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SCHOOL FEEDING IN JORDAN
Healthy Meals Investment Case
Cost-Benefit Analysis Report

August 2024

CONTENTS:

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DISCLAIMER – This study is not an audit or an evaluation report. Although it includes a section about logistics, it is not a supply chain analysis. This report is aimed at assessing the current level of cost-efficiency of the Healthy Meals School Feeding programme in Jordan and at formulating recommendations to further improve it.

This report is a product of the staff of the WFP.

The views expressed in it do not necessarily reflect the official position of WFP, its Executive Director, its Executive Board, its partners or the United Nations in general.

LIST OF ABBREVIATIONS

CBA	Cost Benefit Analysis
DALYs	Disability-Adjusted Life Year
GNI	Gross National Income
HM	Healthy Meals
JOD	Jordanian Dinar
MoE	Ministry of Education
NPV	Net Present Value
OECD	Organisation for Economic Co-operation and Development
USD	United States Dollar
WFP	Word Food Programme
WHO	World Health Organization

01 EXECUTIVE SUMMARY

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Background

The National School Feeding Programme (NSFP) is Jordan's largest safety net targeting children and, as of 2024, provides school snacks/meals to 520,000 students in poverty pockets [1] and refugee camps across the country. The NSFP has been active since 1975, is housed at the Ministry of Education (MoE) and has been receiving WFP support since 2012. The NSFP is implemented through two modalities:

- Healthy Meals model - Starting in 2015, WFP and the Ministry of Education (MoE) launched the Healthy Meal school feeding model which was piloted extensively to reach a modality that included healthy, home-grown meals for children while also providing economic opportunities in vulnerable communities, thus leveraging a holistic and community-driven approach. The balanced meals, consisting of a pastry, a fruit, and a vegetable, are sourced from local bakeries and smallholder farmers while employing 250 vulnerable women in community-based kitchens. The Healthy Meal model is complemented by an interactive and age-appropriate nutrition-sensitive social behaviour change communication component which is led by WFP.

- Fortified Date Bar/Biscuit model – Fortified Date Bars and Biscuits are provided to children to help meet their immediate nutritional needs during the school day.

The NSFP is guided by the National School Feeding Strategy (NSFS) (2021-2025) which highlights the following priorities:

- Expanding the home-grown Healthy Meal modality to 500,000 students. The Ministry of Education (MoE) aims to achieve this goal by 2030.

- Ensuring the gradual handover of the NSFP to MoE, which would involve the Government of Jordan taking over all oversight and programme management activities as well as increasing its domestic financing of the programme to 80%. MoE aims to complete the gradual handover process by 2030, with WFP transitioning into a technical advisory role by then.

[1] Poverty Pockets are defined by Jordan's Department of Statistics as communities where at least 25% of the population lives below the national poverty line.

To guide the policy and programmatic direction of the NSFP, MoE and WFP have focused on generating evidence on the programme's impact and contributions across sectors in society. This Cost-Benefit Analysis (CBA) is one of the evidence products generated to understand the benefits of the NSFP's Healthy Meal modality.

Purpose of the Cost-Benefit Analysis (CBA)

This Cost-Benefit Analysis was undertaken jointly by the United Nations World Food Programme (WFP) and the Hashemite Kingdom of Jordan's Ministry of Education (MoE). **The purpose of this study is to determine the profitability and economic return of the Healthy Meals modality of the National School Feeding Programme to Jordanian human capital and national development.** It determines the programme's total benefit to the community from each dollar invested both in the short and long term, yielding a final return on investment value.

The return on investment indicates what the returns or benefits are for each USD 1 invested in the programme. This analysis can be used as an advocacy tool to inform stakeholders' interest in expanded school nutrition and social safety nets. It is also a critical evidence product that justifies the programme's expansion as well as the gradual handover process to MoE, both highlighted in the National School Feeding Strategy. This analysis is intended to be shared across stakeholders in the school feeding, education and social protection sectors in Jordan, particularly within the Government of Jordan and its partners. The CBA analysis was guided by a CBA stakeholder group made up of WFP and MoE experts.

CBA Methodology

This CBA is comprised of two complementary methodologies in order to cover the programme design that supports students, female kitchen workers and small holder farmers. The first CBA methodology, which focuses primarily on the return on investment of school feeding for students, was developed jointly by WFP and the Boston Consulting Group in 2011. It is a robust economic model supported by academic literature, country-specific indicators on nutrition, health and education and information collected from WFP experts. To perform the analysis, data is collected locally and processed by comparing schools enrolled in the feeding programme with a control group of similar non-participant schools.

The second methodology described in this report was developed by the Jordan CBA team to capture the benefits to female kitchen workers and small holder farmers, who constitute a critical component of the programme. This second methodology builds on the first one jointly developed by WFP and Boston Consulting Group by incorporating the estimated benefit valuations for local farmers and women workers. While this parallel methodology is understood to be less scientific, the Jordanian CBA stakeholder group believes that it provides a clearer view into the full range of benefits foreseen by the Healthy Meals modality's design and theory of change.

Main Findings

The key outcome of this study is that school feeding in Jordan has a clear, positive return on investment and carries a strong social protection impact on local communities, the local economy, and the living standards of the beneficiaries. In particular, this study shows that:

1. **For every dollar invested in the Healthy Meals modality of the National School Feeding Programme, an economic return of USD 10.3 is generated** for students, women workers and local farmers. Out of the 10.3, student-specific benefits represent a return of USD 4.4 over an individual beneficiary's lifetime.[2]

2. Overall, the **total benefit of the Healthy Meal school feeding to students is USD 2,672 over their lifetime.** In contrast, the programme only costs USD 607 per student over their lifetime (see Figure 1).

3. Where school feeding is present, there is a **3.93 percent increase in enrolment, a 1.21 percent increase in attendance,** and a **2 percent reduction in student dropout.** These constitute a significant contribution to students' education in Jordan.

4. As a result of increased time in school and improved health outcomes associated with nutritious and diversified school meals, **students' income over their lifetimes increases on average by USD 1,298 or around 1 percent.**

5. As a result of improved health and nutrition outcomes due to school meals, **the health cost over a student's 7-year school feeding term is reduced on average by USD 80 or 4 percent.**

6. **For women workers participating in the Healthy Meal modality, the combined benefit** of each woman's annual salary, economic impact of increased income, contribution to secondary job creation, and investment in skill development, on annual basis, **equates to USD 13,608 per woman worker per year.**

7. **For local farmers participating in the Healthy Meal modality, the combined benefit** of each farmer's annual income, economic impact of increased income, contribution to secondary job creation, and investment in skill development and improved policy environment, on annual basis, **equates to USD 18,692 per farmer per year.**

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[2] The RoI of 4.4 uses the more scientific methodology developed jointly by WFP and BCG, while the 10.3 uses the enhanced methodology developed by the Jordan CBA team that builds on the WFP and BCG tool.builds on the WFP and BCG tool.

Figure **1:** below illustrates the total costs and benefits calculated in this CBA, **demonstrating a final RoI of USD 10.3 for every USD 1 invested.**

Figure **1**: Cost-Benefit Projection for Jordanian Healthy Meals School Feeding

Cost-Benefit Analysis average value per beneficiary, USD

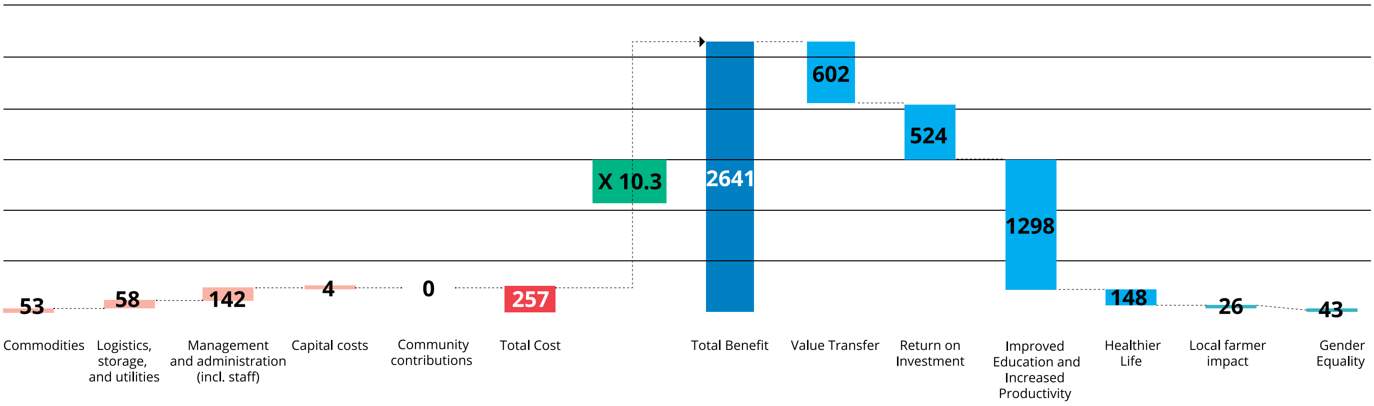

Photo credit: WFP Jordan

Recommendations

Based on the positive return on investment of the Healthy Meals School Feeding Programme, this analysis yields the following recommendations:

1. **Expansion of the Healthy Meal model**: Given the positive return on investment of the Healthy Meal model, it is recommended that the Government of Jordan expand this modality in line with the objectives highlighted in the National School Feeding Strategy. A first step would be the expansion of the Healthy Meal modality to students receiving date bars/ biscuits, given the significant benefits associated with this model.

2. **Implementing complementary activities:** There is an opportunity to use the NSFP as a platform to provide activities that are complementary to the Healthy Meal's positive outcomes. These can include deworming, which refers to providing routine deworming medication to children in schools, which would help meet a need for child deworming in Jordan. Pairing deworming with school feeding is done routinely in various countries

worldwide. Complementary trainings on how to safely handle and distribute food to children could also be provided to school administrators and teachers.

3. **Expanding targeting to additional beneficiaries:** Given the benefits of the Healthy Meal model, the Government of Jordan could consider eventually widening the targeting criteria to cover the first 8,000 days of a child's life (the programme currently covers children until age 12 which is equivalent to 4,380 days). This period covers three critical phases of student development: the middle childhood growth and consolidation phase (ages 5–9), when infection and malnutrition constrain growth, and mortality is higher than previously recognized; the adolescent growth spurt (ages 10–14), when substantial physical and emotional changes require good diet and health; and the adolescent phase of growth and consolidation (ages 15 to early 20s), when new responses are needed to support brain maturation, intense social engagement and emotional control.[3]

4. **Opportunities to Increase the Healthy Meal Menu's Nutritional Value:** While WFP and the Government of Jordan have agreed not to make any further changes to the menu, which was developed over 10 years of testing, in order to focus on the gradual handover process, there are opportunities to make minimal changes to improve its nutritional value. For instance, analysis has shown that using fortified flour for the pastry or selecting iron-rich vegetables for pastry fillings can increase the nutritional value of the menu without making major changes to the overall menu.

5. **Strengthening home-grown school feeding:** Where appropriate, WFP recommends that the Government should revisit efforts to promote the involvement of small and medium scale food producers in the school feeding programme. As a significant portion of uncooked school food commodity is already being sourced from small scale producers, the Healthy Meals modality and diversified food basket represents a unique opportunity. Further inclusion of small and medium scale producers can help to support rural economic development as smallholders gain access to dependable institutional markets and help to further strengthen the Kingdom of Jordan's agricultural value chains.

