resilience and creativity.

The survey does not capture the profound effects of the pandemic on children's education, psychological well-being, and overall welfare, however. Other studies have begun to document these effects, prompting the international community to rally around shared goals for the post-pandemic period (UNESCO et al. 2021; UNICEF 2021). From the earliest days of the pandemic, widespread efforts were underway to extend classes to students' homes, reopen schools as soon as it was safe to do so, support children to stay in school or return to classrooms, and help students make up for lost school time (Reimers et al. 2020; Engzell et al. 2021; Azevedo 2020).

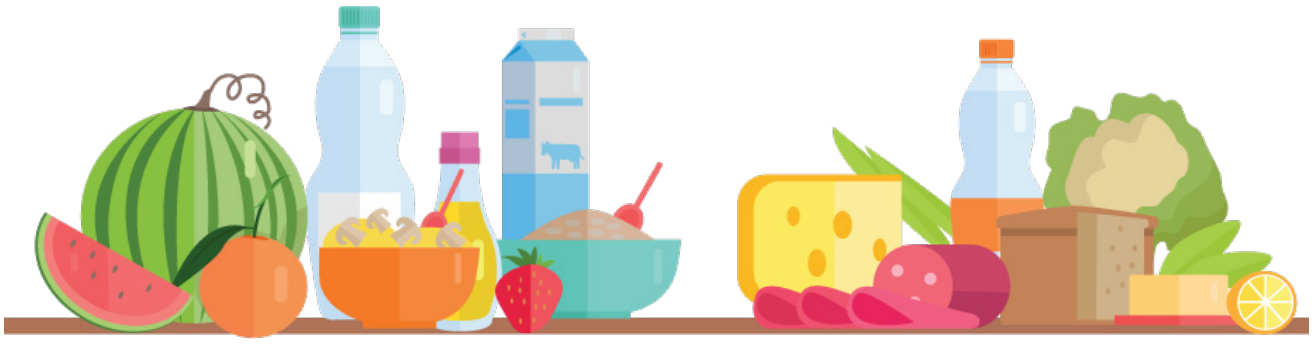
In 2021, the School Meals Coalition was formed, with unprecedented numbers of countries and organizations declaring support for children to receive nutritious food and basic health interventions at school (School Meals Coalition 2022). The end of the pandemic seemed within sight, and despite a challenging food supply situation, planning was underway to help the world's children post-pandemic (Azevedo et al. 2021).

Nevertheless, the pandemic had a significantly negative impact on food supply chains, causing illness among workers and prompting processing shutdowns, shipping constraints, border closures, and more. The situation—already fraught pre-pandemic with high energy and shipping costs, tariff disputes, and natural disasters (e.g., droughts, floods, and wildfires)—worsened (World Bank 2022a).

Another blow to food security was dealt in early 2022 by the conflict in Ukraine, curtailing critically important food and fertilizer exports from the region. Fuel prices have escalated, and key ports and transport systems have closed, making it extremely difficult to export food supplies available in Ukraine and Russia to their customers elsewhere (Headey and Hirvonen 2022).

These compounding shocks are taking a toll. Food prices are at an all-time high and are continuing to escalate, disproportionately affecting the world's most vulnerable. Even if the conflict is resolved soon, the effects are likely to be long-term, as planting for the next season (in Ukraine and elsewhere) will be affected. Much of the world's supply of critical inputs (such as fertilizer) originate in the affected areas and/or are escalating in price; and natural disasters continue to plague other geographies important to agricultural production (Cousin et al. 2022).

As the world grapples with the ripple effects of the rapidly increasing cost and struggle for food, our thoughts turn back to children. How can their nutritional and educational needs be met in this challenging environment? Some answers lie in the data from the Global Surveys; and many answers reside in well-managed school meal programs using locally available, healthy foods.



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ANNEX

Table A1. Summary of survey response status

Type of response/submission	Number
Survey received from national government	134
Survey received from third party	3
Data gathered through desk review	2
Survey not received/no information	55

Note: Among the 134 surveys received from national governments, 14 specified that there were no large-scale school meal programs in the reference year, and 120 included detailed information on school meal programs.