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3 Bundy, D.A.P., de Silva, N., Horton, S., Jamison, D.T. and Patton, G.C. 2017. Child and Adolescent Health and Development (with a Foreword by Gordon Brown). Volume 8. In D.T. Jamison, R. Nugent, H. Gelband, S. Horton, P. Jha, R. Laxminarayan and C. Mock, eds. Disease Control Priorities (3rd edition). Washington, DC, World Bank.

02 SCHOOL FEEDING IN JORDAN

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Country background

The Hashemite Kingdom of Jordan is a lower middle-income country of approximately 11.5 million people. In recent decades, the government has made remarkable progress establishing state institutions, preserving tolerance and religious pluralism, promoting economic growth, and increasing social welfare. Life expectancy at birth increased from 52.6 years in 1960 to 75.6 in 2021.[4]

During the same period, gross domestic product per capita increased from USD 511 up to USD 4,311.[5]

Regional instability on the country's borders has burdened Jordanian society and contributed to domestic challenges. Still, Jordan has shown remarkable resilience in maintaining stability and growth in the face of regional and global crises. Influxes of more than one million refugees hosted by Jordan has contributed to the doubling of the national population since 2000. This dramatic population growth has strained labor markets, increased the cost of living, and significantly affected the quality and availability of water, healthcare, and education. Trade with Iraq and Syria, Jordan's historic primary trading partners, remains severely restricted.

These external and internal challenges resulted in a decade of low growth that left the country with a debt-to-GDP ratio of over 88 percent and unemployment rates for youth and recent college graduates of nearly 41 percent and 25 percent, respectively.[6]

The health and nutrition of Jordan's population has improved considerably over the last decade, with child and maternal mortality reduced and vaccination rates now covering 95 percent of all children. Over two-thirds of Jordanian women now initiate breastfeeding within one day of giving birth, and Jordan has made progress towards stunting reduction targets. However, maternal and child mortality rates reflect important socioeconomic inequities, with poorer mothers and children at greater risk. Presently, 7.4 percent of children under 5 years of age are stunted (too short for their age due to chronic or recurrent malnutrition), compared to the Asia regional average of 21.8 percent. Associated drivers of stunting include limited access to quality food, knowledge on care practices and adequate hygiene. Wasting (too thin for height due to weight loss from lack of nutritional intake and/or illness) impacts 0.6 percent of children under 5 years of age, among the lowest rates globally,[7] compared to the Asia regional average of 8.9 percent.

4 World Health Organization, 2024. Jordan Country Profile.

5 World Bank Data Catalog, 2024. Jordan, GDP per Capita (in Current US Dollars).

6 International Labour Organization. "ILO Modelled Estimates and Projections database". Accessed June 18, 2024.

7 Global Nutrition Report, Jordan Country Profile, 2022. https://globalnutritionreport.org/resources/nutrition-profiles/asia/western-asia/jordan

Micronutrient deficiencies are prevalent among both Jordanian and Syrian refugee women and children. This is due to poor quality diets with low nutrient consumption, inadequate access to health care, and poor water and sanitation.

The number of Jordanian children receiving the minimum acceptable diet has decreased over the past decade, falling from 32.5 percent in 2012 to 19.6 percent in 2016 according to the Global Nutrition Report 2022. Further, the minimum dietary diversity benchmark, which is closely linked to a child's physical and cognitive development, was halved between 2007 (67.2 percent) and 2017 (35 percent). Children's limited daily access to nutritious foods and dietary diversity for essential macro and micronutrients represents a clear challenge to the development of human capital within the Kingdom.

Jordan has so far shown limited progress towards achieving diet-related non-communicable disease targets. The prevalence of overweight children under 5 years of age is 9.2 percent, and there is insufficient data available to assess whether the country is on course to prevent the figure from increasing.[8] Meanwhile, 46.3 percent of adult (aged 18 years and over) women and 31.5 percent of adult men are living with obesity, and the national obesity prevalence is higher than the regional average of 10.3 percent for women and 7.5 percent for men. At the same time, diabetes is estimated to affect 18.9 percent of adult women and 19 percent of adult men.

The COVID-19 crisis deepened gender gaps and increased youth unemployment and the poverty rate.[9] The risk of inequalities has also been increasing. According to the national Population and Family Health Survey 2023, of 3.16 million children in Jordan, one in five are multidimensionally poor. Poverty rates vary by governorate, from 11 percent in Amman to 27 percent in Ma'an. Poverty incidence and the poverty gap tend to be higher in rural areas, while in absolute terms, most poor Jordanians live in the densely populated governorates.

To secure development gains and continue building human capital needed to achieve national development objectives, the Jordanian Government is working through its National Vision and Strategy for 2025 to improve quality of life and economic shock resilience among the population. The National Social Protection Strategy (2019-2025) outlines a comprehensive, transparent, and equitable social protection system for vulnerable Jordanians. The Strategy's second pillar is focused on improving education, healthcare, and social services for the most vulnerable, and it underpins Jordan's National School Feeding Strategy (2021-2025). The school feeding strategy promotes targeted school feeding interventions which employ direct feeding with nutritious local foods, as well as dietary and healthy behavior modeling, altogether aimed to secure adequate child nutrition necessary for good growth, cognitive development, and advancement of Jordanian human capital.

8 Ibid.

9 https://www.worldbank.org/en/country/jordan/overview

Government-administered National School Feeding Programme (NSFP)

Jordan's National School Feeding Programme is the country's primary social safety net for children. In collaboration and with operational and financial support from the United Nations World Food Programme (WFP), the Ministry of Education provides nutritious food to 520,000 vulnerable Jordanian and refugee schoolchildren across the Kingdom.

Within the framework of the first National School Feeding Strategy (2021-2025) where the Government of Jordan committed to increase the focus on local food production, jobs creation and the nutritional value of school meals, the national programme operates through two modalities:

1. **Healthy Meals (HM) model - Starting in 2015**, WFP and the Ministry of Education launched the Healthy Meal school feeding model which was piloted extensively to reach a modality that included healthy, home-grown meals for children while also providing economic opportunities in vulnerable communities, thus leveraging a holistic, community-driven approach. As of 2024, the Healthy Meal modality reaches 90,000 girls and boys from kindergarten to sixth grade (ages 5–12) enrolled in public schools in poverty pockets[10] – where households have limited resources to buffer against adversity – across six governorates. The meals, consisting of a pastry, a fruit, and a vegetable, are sourced from local bakeries and smallholder farmers. They supply children with 380 kcal per meal which represents 20% of their daily nutritional requirements. These ingredients are sorted, cleaned and packaged daily in ten kitchens located within poverty pockets across Jordan, providing formal employment to 250 vulnerable women. This comprehensive approach extends benefits to their families and the entire supply chain. The Healthy Meal model is complemented by an interactive and age-appropriate nutrition-sensitive social behaviour change communication (SBCC) component which is led by WFP. The awareness-raising campaign encourages healthy eating habits for children, leveraging schools as a platform for change in educating children and their caregivers on health and nutrition.

2. **Fortified Date Bar/Biscuit model** - An additional 400,000 Jordanian children and 30,000 refugees residing in camps receive fortified date bars and biscuits during the school day.

Overall, school feeding has multiple positive effects on education, nutrition, local agricultural production, and local job creation. These have been measured through dedicated studies as well as country-level data analysis conducted for this CBA.

Given their commitment to evidence-based decision making, from 2021 to 2024, the Ministry of Education and WFP partnered with the World Bank to conduct an impact evaluation that assessed the impact of the Healthy Meal modality compared to the date bar/biscuit modality.

10 Poverty Pockets are defined by the Jordanian Department of Statistics (DoS) as communities where at least 25% of the population live below the national poverty line.

Photo credit: WFP Jordan

The impact evaluation found positive results for both children and female kitchen workers benefiting (see Annex 2). Children experienced an increase in dietary diversity, decrease in school absenteeism, decrease in the amount of food/money for food that was brought to school, and increase in their energy levels. Among female kitchen workers, the Healthy Meal model led to increased participation in the labor force, increased earning, savings, and non-food expenditure, and more openness to women working was exhibited among male household members. These positive results further justify the Government of Jordan and WFP's commitment to expanding the Healthy Meals model to cover 500,000 students by 2030, documented in the National School Feeding Strategy, at an estimated cost of JOD 29.5 million (USD 41.6 million) per year.[11] This would involve a proportional reduction in the date bar/biscuit caseload.

The benefits of this school feeding modality extend beyond the increased health and education outcomes for targeted children, by also encouraging local production and employment which strengthens the resilience and economic development of vulnerable communities and local agricultural value chains.

As a Healthy Kitchen manager in Tafilah explained:

"THE IMPACT OF HEALTHY MEALS IN SCHOOLS IS BIG BECAUSE WHEN A POOR COMMUNITY LIKE OURS HAS THE MEALS, YOU CAN SEE THAT THE BURDEN ON FAMILIES IS LOWERED."

11 This estimate does not account for the expected annual increase in programme cost as a result of inflation and other variables

By employing home-grown approaches, the programme supports the livelihoods of local farmers, bakeries, transporters, and kitchen workers who earn fair wages, are affiliated with social security, and positively impact gender equality by preparing, packing, and delivering the meals. In Jordan, it helps address malnutrition challenges, mainly micronutrient deficiency and overweight that begin to rise among children at the age of five, coinciding with their entry to school. It also enhances child cognition and learning outcomes which, despite Jordan's near universal access to primary education, still lag significantly behind Organisation for Economic Co-operation and Development (OECD) comparison countries (i.e., Jordan scores 41 percent in mathematics compared to 71 percent in OECD countries). Anecdotal evidence from teachers, school principals and parents show the contribution of school feeding to children's education. According to an interviewed school principal in Bsera:

"SCHOOL FEEDING HAS HAD A DIRECT IMPACT ON OUR STUDENT'S IN-CLASS PARTICIPATION. THE DIFFERENCE IS PARTICULARLY NOTICEABLE AS OUR SCHOOL IS IN A REMOTE AND IMPOVERISHED AREA WITH MANY LOW-INCOME FAMILIES."

"THE MEAL POSITIVELY AFFECTS OUR STUDENTS' ACADEMIC PERFORMANCE AND INCREASES THEIR PARTICIPATION. FOR SOME FAMILIES, CHILDREN MIGHT EAT FRUIT ONLY ONCE PER MONTH OUTSIDE OF SCHOOL."

03 COST-BENEFIT ANALYSIS

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Background

As enshrined in the National School Feeding Strategy 2021-2025, the institutionalization of school feeding and the expansion of the Healthy Meal model are prioritized.

With respect to institutionalizing the programme, in practice, this involves the gradual handover of all programmatic responsibilities (currently shared by WFP and the Ministry of Education) to the Government of Jordan by 2030. To this end, the Government is working to develop a domestic financing framework to gradually increase national financing of the programme. WFP is supporting this approach by utilizing a combination of intervention modalities, including providing technical assistance to the Ministry of Education and its partners, and offering complementary operational support. Further, an expansion of the Healthy Meal model would involve a gradual increase in programme cost and require a proportional reduction in the current Date Bar/Biscuit caseload.

To support the achievement of both goals, WFP and MoE have prioritized the generation of evidence to build a business case for the Healthy Meal School Feeding programme and its gradual handover to GoJ. This Cost-Benefit Analysis is one of the evidence tools through which stakeholders can gain insight to inform decision making. Indeed, this Cost-Benefit Analysis aims at quantifying the benefits derived from the Healthy Meal model of school feeding, in financial terms. The main objective is to assess and compare the monetary cost and the economic benefit of providing the Healthy Meal model of school feeding, and to estimate the value created in terms of increased education, improved health and nutrition to the beneficiaries. In this way, the analysis illustrates that school feeding is a valuable investment in both the short and long term for recipient children, for their communities and for the country's growth and human capital development. The CBA's process and methodology was guided by the Jordan CBA stakeholder group comprised of WFP and MoE staff.

This CBA is comprised of two complementary methodologies in order to cover the programme design that supports students, female kitchen workers and small holder farmers. This analysis was guided by the Jordan CBA stakeholder group, comprised of WFP and MoE. The first CBA methodology, which focuses only on the return on investment of school feeding for students, was developed jointly by WFP and the Boston Consulting Group in 2011. It is a robust economic model supported by academic literature, country-specific indicators on nutrition, health and education and information collected from WFP experts. To perform the analysis, data is collected locally and processed by comparing schools enrolled in the feeding programme with a control group of similar non-participant schools.

The second complementary methodology was developed by Jordan CBA stakeholder group to capture the benefits to female kitchen workers and small holder farmers, who constitute a critical component of the programme. This second methodology builds on the on the first one jointly developed by WFP and Boston Consulting Group by incorporating the benefit valuations associated with local farmers and women workers. While this parallel methodology is understood to be less scientific, the Jordanian CBA stakeholder group believes that it provides a clearer view into the full range of benefits foreseen by the Healthy Meals modality's design and theory of change.

The main drivers of impact of an investment in school feeding are:

For School Children:

1. *Improved nutrition and health.* Children have better nutrition during their childhood which "locks in" benefits leading to improved health in the long run.
2. *Increase in cognition, enrolment, attendance, and decrease in dropout rate while at school.* Children who receive a meal during the day generally show better concentration during classes and get higher test results, improving their chances to remain at school and to advance to higher studies. School meals positively influence school attendance. Parents have more incentives to promote children's school attendance as they know they will get a meal, which alleviates household food expenditures as well as health expenditures (i.e. school-fed children are less often ill). Children are also more enthusiastic about going to school since they tend to view the school meal favorably.
3. *Increase in household income.* School feeding represents an alleviation of household expenses, and families can invest funds they would have spent on feeding their children on other assets, thus generating an economic return.
4. *Gender equality.* Evidence shows that school feeding particularly attracts girls to school. Better educated women tend to be more productive and are better informed about their children's nutritional requirements. It is important to note that this CBA methodology does not account for gender equality and empowerment impacts for female kitchen workers and other beneficiaries that are not students.
5. *Intergenerational spill-over effects.* Parental education strongly influences the next generation's behaviors, experience, and achievement.

For Female Kitchen Workers and Small Holder Farmers:

6. *Income Generation.* Women workers and local farmers derive income from their involvement in the Healthy Meal school feeding programme.
7. *Economic Impact of Increased Income.* There is a multiplier effect, as women workers and local farmers employed in school feeding spend new funds in the community, thereby supporting additional jobs.
8. *Job Creation.* Derived from the additional employment opportunities provided to female kitchen workers through the programme. This is particularly relevant given that Jordan has one of the lowest participation rates of women in the labour force, currently at 14%.

9. *Capacity Building and Training.* The programme invests in trainings and skills development for female kitchen workers and traceability technology for farmers which increases the quality of their produce. This is expected to increase the productivity of women and farmers overtime, therefore increasing their income.
10. *Improved Policy Environment.* The enhanced business climate brought about by worker engagement in the Healthy Meal school feeding programme and resulting in increased earnings.

The table below summarizes the objective and uses of a Cost-Benefit Analysis:

WHAT IS THE COST-BENEFIT ANALYSIS?	WHEN TO USE THIS STUDY?
• An advocacy tool developed to illustrate to donors and governments the long-run costs and benefits of a particular safety net programme; • An economic model leveraging four data sources: 1) academic literature, 2) impact data collected at country level, 3) information collected from WFP experts, 4) information collected from government experts.	• To advocate for the benefits of a particular safety net programme; • To highlight the benefits of a school feeding programme; • To generate buy-in among stakeholders.

Methodology and data collection

In developing the CBA for Jordan's Healthy Meal school feeding modality, the CBA stakeholders group advanced along two tracks. First, the group used the original CBA tool designed in 2011 by WFP and Boston Consulting Group to execute data collection, modelling and analysis. This tool, deployed in nearly 20 countries, draws on a clear template and data collected by way of academic literature, country-specific indicators on nutrition, health and education, also information collected from WFP experts. It results in an estimated return on investment ratio. The benefits examined through this first methodology are focused on students over the course of their lifetime.

Next, the nature of Jordan's Healthy Meal school feeding modality, which also supports women workers and local farmers, inspired the CBA stakeholder group to develop an augmented data collection, modelling and analysis. This second, complementary methodology allows for the estimation of benefits to female workers and small holder farmers, in addition to those for students. This results in a better-informed estimate of benefits, including students, plus female kitchen workers and small holder farmers.

Therefore, the two combined methodologies used in this CBA consist of first determining the estimated annual benefit to each group (students, female workers and small holder farmers), and then generating a separate economic model for each group. Finally, each group's total economic benefit was compared to the programme's cost to estimate the overall return on investment.

The original CBA model considers the following quantifiable costs and benefits of implementing a school meals programme.

Photo credit: WFP Jordan

Government costs associated with school feeding are categorized as:

1. *Commodity Costs,* which refer to the total cost of the food distributed, including the value of a local commodity purchased at its actual price.
2. *Logistics, storage, and utilities* are those costs associated with storage, kitchen utilities, utilities at the warehouses, and transportation from warehouses to schools.
3. *Management and administration (including project staffing)* encompass the cost of high-level management of the programme, also labor costs for school feeding at all levels, including offices, communications, and IT services.
4. *Capital Costs* are one-time costs needed for the programme to be implemented, such as cost of construction of offices, kitchens, and the purchase of vehicles. The value of capital costs is deducted over time to account for annual depreciation.

Benefits associated with school feeding are categorized as:

1. *Value Transfer* (contributes to SDG2: Zero Hunger): The distribution of a food ration at school is a value transfer to the household. The provided meal is calculated to be equivalent to the cost of the meal at local market price; plus, the healthcare expenditures avoided due to the children's better health directly attributable to school feeding.

The value transfer therefore becomes added family income. Separately, the complementary methodology conducted by the Jordan CBA team also includes the incomes of female kitchen workers and local farmers.

2. *Return on Investment* (contributes to SDG1: No Poverty): The food transfer provided to the household may free-up resources which the household can then invest in productive assets. Separately, the complementary CBA methodology also considers salaries received by female kitchen workers and the increased demand for products of small holder farmers and bakers.
3. *Increased Productivity* (SDG4: Quality Education; SDG8: Decent Work, Economic Growth): School feeding promotes equal access to education and can contribute to reduced micronutrient deficiencies, therefore improving health outcomes for students. Healthy children have better learning potential, which can enable them to be more productive as working adults. This increased productivity is measured through higher wages which result from their better education. The complementary CBA methodology also includes estimates of the impact of increased female kitchen worker and local farmer productivity measured through increased wages.
4. *Healthier and Longer Life* (SDG3: Good Health and Well-Being): Increased earnings from healthier and longer life come from several different drivers: (i) additional income; (ii) additional education; (iii) reduced Disability Adjusted Life Years (DALYs)* due to better nutrition; and (iv) reduced DALYs due to health interventions, such as deworming. This benefit focuses on students only.
5. *Gender Equality and Externalities* (SDG5: Gender Equality): School feeding leads to an alleviation of the national healthcare system expenses due to the better overall health of school-fed children throughout their life. School feeding also increases access to health and education for girls, contributing to gender equality. Further, the complementary methodology includes the contribution to female participation in the labor force and higher participation in the community resulting from the engagement of female kitchen workers in the programme.

*** DEFINITION: DISABILITY-ADJUSTED LIFE YEARS (DALYS)**

The DALYs tool was developed by the **World Health Organization** to quantify the **burden of disease** from mortality and morbidity in a country. One DALY can be thought of as **one lost year of "healthy" life.** The sum of DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability.

For Jordan, this analysis is based on data provided by World Bank reports,[12] Jordanian Ministry of Education and Department of Statistics reporting,[13] a WFP internal analysis of school level data, and various cited scientific papers and studies.[14] The augmented CBA analysis includes also the total payments made by the Healthy Meal school feeding programme to women workers and local farmers,

12 Listed and detailed in Jordan CBA Model Data Sheet, Microsoft Excel file, attached.

13 Ibid.

14 Ibid.

and conservative multiplier rates of impact of their employment on additional job creation, skills development for increased wages and improved business environment within the employees' communities based on academic literature and published studies. A detailed methodological and reference guide can be found in Annex 3.

To note, education indicators data was collected across the following administrative levels:

- **School attendance:** School attendance analysis was conducted internally by WFP based on a sample of 100 public primary schools, of which half are recipients of Healthy Meals (treatment group) and half are not school feeding participants (control group). Both groups are representative of the larger national context.

- **School enrollment:** School enrollment as analyzed at the governorate level. Treatment areas were selected based on their high percentage of National School Feeding Programme-participant schools, relative to the total number of schools in the governorate. Control areas were selected for their low percentage of National School Feeding Programme-participant schools.

- **School dropout:** School dropout was analyzed at the directorate level using administrative data collected nationally.

Costs of Healthy Meals school feeding in Jordan

The annual cost per beneficiary of the Healthy Meal School Feeding is USD 86.78. As the cost-benefit modeling requires three years of programmatic data, and because the CBA stakeholder group aimed to examine return on investment under regularized conditions not impacted by COVID-19, this analysis is based on data from 2018, 2019 and 2022. During these three years the cost of the Healthy Meals funding allocation was approximately 0.51 JOD (or USD 0.72) per beneficiary per school day and children received Healthy Meals for 120 school days per year (out of 180 school days).

Overview of Annualized Costs for Healthy Meals in 2018, 2019, 2022

CATEGORY	TOTAL COST PER YR (JOD)	COST PER BENEFICIARY PER YR (JOD)	TOTAL COST PER YR (US$)	COST PER BENEFICIARY PER YR (US$)	% OF TOTAL
Commodities	2,777,087	40.84	3,916,915	**57.60**	72%
Logistics, Storage and Utilities	398,688	5.86	562,326	**8.27**	4%
Management, Administration & Staff	978,125	14.39	1,379,586	**20.29**	23%
Capital costs	30,066	0.44	42,406	**0.62**	1%
Total cost	**4,183,966**	**61.53**	**5,901,233**	**86.78**	**100%**

Source: Ministry of Education, 2024, with exchange values by OANDA currency calculator.

The school meals reporting system managed collaboratively by WFP and the Ministry of Education collects annualized financial data on the cost categories which together make up the daily meal expense. Therefore, the CBA stakeholder group were able to develop a clear line of sight into the main cost categories associated with school meals.[15, 16]

15 School meals stakeholders may wish to consider further cost examination using WFP's National Costing Assessment tool, or the WFP School Menu Planner Plus tool, which provide advanced analytics allowing users to explore scenarios for food basket optimization, transfer modality selection, sourcing and delivery; which can increase efficiency in spending on Healthy Meals in the future.