Table A2. Survey response status by country

Country	Survey received from national government	Data gathered through other avenues	Large-scale school feeding
Afghanistan			
Albania			
Algeria			
Andorra	Yes		Yes
Angola			
Antigua and Barbuda	Yes		Yes
Argentina	Yes		Yes
Armenia	Yes		Yes
Australia		Yes	Yes
Austria	Yes		Yes
Azerbaijan			
Bahamas	Yes		Yes
Bahrain			
Bangladesh	Yes		Yes
Barbados	Yes		Yes
Belarus			
Belgium	Yes		Yes
Belize	Yes		Yes
Benin	Yes		Yes

Country	Survey received from national government	Data gathered through other avenues	Large-scale school feeding
Bhutan	Yes		Yes
Bolivia			
Bosnia and Herzegovina	Yes		Yes
Botswana	Yes		Yes
Brazil	Yes		Yes
Brunei	Yes		Yes
Bulgaria	Yes		Yes
Burkina Faso	Yes		Yes
Burundi	Yes		Yes
Cabo Verde	Yes		Yes
Cambodia	Yes		Yes
Cameroon	Yes		Yes
Canada			
Central African Republic	Yes		Yes
Chad	Yes		Yes
Chile	Yes		Yes
China	Yes		Yes
Colombia			
Comoros			
Congo	Yes		Yes
Costa Rica			
Côte D'Ivoire	Yes		Yes
Croatia	Yes		Yes
Cuba			
Cyprus	Yes		Yes
Czech Republic	Yes		Yes
Denmark	Yes		No
Djibouti			
Dominica			
Dominican Republic			
Ecuador	Yes		Yes
Egypt			
El Salvador	Yes		Yes
Equatorial Guinea	Yes		No
Eritrea			

Country	Survey received from national government	Data gathered through other avenues	Large-scale school feeding
Estonia	Yes		Yes
eSwatini	Yes		Yes
Ethiopia	Yes		Yes
Fiji			
Finland	Yes		Yes
France	Yes		Yes
Gabon			
Gambia	Yes		Yes
Georgia	Yes		No
Germany			
Ghana	Yes		Yes
Greece		Yes	Yes
Grenada	Yes		
Guatemala	Yes		Yes
Guinea	Yes		Yes
Guinea-Bissau	Yes		Yes
Guyana	Yes		Yes
Haiti	Yes		Yes
Honduras	Yes		Yes
Hungary	Yes		Yes
Iceland	Yes		Yes
India		Yes	Yes
Indonesia	Yes		No
Iran			
Iraq	Yes		Yes
Ireland	Yes		Yes
Israel	Yes		Yes
Italy	Yes		Yes
Jamaica	Yes		Yes
Japan			
Jordan			
Kazakhstan	Yes		Yes
Kenya	Yes		Yes
Kiribati	Yes		Yes
Kuwait	Yes		Yes

Country	Survey received from national government	Data gathered through other avenues	Large-scale school feeding
Kyrgyzstan		Yes	Yes
Laos	Yes		Yes
Latvia	Yes		Yes
Lebanon			
Lesotho	Yes		Yes
Liberia	Yes		Yes
Libya	Yes		Yes
Liechtenstein			
Lithuania	Yes		Yes
Luxembourg	Yes		Yes
Madagascar	Yes		Yes
Malawi	Yes		Yes
Malaysia	Yes		Yes
Maldives			
Mali	Yes		Yes
Malta	Yes		Yes
Marshall Islands			
Mauritania	Yes		Yes
Mauritius			
Mexico	Yes		Yes
Micronesia	Yes		No
Moldova			
Monaco	Yes		Yes
Mongolia	Yes		Yes
Montenegro	Yes		No
Morocco			
Mozambique	Yes		Yes
Myanmar			
Namibia	Yes		Yes
Nauru			
Nepal	Yes		Yes
Netherlands	Yes		Yes
New Zealand		Yes	Yes
Nicaragua			
Niger	Yes		Yes

Country	Survey received from national government	Data gathered through other avenues	Large-scale school feeding
Nigeria	Yes		Yes
North Korea			
North Macedonia	Yes		Yes
Norway	Yes		No
Oman			
Pakistan	Yes		No
Palau	Yes		Yes
Palestine	Yes		No
Panama	Yes		Yes
Papua New Guinea			
Paraguay			
Peru	Yes		Yes
Philippines	Yes		Yes
Poland	Yes		Yes
Portugal	Yes		Yes
Qatar			
Republic of Congo	Yes		Yes
Romania	Yes		Yes
Russia			
Rwanda			
Saint Kitts and Nevis	Yes		Yes
Saint Lucia	Yes		Yes
Saint Vincent and the Grena-	Yes		Yes
Samoa	Yes		No
San Marino	Yes		Yes
Sao Tome and Principe	Yes		Yes
Saudia Arabia			
Senegal	Yes		Yes
Serbia	Yes		Yes
Seychelles			
Sierra Leone	Yes		Yes
Singapore			
Slovakia	Yes		Yes
Slovenia	Yes		Yes
Solomon Islands	Yes		No