16 While a portion of national school feeding programmes do depend on community contributions from parents, no such contributions are present or planned in Jordan, and so, the *community costs* category is set at zero based on Cost-Benefit Analysis stakeholder group recommendation

Benefits of Healthy Meals school feeding in Jordan

The benefits of the Healthy Meals programme extend to at least three main groups, including (i) recipient **children**, and their households, at the time of their schooling and as they develop into adult participants in the national labor force; (ii) **local small holder farmers** who cultivate food and sell their produce to the Healthy Meals programme, and (iii) **female kitchen workers** who are employed by the Healthy Meals programme to safely handle and prepare the meals for timely distribution to recipient schools.

A. Benefits Associated with Students Value transfer

The value transferred to a household from the Healthy Meal School Feeding commodity alone is USD 75 per year, or USD 525 over the seven-year schooling term. The provision of food at school constitutes a value transfer to the student's household equivalent to the cost of the meal in the local market. This can therefore be considered an additional source of income for the family as they can repurpose this amount for other expenditures.

The cost of the food itself, purchased at the National School Feeding Programme rate, is approximately USD 0.48 per child per day. Since the full meal (including cost of packaging at community-based kitchens, delivery, oversight and monitoring) costs USD 0.72, the cost of food items themselves represents 67 percent of the total daily cost. Over the course of 120 feeding days, the cost of food items amounts to USD 57.60 per year. Based on stakeholder group research and because some food items provided in the Healthy Meal have fixed retail prices which are set by the central government, the cost paid by households to replicate the same meal (i.e. the local market cost) – is estimated to be 1.3 times the price paid by the National School Feeding Programme. This means that if a household wished to purchase the same food items, the items would cost them USD 0.624 (USD 0.48 x 1.3) which amounts to USD 75 per year (USD 0.624 x 120 feeding days/year).

Healthcare Expenditure Reduction

Total healthcare expenditures averted due to improved nutrition associated with the Healthy Meal model of school feeding is nearly USD 80 in savings per child. In addition to the direct value transfer, Healthy Meals in Jordan improve child health by contributing to averted health conditions. These conditions, reported in the 2019 National Micronutrient Survey, are associated with iron deficiencies, vitamin A and vitamin D deficiencies, and unsafe water, sanitation and handwashing, which would have resulted in healthcare expenditures. Vitamin A deficiency affects 20 percent of preschoolers and between 20 and 33 percent of preschoolers are anaemic[17] Based on data included in the World Health Organization Global Health Expenditure Database, average annual healthcare expenditures in Jordan are USD 299 per person as of 2021 (56 percent private expense and 44 percent public/external expense). As a result of improved child health and nutrition generated by the Healthy Meals intervention, private (paid for by the household) healthcare expenditures averted correspond to savings of at least USD 6.41 per year over the seven-year school feeding intervention, providing an additional, indirect value transfer of USD 44.88 per child to the household. Meanwhile, public healthcare expenditures (paid for by the Government) averted correspond to savings of at least USD 35.15 over the same period. This amounts to a total of USD 80 per child.

17 Jordan Population and Family Health Survey, 2023.

Both the food commodity value transfer and the healthcare expenditure reduction value transfer occur in the short term as they are directly linked to a child's classroom attendance.

Return on Investment

The Healthy Meal school feeding modality helps households free up resources that can be reinvested, with average returns per child of USD 462 over the 7 years of the programme. Analysis of school feeding programmes, globally, shows that the value transferred to households, in the form of food utilized in healthy meals, will free-up household resources which can then be invested in productive assets such as farm equipment and animals to generate profits and cash flow. Based on research by the Massachusetts Institute of Technology (MIT) Department of Economics, the average rate of available resources invested by households is 15 percent, and the productive asset investment will average a 54 percent return and a ten-year lifespan with cumulated capital investment each year. Therefore, based on the USD 75 (rounded to nearest dollar) that school feeding makes available to households for reinvestment into productive assets on an annual basis, over a seven-year period this amounts to USD 462 per child.

Increased productivity

School feeding is an investment in human capital development. Most of an individual's human capital is developed early during his or her life under the effect of education and can be later augmented by training and experience.

*** DEFINITION: HUMAN CAPITAL**

Human capital is defined as a set of knowledge, skills and health that people accumulate over their lives. According to the World Bank, it is a central driver of sustainable growth and poverty reduction. More human capital is associated with higher earnings for people, higher income for countries, and stronger cohesion in societies.

To measure the Healthy Meal school feeding programme's contribution to human capital development, the following criteria were analysed:

- Rate of Return to Education (based on school enrollment, attendance, and drop out)
- The impact of improved nutrition on education and health
- Increased productivity measured through increases in wages

Rate of Return to Education

Children receiving Heathy Meals enjoy a longer schooling duration and additional education that results in increased productivity over their lifetime which is associated with higher wager.

This correlation between wages and the length of schooling is illustrated by the Mincer equation.[18] From this correlation, which is observed in every country of the world, a Rate of Return to Education can be calculated. The Rate of Return to Education shows the relationship between the length of schooling and individuals' wages. In a given country,

18 Jacob Mincer (1974), Schooling, Experience and Earnings, New York: National Bureau of Economic Research, and other publications.

the working population is composed of individuals who achieved a variable number of years of education. By correlating this number with the wages they receive, it has been observed that the most important part of these wages are determined by the number of years of schooling, although a minor part of the wages is also determined by other variables. As calculated by Claudio Montenegro and Harry Patrinos, the Rate of Return to Education (the increase in wages associated with one additional year of schooling) in Jordan is equal to 9 percent.[19]

For the purposes of the cost-benefit analysis, increased productivity associated with school feeding is measured in two dimensions:

1. in terms of quantity, i.e., increased time spent at school and hence better education, and
2. quality, i.e., improved cognition and testing performance.

To measure the quantity impact of school feeding in Jordan, the following assumptions have been made:

- For education variables including enrollment, dropout, and attendance, data was compared from 2018, 2019, and 2022; to limit the impact of school closures associated with the COVID-19 pandemic.
- A sampling of 100 public primary schools was used to create the control group (50 schools without any form of feeding) and treatment group (50 schools with Healthy Meals school feeding) for comparison of student education indicators. A significant effort was taken by the stakeholder group to select a sample that was socioeconomically representative of Jordan's school feeding beneficiary communities.
- A gender disaggregated approach was selected by the stakeholder group to provide gender-specific analysis. Because the sampled schools included boys only schools, girls only schools, and mixed schools, data was first modelled with all schools combined (thereby making gender disaggregation impossible) and then modelled separately using only the gender disaggregated schools. The stakeholder group found that utilizing the gender disaggregated approach was preferrable, since despite reducing the total number of sampled schools, it allowed for gender-specific analysis without statistically relevant levels of change to the endline results.
- School enrollment was analyzed at governorate level, while attendance was analyzed at school level, and dropout was analyzed at directorate level.

The analysis showed that enrollment and attendance rates in schools benefiting from the Healthy Meal school feeding programme are higher than those of the control group, while dropout rates are lower.

As illustrated in figure 2, below, the enrolment rate in schools where the Ministry of Education and WFP provide Healthy Meals, is 4.4 percent higher than control schools where the intervention is not present. The attendance rate is also elevated in schools where Healthy Meals is present, as demonstrated in figure 3. These results are significant given that the baseline levels of enrollment and attendance are already high in Jordan, indicating that school feeding is meaningfully associated with these outcomes. This result is in line with the impact evaluation results which found that children receiving healthy meals attended on average one more day of school compared to children receiving date bars/biscuits. Finally, schools

19 Claudio Montenegro and Harry Patrinos (2014), Comparable Estimates of Returns to Schooling Around the World, Policy Research Working Paper, The World Bank, p. 36. See also George Psacharopoulos (2006), "The Value of Investment in Education", Journal of Education Finance, 32, 2.

benefiting from the Healthy Meal school feeding experienced a 1.3 percent reduction in dropout, as illustrated in figure 4. These quantitative results are also supported by testimonies from schools such as at Mafraq where a principal reported:

> "THE STUDENTS EAGERLY ANTICIPATE THE FEEDING PROGRAMME, AND ABSENTEEISM AMONG YOUNGER STUDENTS DECREASES SIGNIFICANTLY."

The CBA indicates that school meals result in 0.26 years of additional time spent in schooling in Healthy Meals programme areas, compared with those areas that did not receive school meals. While this difference may appear small, given the already high and near universal attendance rates observed in Jordan, this increase is meaningful as it drives future wages of students. This measured increase in time spent in school enables the calculated rate of return to education, based on economic research by the World Bank, which finds that in Jordan there is a 9 percent increase in wages for each one additional year of primary schooling.[20]

Figure 2: School enrolment rate, Control Schools and Treatment Schools

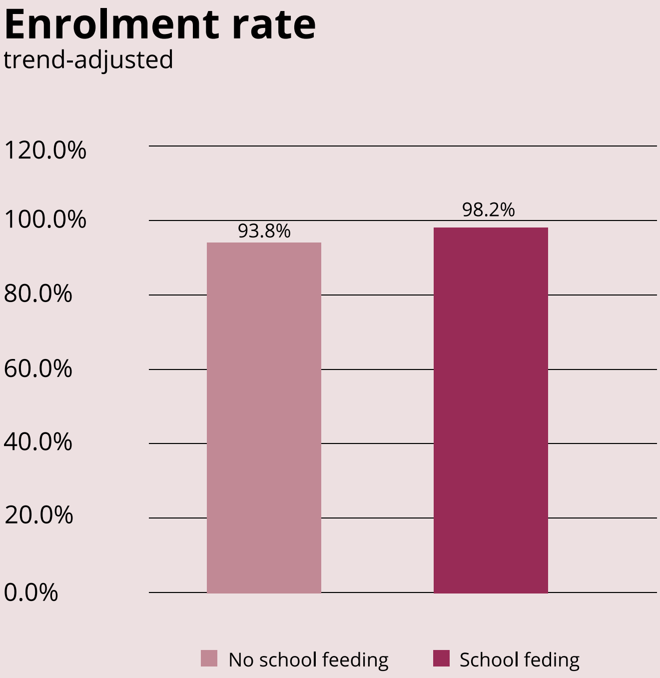
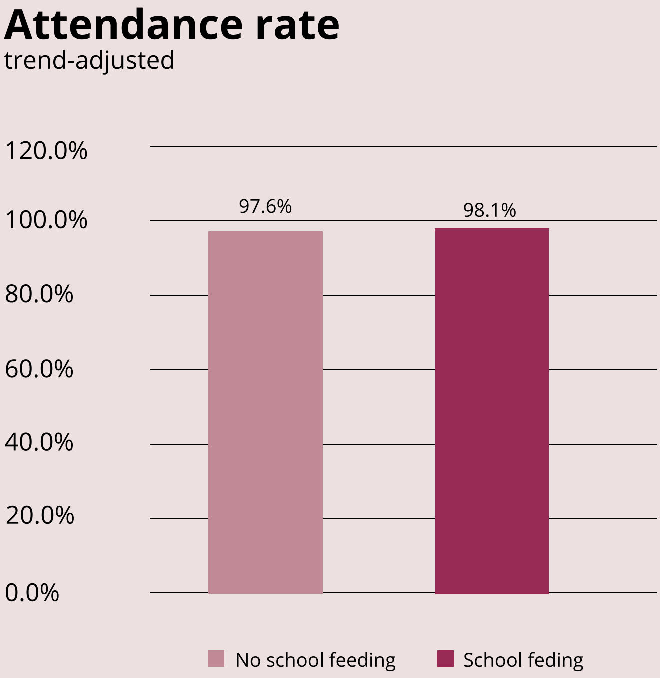
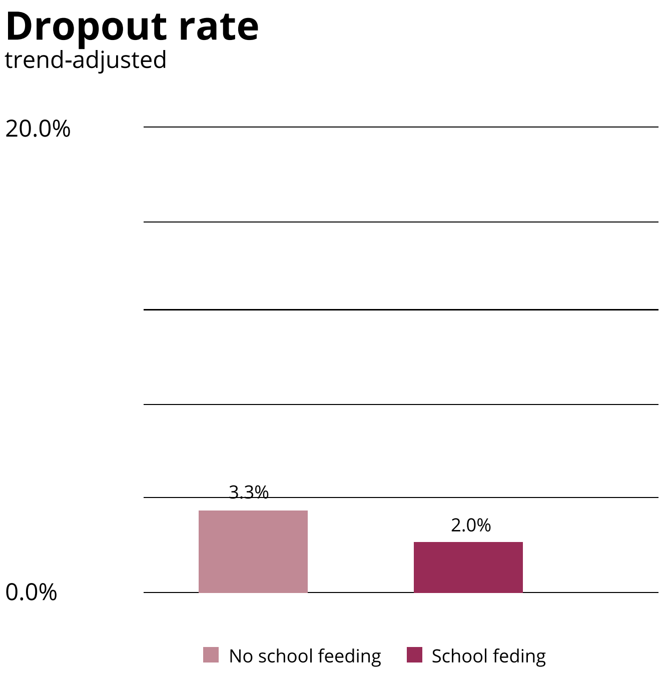


Figure 3: School attendance rate, Control Schools and Treatment Schools



[20] Montenegro, Claudio E.; Patrinos, Harry Anthony. 2014. Comparable estimates of returns to schooling around the world. Policy Research working paper ; no. WPS 7020. Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/830831468147839247/Comparable-estimates-of-returns-to-schooling-around-the-world

Figure **4**: School dropout rate, Control Schools and Treatment School



Gender Disaggregated Outcomes

In addition to wage increases associated with improved test scores and longer schooling among Healthy Meals recipient children, closing the gender gap means recipient girls attain an additional USD 12.95 through nutrition DALYs averted. With regard to the gender disaggregated benefits of the Healthy Meal programme on schooling duration, the data supplied by the Ministry of Education for the Cost-Benefit Analysis and modelling shows that girls attending Healthy Meals recipient schools have an annualized school duration (calculated as enrolment rate multiplied by attendance rate, then multiplied by 180 school days) of approximately 166.4 days per school year. Compared to non-recipient schoolgirls, over the seven-year period of the school feeding programme, Healthy Meals recipient girls attend 0.14 more years of school than their non-recipient peers. This additional schooling undertaken by girls in Healthy Meals schools, compared to girls who do not receive meals, results in test scores improved by an estimated 1.10 standard deviations. For boys[21] receiving Healthy Meals at school, the annualized schooling duration is 171.8 days, which represents 0.38 more years of schooling than non-recipient boys. The additional schooling received by Healthy Meals-recipient boys equates to an estimated 1.14 standard deviation improvement on standardized tests. The improvement in test scores, which is comparable for boys and girls receiving Healthy Meals, are associated with an additional income of USD 23.64 per child. Furthermore, longer schooling is associated with an additional income of USD 6.32 per child. The contribution of school-based nutrition to non-communicable disease reductions for girls results in an estimated USD 1.85 value per year of nutrition DALYs averted by closing the gender gap. Over the seven-year period of the programme, this results in USD 12.95 per schoolgirl. The above-mentioned benefits of test scores (USD 23.64), longer schooling duration (USD 6.32), and associated DALYs averted for girls (USD 12.95) equate to as much as USD 42.91 per girl.[22, 23]

21 For girls, calculated as: 180 days/yr x 6.47 yrs school life expectancy equals 1164.6. 1164.6 / 7 yrs = 166.37 days/yr. For boys, calculated as: 180 days/yr x 6.68 yrs school life expectancy for boys equals 1202.4. 1202.4 / 7rs = 171.8 days/yr.

22 This value is deducted in the overall healthier life component, to avoid double counting.

23 Note: The cognition effect of school feeding is not country-specific and has been widely measured through variations in test scores. It has been observed in various environments across the globe and corresponds to an average increase of 0.17 Standard Deviation in test scores for every year during which a child benefits from school feeding. A single Standard Deviation increase in test scores is associated with an increase in expected wages of up to 11 percent.

Photo credit: WFP Jordan

Impact of Improved Nutrition on Education and Health

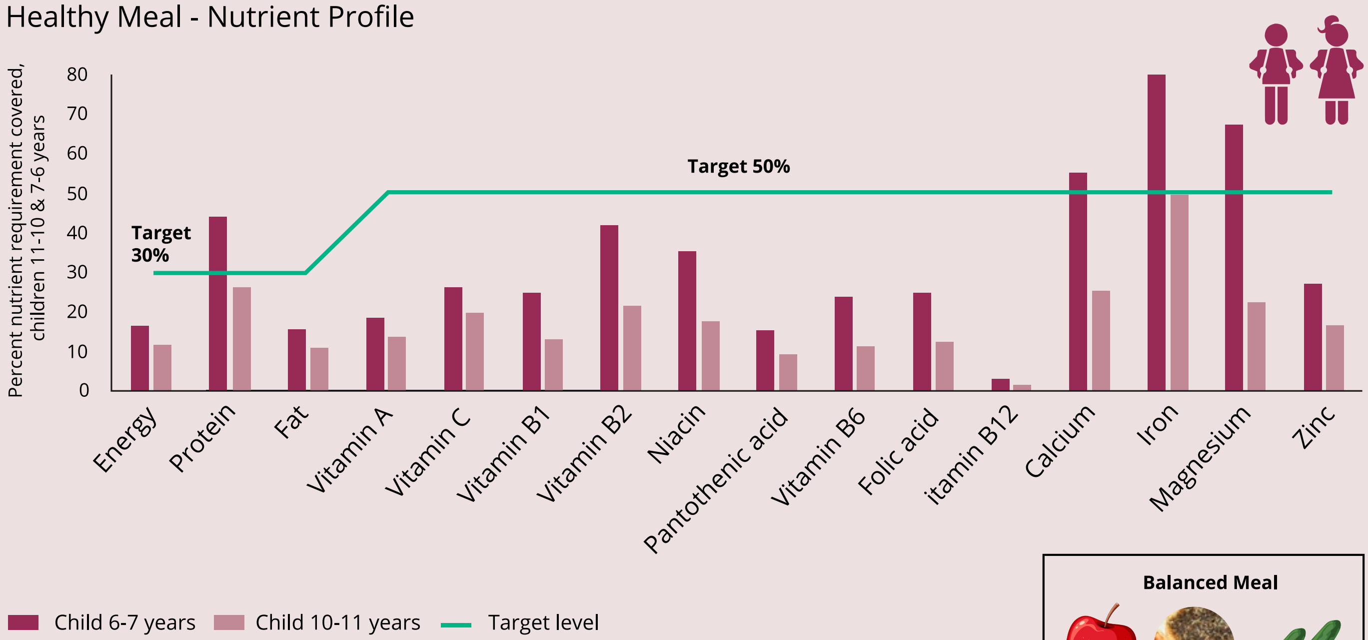
The impact on education and health of enhanced nutrition delivered by the Healthy Meals modality, which is nutrient optimized and diet diversified, is believed to be particularly significant in Jordan. Based on the findings of the 2019 National Micronutrient Survey, and interviews in the course of this Cost-Benefit Analysis with WFP field staff, it is understood that many children arrive at school without having eaten breakfast, and some also have to walk and travel long distances. Hence, providing nutritious and diverse school meals plays a critical role in ensuring that children have the cognitive ability to concentrate and study. This is supported by qualitative data gathered from school principals, as well as the 2024 impact evaluation, both of which show that the better-quality meals afforded by the Healthy Meals intervention increase students' focus and concentration in the classroom. Globally, increased attentiveness in the classroom has been linked to improved test scores, education outcomes, and workforce productivity.

The Healthy Meal model also provides essential nutrients that support brain development and physical health for school children, contributing to the development of critical thinking and problem solving, creativity, emotional intelligence, and the foundation for a healthy immune system to last a lifetime. This is supported by WFP's Fill the Nutrient Gap analysis, conducted in 2024, which assesses the nutritional value of the Healthy Meal and date bar/biscuit feeding modalities. Figures 5 and 6 below show the nutrient profile for the Health Meal and for date bars/biscuits. When comparing the two, it is evident that the nutritional value of the Healthy Meal is superior to that of the date bar/biscuit model. For example, figure **5** shows that the Healthy Meal contributes approximately 20% of the Recommended Daily Allowance of Vitamins C, B1, B2, Niacin, and Magnesium which are not provided by the date bar/biscuit modality. Heathy Meals also deliver nearly double the amount of Calcium and Iron compared to the date bar/biscuit modality.

Figure **5**: Healthy Meal Nutrient Profile

Percent nutrient requirement covered by menu 1, children 6-7 and 10-11 years

Healthy Meal - Nutrient Profile

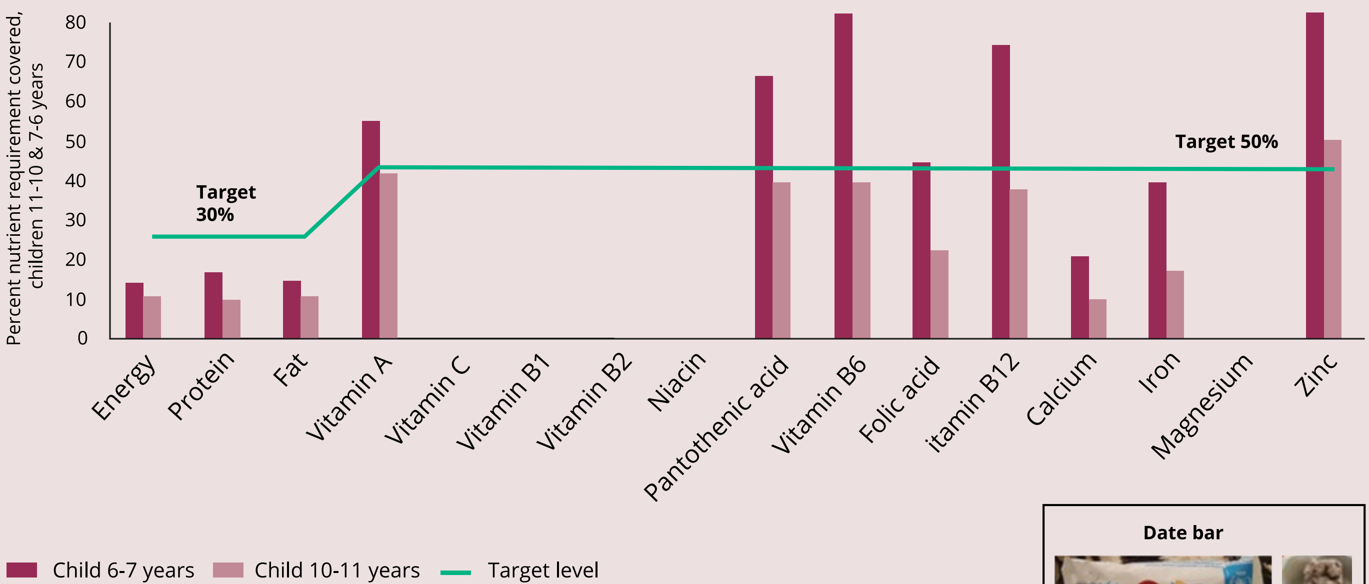


Balanced Meal

Figure **6**: Current Alternative School Meal (Snack Bar) Nutrient Profile

Percent nutrient requirement covered by the date bar, children 6-7 and 10-11 years