Country	Survey received from national government	Data gathered through other avenues	Large-scale school feeding
Somalia	Yes		Yes
South Africa	Yes		Yes
South Korea			
South Sudan	Yes		Yes
Spain	Yes		Yes
Sri Lanka	Yes		Yes
Sudan	Yes		Yes
Suriname			
Sweden	Yes		Yes
Switzerland	Yes		Yes
Syria	Yes		Yes
Tajikistan	Yes		Yes
Tanzania			
Thailand	Yes		Yes
Timor Leste	Yes		Yes
Togo	Yes		Yes
Tonga	Yes		No
Trinidad anad Tobago	Yes		Yes
Tunisia	Yes		Yes
Turkey			
Turkmenistan			
Tuvalu	Yes		No
Uganda	Yes		Yes
Ukraine			
United Arab Emirates	Yes		Yes
United Kingdom			
United States	Yes		Yes
Uruguay	Yes		Yes
Uzbekistan	Yes		No
Vanuatu			
Venezuela			
Vietnam			
Yemen			
Zambia	Yes		Yes
Zimbabwe	Yes		Yes

Table A3. Number of students fed by country

Sub-Saharan Africa	Number of pre-school students	Number of elementary school students	Number of secondary school students	Total number of students
Benin	11,366	824,087	0	835,453
Botswana	24,000	364,108	181,406	569,514
Burkina Faso	88,062	3,485,600	116,112	3,689,774
Burundi	0	520,613	0	520,613
Cabo Verde	13,646	70,521	950	85,117
Cameroon	5,331	189,711	0	195,042
Central African Republic	0	215,411	0	215,411
Chad	242	122,009	0	122,251
Congo	0	165,000	0	165,000
Cote D'Ivoire	0	1,024,401	0	1,024,401
eSwatini	4,740	244,300	130,296	379,336
Ethiopia	0	1,676,452	0	1,676,452
Gambia	44,410	182,862	33,959	261,231
Ghana	930,978	2,517,087	0	3,448,065
Guinea	2,054	214,198	0	216,252
Guinea-Bissau	5,567	219,419	0	224,986
Kenya	0	1,800,000	0	1,800,000
Lesotho	50,000	313,461	0	363,461
Liberia	83,561	167,122	27,360	278,043
Madagascar	0	366,693	0	366,693
Malawi	26,303	2,777,588	0	2,803,891
Mali	772	496,777	83,465	581,014
Mauritania	0	172,905	0	172,905
Mozambique	0	304,819	0	304,819
Namibia	27,244	330,115	40,741	398,100
Niger	2,164	453,385	157,164	612,713
Nigeria	0	9,887,000	0	9,887,000
Republic of Congo	1,747	140,703	0	142,450
Sao Tome and Principe	10,439	37,111	0	47,550
Senegal				Unknown
Sierra Leone	0	485,674	0	485,674
Somalia	0	170,796	0	170,796
South Africa	0	6,656,826	2,956,804	9,613,630

South Sudan	0	331,966	6,277	338,243
Sudan	0	1,890,277	0	1,890,277
Togo	4,093	128,915	0	133,008
Uganda	0	414,746	13,130	427,876
Zambia	163,179	1,871,913	40,539	2,075,631
Zimbabwe	659,130	1,830,779	0	2,489,909

South Asia, East Asia & Pacific	Number of pre-school students	Number of elementary school students	Number of secondary school students	Total number of students
Australia				Unknown
Bangladesh	411,160	2,560,210	0	2,971,370
Bhutan	0	31,100	70,662	101,762
Brunei	2,473	28,943	3,253	34,669
Cambodia	16,904	260,977	0	277,881
China	0	26,000,000	11,000,000	37,000,000
India	0	67,538,472	38,720,840	106,259,312
Kiribati	0	0	3,000	3,000
Laos	26,986	156,543	0	183,529
Malaysia	215,641	473,679	333,308	1,022,628
Mongolia	0	371,480	0	371,480
Nepal	572,989	2,667,139	0	3,240,128
New Zealand	0	42,000	0	42,000
Palau	0	1,712	547	2,259
Philippines	0	3,526,589	0	3,526,589
Sri Lanka	0	1,052,563	14,680	1,067,243
Thailand	875,960	3,063,142	0	3,939,102
Timor Leste	21,399	302,447	0	323,846