Snack Bar - Nutrient Profile



Date bar

Increased Productivity Measured Through Increases in Wages

The benefits of the Healthy Meal school feeding translate into an additional income of USD 1,297.79 over the lifetime of each student beneficiary.[24] The analysis starts with identifying a base wage for the income bracket of NSFP beneficiaries based on the the Gross National Income (GNI) per capita of the population's lowest quintile which is the most representative for the NSFP's target group. The average GNI per capita in Jordan between 2012 and 2022 was USD 4,097. According to World Bank data, the lowest quintile of the Jordanian population holds only about 7.53 percent of all income (on average), which translates to an average GNI per capita of USD 1,542.23 for the population's lowest quintile. This figure is considered as the base wage from which the additional income generated by school feeding is calculated. Any increase in income or increase in working years is calculated from this number. An increase in the base wage year-on-year is applied to calculate the income increase throughout the beneficiaries' working life due to additional years of schooling associated with school feeding.[25]

Further, children who are not hungry show better understanding and learning abilities which are then associated with increased productivity in adulthood. This is called a "cognition effect" which looks at the impact of an intervention, such as school feeding, on test scores and on average does not vary across countries and can thus be used for the analysis in Jordan. 26 Based on the cognition effect, an increase in test scores of one Standard Deviation is associated with an increase in future expected wages of 11 percent.27 The data from Jordan suggests that students (both male and female) who benefitted from school feeding can expect to achieve a 1.12 Standard Deviation improvement in their test scores as a result of improved cognition and attendance. This improved learning and performance in class results in their earning additional lifetime wages, as compared to a child who did not receive meals at school. Figure 7, below, is a representation of this marginal part of the revenue over the lifetime of the beneficiary *in today's dollars* or Net Present Value. The graph shows hows increased productivity outcome occur mainly in the long term as they begin with the working life of beneficiaries and cease with retirement.

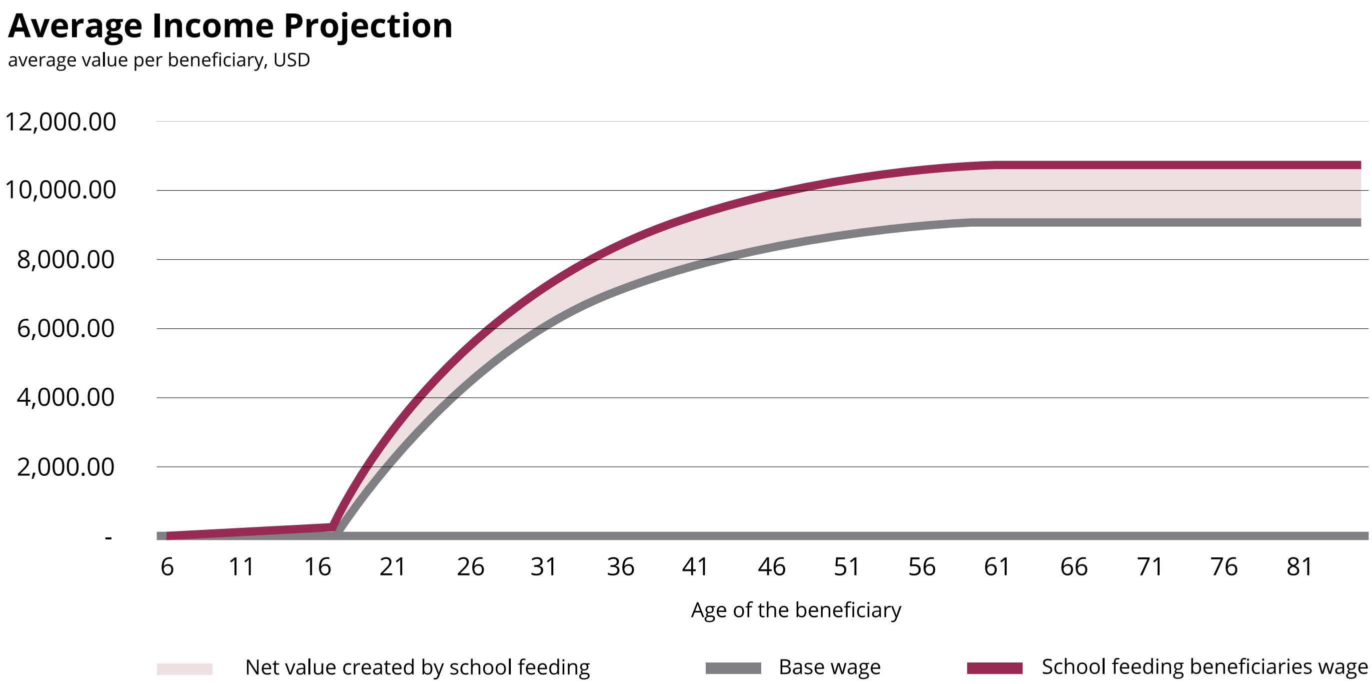
24 This value is estimated in Net Present Value (NPV).

25 The year-on-year increase is calculated in the following way: since the effect of school feeding lasts throughout the working life of the beneficiary, that is to say approximately between the ages of 18 and 60 (taking into account the age of retirement and life expectancy effects), it is necessary to discount the cash flows associated with future wages to calculate their Net Present Value, to make them commensurate with expenditures and costs associated with the provision of school feeding in the present. The discount rate used for social protection programmes is not identical to that used for private sector investments, as it does not only rely upon forecasted inflation and economic growth but also needs to take into account the forecasted human and social development of the country. This rate is called the Social Discount Rate and this study uses a 10 percent rate for Jordan, based on a benchmark of similar studies. As a consequence, the Net Present Value of future wages decreases over time even if the nominal wage increases every year, as the discount factor gets higher every year.

26 The cognition effect has been observed in various environments across the globe and corresponds to an average increase of 0.17 Standard Deviation in test scores for every year during which a child benefits from school feeding.

27 Matthew Jukes, Lesley Drake and Donald Bundy (2007), School Health, Nutrition and Education for All: Levelling the Playing Field, Cambridge, CABI Publishing, pp. 97-109.

Figure 7: Average Income for Healthy Meals recipients (top line) vs. non-recipients (bottom line)



Healthier and longer life

Because feeding during childhood determines long-term health, school-fed children live healthier and longer lives. Indeed, children receiving school feeding are less exposed to disabilities and disease during their lifetime, especially towards the end of their lives. This is calculated based on the amount of DALYs averted by the Healthy Meal school feeding programme. As defined above, DALY can be defined as a year of healthy life lost due to illness, disability or early death. 28 This calculation is not redundant with the healthcare expenditure reduction calculated above, as the DALY reduction equates to days of life saved due to the school feeding intervention and the value of healthy lifetime expressed in dollars.

The Healthy Meal school feeding leads to a value creation of USD 68.06 per child, through DALYs averted.

This value quantifies the cost of healthcare and reduced productivity associated with each DALY in Jordan specifically which is saved with every DALY averted. DALYs associated with every known illness and health risk factors are periodically published for each country and each age group in the Global Burden of Disease Study, published by the World Health Organization together with other international agencies and academic partners, including the Institute for Health Metrics and Evaluation.[29] In Jordan, one DALY is associated with a cost of USD 4,405.84 per person. This cost derives from health care, reduced productivity and other similar variables. The Healthy Meal school feeding directly contributes to reduction of the DALYs as a result of with three health risk factors that are: (i) iron deficiency; (ii) vitamin A deficiency (both iron and vitamin A deficiency can lead to anemia and other health conditions); and (iii) unsafe water, sanitation and handwashing.

28 More information on DALYS on: http://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/.

29 More information on the Global Burden of Disease Study on: http://www.who.int/healthinfo/global_burden_disease/gbd/en/

This reduction for the age group 5-14 in Jordan amounts to:

- Iron deficiency: 0.007 DALYs
- Vitamin A deficiency: 0.004 DALYs
- Unsafe water, sanitation and handwashing: 0.004 DALYs

Therefore, the combination of these three risk factors equates to approximately 0.015 DALYs that would be averted thanks to the Healthy Meal school feeding. As a result, the cost averted per child can be calculated to be USD 4,405.84 x 0.0154 or USD 68.08.

B. Benefits Associated with Female Kitchen Workers

Income Generation:

According to Healthy Meal programme documents the average monthly salary for kitchen staff is USD 420 as of September 2024, based on the combined USD 367 salary and USD 53 in social security benefit, per month, paid by the Healthy Meal school feeding programme. The formula used to determine income generation for the 250 Healthy Meal women workers is: {Number of Women} x {Average Salary in USD} = 250 x USD 420 = USD 105,000/month or USD 1,260,000 per year.

Economic Impact of Increased Income:

(Multiplier Effect): Assuming that the workers' earned income, spent in the local economy, supports additional jobs and spending, we can use a multiplier. A conservative estimate of the economic impact multiplier would be 1.5x.[30] Hence, the formula to determine Total Economic Impact is: {Annual Income} x {Multiplier} = USD 1,260,000 x 1.5 = USD 1,890,000.

Job Creation and Opportunities:

(Estimated Secondary Job Creation): If each of the 250 Healthy Meal jobs directly created supports an additional 0.5 jobs[31] in the local economy, we can calculate the indirect jobs. Indirect Jobs Created: {Indirect Jobs} = {Number of Workers} x 0.5 = 250 x 0.5 = 125 jobs. It is important to note that this variable was not quantified in the analysis in economic terms.

Capacity Building and Trainin:

(Investment in Skill Development): The CBA stakeholders group assumes that job training increases wages by 20% over time.[32] Therefore, the initial salary of $420/month, multiplied by the increase (20%) equates to an added USD 84/month. This increase results in a new monthly salary of USD 504. The total annual increase is USD 84 x 250 workers x 12 months = USD 252,000.

Taken together, the CBA stakeholders group estimates that the total economic benefits for 250 women workers employed by the Healthy Meal programme is USD 3,402,000 per year.

This benefit was incorporated into the CBA model by employing the following methodology. In order to measure the impact of an additional USD 3,402,000 in programme benefits, while still working within the original CBA framework, the team decided to reduce the cost of programming by the same USD 3,402,000. Through this approach, the amount of USD 3,402,000 was removed from the commodities line item (see Annex 3 Excel Workbook line 31). This approach increased the baseline (student centered) return on investment of USD 4.4 per USD 1 invested,

30 Batini, et. al., International Monetary Fund, Fiscal Multipliers: Size, Determinants, and Use in Macroeconomic Projections, 2014.

31 The role of food and agriculture for job creation and poverty reduction in Jordan and Lebanon, World Bank Group, March 2018.

32 World Bank Group, Jordan Economic Monitor, Summer 2024: Strength Amidst Strain: Jordan's Economic Resilience. Listed annual growth rates (2.7% in 2023) were utilized as a proxy for average individual annual wage increase and estimated by the CBA working group at around 1.3% to 2.3% (4% to 5% cumulative) after worker capacity building to increase productivity.

up to USD 5.3 per USD 1 invested, including student-focused benefits and the estimated benefits associated with female kitchen workers.

The recent Impact Evaluation for School Feeding in Jordan supports the above estimates. Conducted by the World Bank's Development Impact department in partnership with WFP and the Ministry of Education, it found that the Healthy Meal modality delivers significant benefits for women employed to support the school meals intervention through food preparation, cooking, and packaging. The evaluation asked, *What is the impact of formal wage employment outside the household on women's social and economic empowerment?* Results indicated that women who received a job offer are five times more likely to be employed, and more likely to want to remain in employment in the future. This is meaningful considering that Jordan has one of the lowest rates of female participation in the labor force in the world, estimated to be at 14%.[33] Furthermore, the evaluation found that among women employed in Healthy Meal kitchens, their income triples, and their household income increases by a third.

Meanwhile, their household savings increase by nearly 50%, and household non-food expenditures increase by 8%. Female kitchen workers employed to support the Healthy Meal modality report higher life satisfaction than unemployed women, and their male household members present less restrictive attitudes towards these women, who are often earning more than their husband. Taken together, the results of the World Bank-led evaluation show that the Healthy Meals intervention has multiple positive benefits for women, in addition to delivering transformative benefits for schoolchildren. These findings are also complemented by testimonies provided by kitchen workers and kitchen managers themselves, who report:

"NOW THE WORKERS ARE TAKING CONTROL OF THEIR LIVES MORE THAN EVER... THEY SAY THAT NOW THEY HAVE A GOOD REASON TO WAKE UP EARLY IN THE MORNING. THE IMPACT OF THEIR WORK IS ESPECIALLY POSITIVE ON THEIR PERSONALITIES AND MENTAL STATE."

Kitchen Manager, Al-Dafyaneh

"NOW, IN MY HOUSE I USE THE GOOD TIME MANAGEMENT SKILLS I HAVE LEARNED ON THE JOB. ALSO, BECAUSE OF MY JOB AND SALARY I AM PART OF THE DECISION MAKING IN MY FAMILY."

Kitchen Worker, Tafilah

33 https://genderdata.worldbank.org/en/economies/jordan#:~:text=In%20Jordan%2C%20the%20labor%20force,older%20that%20is%20economically%20active.

> "IN FACT, ONE FEMALE KITCHEN WORKER TOLD ME, YOU MOVED ME FROM THE BOTTOM TO THE TOP."
>
> THIS IS BECAUSE THE COMMUNITY-BASED ORGANIZATION GIVES TRAININGS TO THE WOMEN ABOUT THEIR RIGHTS IN SOCIETY AND AIMS TO GIVE THEM EMPOWERMENT – NOT ONLY THE ABILITY TO WORK IN A KITCHEN."
>
> Kitchen Manager, Al-Dafyaneh

C. Benefits Associated with Local Farmers

The Healthy Meals school feeding sources fruits and vegetables from 295 local small holder farmers who benefit from a stable demand; predictable and competitive prices; and WFP-provided support for quality assurance of produce. As a home-grown school feeding model, as of 2024 the Healthy Meals modality primarily sources fruits and vegetables from small holder farmers in six governorates, complementing quantities when needed from central markets. According to the NSFP's administrative data, 80 percent of commodities are purchased inside the country. Of these, an estimated 40 percent are purchased at retail markets (which source a conservative estimate of 2 percent of all commodities from local farmers) and 60 percent are purchased directly from local farmers groups.

Taken together, the CBA stakeholders group estimates that the total economic benefits for 295 local farmers employed by the Healthy Meal programme is USD 5,514,118. This calculation is broken down into the sections below.

Based on estimations of retailer profit margins (15 percent) and farmer cooperative administration cost (7 percent), the amount which reaches local farmers is USD 27.96 per child per year, or USD 195.72 over the seven-year school feeding term. As of 2024, the Healthy Meal modality now reaches 90,000 students, resulting in a total value of USD 17,614,800. Further, monitoring data and anecdotal evidence suggest that the guaranteed purchase of large quantities at competitive prices has helped farmers negotiate better agreements with other buyers. In addition, the programme offers traceability services which refer to a set of over 100 tests conducted on produce, soil, etc. which can be accessed in real time by scanning a QR code placed on each box. This ensures that there is a strong quality control mechanism for produce, as pesticide use is high in Jordan. It also provides access to data for small holder farmers to access higher value chains with the rest of their produce.

Income Generation:

According to HM programme documents the average annual value of all school feeding procurement from local farmers during the CBA focus years of 2018, 2019, and 2022, is USD 1,901,427. The total number of farmer suppliers is 295. Hence, the monthly income is calculated as: {Annual Procurement} / {Number of Farmers} / 12 mos. or USD 1,901,427 / 295 farmers / 12 months, which equates to USD 537.12 per month or USD 6,445.51 per year per farmer.

Economic Impact of Increased Income:

(Multiplier Effect): Qualitative evidence from the programme, and global academic evidence show that the money spent in the local farm economy supports additional jobs and spending, creating a multiplier effect. The CBA stakeholder group selected a conservative multiplier rate of 1.5x based on international evidence.[34] Hence, the formula to determine Total Economic Impact is: {Annual Income} x {Multiplier}. This calculation (USD 1,901,427 x 1.5) totals USD 2,852,140 per year.

Job Creation and Opportunities:

(Estimating Secondary Job Creation): Similar to the logic used above, it is expected that the income generated from the project may lead to additional job creation. Based on international evidence, the CBA stakeholder group assumed that each of the 295 farmer jobs directly created supports another additional 0.5 jobs[35] in the local economy. Therefore, the number of indirect jobs created is calculated through the following formula: {Indirect Jobs} = {Number of Workers} x 0.5. This calculation (295 x 0.5) totals 147.5 secondary jobs created.

Capacity Building and Training:

(Investment in Skill Development): Based on international evidence, the CBA stakeholders group assumes that job training increases wages by 20% over time.[36] Therefore, the initial monthly earnings, USD 537.12/month, increased by 20% equates to an added USD 107.42/month. The updated monthly income for farmers is calculated as USD 537 + USD 107.42, equating to USD 644, or an annual increase for all farmers of (USD 107.42 x 295 farmers) x 12 months, totaling USD 380,266.

Improved Policy Environment and Business Climate:

The United Nations Food and Agriculture Organisation (FAO) estimates that policy reform can increase farm incomes by between 10% and 30% depending on the extent and nature of the reforms.[37, 38] The CBA stakeholders group selected a midpoint of 20% to estimate an increase in income of USD 380,285. The following formula was used: USD 1,901,427 x 20% or USD 380,285.

How the benefit was incorporated in the CBA modelling:

In an attempt to measure the impact of another USD 5,514,118 in programme benefits, the CBA modelling was adjusted in two ways. First, the total programme costs value (USD 5,901,233) was attributed to Commodities; and the ratio of Healthy Meals procurement (local farmer vs. retailer) was adjusted until local farmers derived approximately USD 5,514,118 (their total estimated benefit) in income per year. While this approach is considered only an estimate of added benefits associated with local farmers and agriculture sector, the result was a USD 0.6 positive increase in the rate of return.

34 Batini, et. al., International Monetary Fund, Fiscal Multipliers: Size, Determinants, and Use in Macroeconomic Projections, 2014.

35 The role of food and agriculture for job creation and poverty reduction in Jordan and Lebanon, World Bank Group, March 2018.

36 World Bank Group, Jordan Economic Monitor, Summer 2024: Strength Amidst Strain: Jordan's Economic Resilience. Listed annual growth rates (2.7% in 2023) were utilized as a proxy for average individual annual wage increase and estimated by the CBA working group at around 1.3% to 2.3% (4% to 5% cumulative) after worker capacity building to increase productivity.

37 FAO, The State of Food and Agriculture 2010-2011: Women in Agriculture.

38 IFPRI, Agriculture for Development, World Development Report 2008, noted that removing trade barriers and providing better infrastructure could improve agricultural productivity by up to 50%.

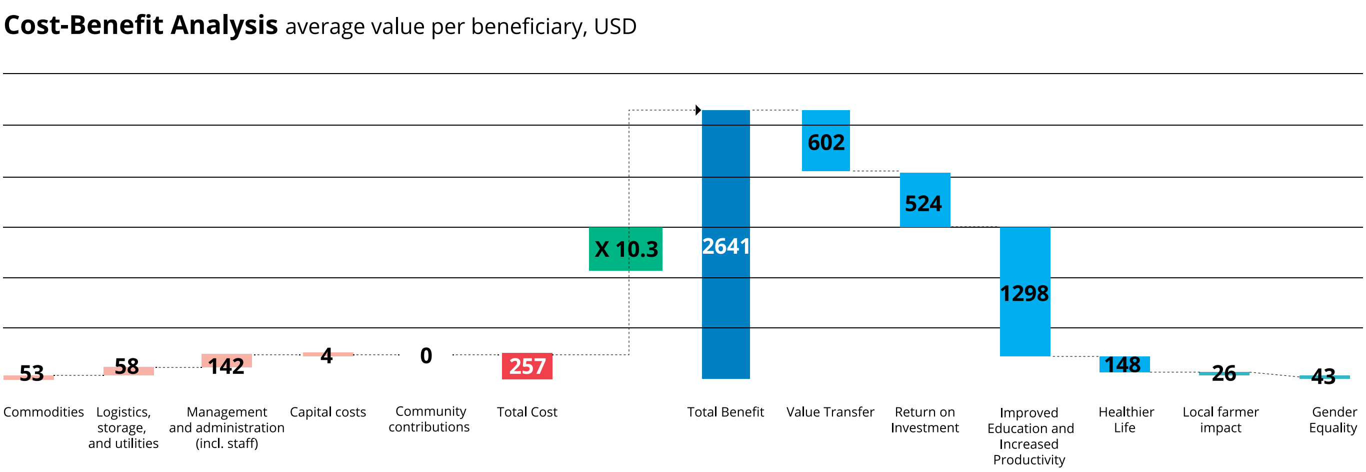
04 FINDINGS

04 FINDINGS

The Healthy Meals school feeding in Jordan is a productive investment in human capital development, which generates an average return of USD 10.3 for every USD 1 invested.[39] Out of the USD 10.3, USD 4.4 are the estimated returns to students who benefit from the programme, while the rest covers benefits to female kitchen workers and small holder farmers.[40]

This ratio is within the expected range and comparable with other similar programmes worldwide. As demonstrated in Figure 8, the final return on investment for the Healthy Meal school feeding modality is calculated based on the total benefits and total costs of the programme in Jordan.

Figure **8**: Cost-Benefit Breakdown for Jordan (student, kitchen worker, and farmer-inclusive)



39 This value is obtained using a combination of 2 methodologies: (i) the original methodology developed by WFP and BGC, and (ii) a complementary methodology developed by the Jordan CBA team.

40 As discussed in the methodology section, The estimation of the USD 4.4 RoI uses a more robust methodology jointly developed by WFP and BCG. The estimation of the USD 10.3 RoI builds on the WFP/BCG methodology and was developed by the Jordan CBA team.

Photo credit: WFP Jordan

This analysis of the Jordanian Healthy Meals school feeding programme shows that it delivers significant benefits in the short, medium, and long-term, and across a range of pathways that involve children as they mature toward adulthood, also women workers employed by the programme, and local farmers employed by Healthy Meals. Taken together, these benefits are estimated to generate a return on investment that could reach as high as USD 10.3 per USD 1 invested.