Middle East & North Africa	Number of pre-school students	Number of elementary school students	Number of secondary school students	Total number of students
Iraq	0	350,000	0	350,000
Israel	273,734	174,796	0	448,530
Kuwait				Unknown
Libya	0	18,000	0	18,000
Malta	0	21,162	0	21,162
Syria	0	651,728	0	651,728
Tunisia	0	260,000	90,000	350,000
United Arab Emirates	39,425	81,731	167,639	288,795

Latin America & Caribbean	Number of pre-school students	Number of elementary school students	Number of secondary school students	Total number of students
Antigua and Barbuda	90	6,861	0	6,951
Argentina	312,308	209,846	400,000	922,154
Barbados	1,200	22,500	1,945	25,645
Belize				N/A
Brazil	7,644,883	22,433,668	10,110,876	40,189,428
Chile	0	2,029,882	0	2,029,882
Ecuador	476,516	1,582,714	882,722	2,941,952
El Salvador	121,057	356,026	226,423	703,506
Grenada				Unknown
Guatemala	486,795	2,039,855	0	2,526,650
Guyana	24,295	57,417	0	81,712
Haiti	0	857,350	0	857,350
Honduras	180,148	1,076,079	0	1,256,227
Jamaica	11,817	71,816	48,030	131,663
Mexico	0	6,518,168	0	6,518,168
Panama	77,068	308,272	0	385,340
Peru	1,166,510	2,738,858	294,164	4,199,532
Saint Kitts and Nevis	0	3,056	350	3,406
Saint Lucia	0	7,000	700	7,700
Saint Vincent and the Grenadines	2,478	7,753	0	10,231
The Bahamas	90	3,785	2,125	6,000
Trinidad and Tobago	90	22,800	2,724	25,524
Uruguay	90	201,866	6,310	208,176

Europe, Central Asia & North America	Number of pre-school students	Number of elementary school students	Number of secondary school students	Total number of students
Andorra	212	564	558	1334
Armenia	3,200	102,430	0	105,630
Austria	85,242	201,673	188,823	475,738
Belgium	89,685	187,407	9,969	287,061
Bosnia and Herzegovina	27,698	0	0	27,698
Bulgaria	194,444	238,305	0	432,749
Croatia	104,000	203,183	97,953	405,136
Cyprus	1,034	6,086	6,143	13,263

Europe, Central Asia & North America	Number of pre-school students	Number of elementary school students	Number of secondary school students	Total number of students
Czech Republic	357,545	837,870	248,662	1,444,077
Estonia	66,375	88,981	66,123	221,479
Finland	203,000	373,800	343,900	920,700
France	1,736,700	3,263,500	4,294,300	9,294,500
Greece	1,433	2,823	614	4,870
Hungary	360,874	560,983	67,694	989,551
Iceland	18,876	46,688	18,281	83,845
Ireland	3,048	146,796	69,643	219,487
Italy	757,207	602,961	42,067	1,402,235
Kazakhstan				Unknown
Kyrgyzstan	0	66,443	0	66,443
Latvia	86,191	178,360	0	264,551
Lithuania	138,732	150,011	28,344	317,087
Luxembourg	17,792	38,834	48,076	104,702
Monaco	897	1,907	3,267	6,071
Netherlands	0	476,143	0	476,143
North Macedonia	29,010	13,223	0	42,233
Poland	0	1,725,000	101,050	1,826,050
Portugal	123,290	303,810	708,642	1,135,742
Romania	293,270	891,693	720,772	1,905,735
San Marino	872	1,559	0	2,431
Serbia				Unknown
Slovak Republic	161,930	355,263	114,300	631,493
Slovenia	0	167,228	0	167,228
Spain	448,422	835,495	485,477	1,769,394
Sweden	517405	1,234,829	425,648	2,177,882
Switzerland	0	68,204	15,340	83,544
Tajikistan	0	433,000	0	433,000
United States of America	0	16,100,000	11,900,000	28,000,000

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