Students

For students, who will benefit over the course of their lives, the Healthy Meal school feeding programme shows a benefit of more than USD 2,600 over an individual's lifetime. The highest share of these benefits is due to higher productivity, of which most of it can be attributed to increased wages due to better cognition and more time spent in school. The other benefit drivers are value transfer, return on investment on saved assets for households and the increased earnings from healthier life. The benefits of school feeding are present throughout the lifetime of the beneficiaries given their contribution to increased productivity over time. However, these benefits are concentrated primarily during primary school when feeding is received, also through their adolescence and into early adulthood. The benefits then level off over the course of their productive lives. The Healthy Meal school feeding programme costs USD 87 per student per year, adding up to a total of USD 607 over the lifetime of each student from kindergarten to 6th grade. The main cost driver of the programme is the food commodity cost; followed by the management, administration and staffing; and logistics, storage and utilities, and capital costs

Women Workers

Women workers, who are employed by the Healthy Meal school feeding programme, were also shown by this analysis to be significant beneficiaries of this intervention. Approximately 250 women are employed by the programme, with each one generating around USD 5,040 in annual income that strengthens their family finances, resilience, and improves their decision-making power and feeling of gender equality. Going further, as each Healthy Meals-employed worker spends her earned wages at community level, that infusion of capital into local community businesses, representing new demand, promotes local community job creation as supply emerges to meet that demand. Finally, as the women workers learn and grow in their roles and professional skills, they will become more efficient and productive at work and command increased wages which can further promote local economic development. Taken together, the CBA stakeholders group estimates that the total economic benefits for 250 women workers employed by the Healthy Meal programme is USD 3,402,000 per year. This benefit associated with women workers is a significant contribution to the programme's estimated return on investment.

Photo credit: WFP Jordan

Local Farmers

Local farmers also represent significant Healthy Meals programme beneficiaries according to this analysis. Local farmers have been welcomed into a reliable institutional market for school meals, and in doing so, these 295 agriculturalists have generated increased annual earnings and diversified their production in such a manner that benefits local and regional agriculture more broadly. According to programme financial records, the 295 Healthy Meals programme farmers earn nearly USD 6,500 per year per farmer. This income has served to strengthen the local and regional farm sector, and increased shock resilience for farmers and their households. Furthermore, as these farmers spend their capital in the local community, the impact is multiplied and results in the creation of businesses and jobs to meet the new and increased demand. Going further, local farmers' participation in the Healthy Meals programme, agricultural extension training opportunities, and new institutional market, is contributing to improved farm efficiency and increased farm productivity, as well as an improved policy environment that fosters farmer participation in this and other business opportunities. Taken together, the CBA stakeholders group estimates that the total economic benefits for 295 local farmers employed by the HM programme is approximately USD 5,514,118.

The multi-faceted benefits of the Jordanian Healthy Meals programme are clear to the CBA stakeholder group, as we look across the three main beneficiary groups: students as they become adults, women workers, and local farmers. **Taken together, these returns on the investment in Healthy Meals make clear the value of a continued and expanded intervention whereby Healthy Meals will benefit children and their communities across the country and serve to develop Jordanian human capital.**

05 RECOMMENDATIONS AND CONCLUSION

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Recommendations

Building on the findings of the Cost-Benefit Analysis outlined above, as well as on interviews conducted with school staff, WFP, MoE field staff, parents, and school meals kitchen staff, we submit five recommendations that may help to further improve Healthy Meal school feeding programme in Jordan. They are as follows:

1. ***Expansion of the Healthy Meal model***
   As demonstrated by this CBA and other evidence products (i.e. impact evaluation), the NSFP's Healthy Meal modality represents a high-return investment that benefits various groups of Jordanian society. The Healthy Meal modality can act as a safety net to reduce the impact of economic shocks to households brought on by various challenges to labor and housing markets as well as the affordability of staples. It also addresses micronutrient deficiencies within the child demographic. Based on this, WFP recommends Government consideration to the expansion of Healthy Meals. A first step, aligned with the National School Feeding Strategy, would be the expansion of the Healthy Meal modality to students currently receiving date bars/ biscuits, given the significant benefits associated with this model, with the aim of reaching 500,000 students with HM by 2030.

2. ***Implementing complementary activities***
   WFP has a wide expertise in complementary school feeding activities that can boost the effectiveness of school feeding and combat malnutrition. One such intervention could be deworming activities which refers to routinely providing deworming treatment (i.e. pills) to students in schools to improve their health and nutrition outcomes. According to the stakeholder group, deworming treatments are not consistently provided to children in schools, including those benefiting from the Healthy Meal school feeding, despite intestinal parasites remaining a public health issue. Deworming is routinely coupled with school meals distributions in countries where WFP works and has shown a correlation to children's ability to take up the full nutritional benefit of the meal.

   Another recommended complementary intervention could be to provide operational trainings for school meals providers, such as school administrators, teachers, and supply-side actors, on how to safely handle and distribute meals to children. This would include trainings on basic hygiene standards, food safety, and awareness of food allergies and intolerances. According to the interviews conducted, none of the school-based respondents (i.e. teachers and school administrators) had received training in these areas, which currently represents a gap in programming.

3. ***Expanding targeting to additional beneficiaries***
Given the benefits of the Healthy Meal model, the Government of Jordan could consider eventually widening the targeting criteria to cover the first 8,000 days of a child's life (the programme currently covers children until age 12 which is equivalent to 4,380 days). This period covers three critical phases of student development: the middle childhood growth and consolidation phase (ages 5–9) when infection and malnutrition constrain growth and mortality is higher than previously recognized; the adolescent growth spurt (ages 10–14) when substantial physical and emotional changes require good diet and health; and the adolescent phase of growth and consolidation (ages 15 to early 20s) when new responses are needed to support brain maturation, intense social engagement and emotional control.[41]

4. ***Opportunities to Increase the Healthy Meal Menu's Nutritional Value***
The Government of Jordan and WFP have agreed not to make any further major changes to the existing Healthy Meal menu given that it was developed over 10 years of testing, in order to focus on the gradual handover of the NSFP to MoE. The current menu would ensure the programme's sustainability at least in the short to medium term, as when the handover is completed the menu can be revisited. However, there are still opportunities to increase the menu's nutritional value by making minimal changes and additions. Using WFP's corporate analysis tools such as the Fill the Nutrient Gap (FNG),[42] opportunities to strengthen the menu can be identified. For instance, previous analysis has shown that using fortified flour for the pastry or selecting iron-rich vegetables for pastry fillings can increase the nutritional value of the menu without making major changes to the overall menu.

5. ***Strengthening home-grown school feeding***
Where appropriate, WFP recommends that the Government should revisit efforts to promote the involvement of small and medium-scale food producers in the school feeding programme. As a significant portion of uncooked school food commodity is already being sourced from small scale producers, the Healthy Meals modality and diversified food basket represents a unique opportunity. Further inclusion of small and medium scale producers can help to support rural economic development as smallholders gain access to dependable institutional markets and help to further strengthen the Kingdom of Jordan's agricultural value chains.

41 Bundy, D.A.P., et.al.. 2017. Child and Adolescent Health and Development (with a Foreword by Gordon Brown). Volume 8. In D.T. Jamison, R. Nugent, H. Gelband, S. Horton, P. Jha, R. Laxminarayan and C. Mock, eds. Disease Control Priorities (3rd edition). Washington, DC, World Bank.

42 WFP's Fill the Nutrient Gap tool analyses the nutrition situation in a country and identifies the barriers faced by the most vulnerable to accessing and consuming healthy and nutritious foods. The project is carried out in collaboration with a range of national stakeholders and its results are used to inform policies and programming in social protection, food systems, health, agriculture, education and other sectors that can contribute to improving nutrition

Photo credit: WFP Jordan

Conclusion

The rate of return of the National School Feeding Programme's Healthy Meal modality is 1:10.3. This means that for every USD 1 invested in Jordan, up to USD 10.3 are created in the country's GDP.

This figure includes a rate of return on investment of 1:4.4, capturing the benefits for students which was calculated using a methodology developed by WFP and Boston Consulting Group as well as benefits to kitchen workers and small holder farmers which were calculated using a complementary methodology developed by the Jordan CBA team. The CBA therefore captures the NSFP's entire theory of change by quantifying the programme's benefits on all stakeholders and beneficiaries involved.

School feeding in Jordan is a profitable investment and makes a significant contribution to the development of human capital. School feeding acts as a value transfer to the households and provides parents with an incentive to send their children to school, therefore increasing the quality and the length of education. By actively helping to reduce absenteeism among school children and improve their education and health practices, school feeding is a powerful tool to support Jordan's development on both the short and the long term.

School-age children, those under age 14, represent about 32 percent of the Jordanian population.[43] Scaling-up school feeding can expand what is already a major social protection intervention, by reaching more children in need. Further, by supporting not just students, but also their parents, communities and local businesses, the Healthy Meal modality of the National School Feeding Programme is a holistic intervention with multiple benefits.

The benefits of the Healthy Meal school feeding programme are underscored by the examination of local farmer and female kitchen worker roles within the programme. The Healthy Meal school feeding programme provides a dependable institutional market for local farmers, and formal employment for women workers. Going further, local quantitative and qualitative evidence make clear that these benefits trickle down to the wider community ensuring that the Healthy Meal programme's benefits are multiplied beyond its immediate recipients.

It is therefore evident that the National School Feeding Programme's Healthy Meal modality represents a productive investment that yields multiple benefits across Jordanian society. As a result, its expansion to additional beneficiaries will increase its contributions to Jordan's human capital development and economic growth.

43 United Nations Population Division. World Population Prospects: 2022 Revision.

06 ANNEXES

06 ANNEXES

Annex 1: Qualitative Interviews

Interviews and Healthy Meals feedback discussions were held in five different school communities in order to inform this Cost-Benefit Analysis. The team contacted school principals, Healthy Kitchen Managers and Healthy Kitchen workers in Tafileh, Bsera, Mafraq, Ramtha, and Madaba. The feedback provided below is anonymized and edited only lightly for clarity.

Feedback from Healthy Meals School Principals

Question 1:
Has school feeding proven to have a direct impact on your student recipients? How?

Representative Answers:
"Yes, school feeding has had a direct impact on our student's in-class participation. The difference is particularly noticeable as our school is in a remote and impoverished area with many low-income families. The meal positively affects our students› academic performance and increases their participation. For some families, children might eat fruit only once per month outside of school." – School Principal, Bsera

"Yes, the students eagerly anticipate the feeding programme, and absenteeism among younger students decreases significantly. In general, absenteeism tends to increase on Thursdays when only date bars are provided, as the students prefer the full meals. Additionally, their engagement and participation in the classroom are noticeably better when the school feeding programme is in place, especially compared to periods without it, such as the last week of the term." – School Principal, Mafraq

"Yes, there is a noticeable difference in the social level between the two schools I have been assigned to as a principal. The current school is in a poor community where household provisions are either non-existent or very small, so students heavily rely on school feeding. In my previous school, the snack bars provided were not fully consumed, highlighting the value of a full meal in this context. When students eat a meal, their participation in the classroom significantly improves." – School Principal, Ramtha

Question 2:
Do you believe that school feeding improves student academic achievement? Why?

Representative Answers:
"Yes, our teachers report that they noticed a positive impact on the students' performance, especially for 5th and 6th grade students, they›re achieving great results and for sure the meals are one of the big factors." – School Principal, Ramtha

"Yes, the primary difference observed is between a student who has had a Healthy Meal and another who hasn't. Students after eating the meal become more actively present and engaged in class." – School Principal, Ramtha

"Yes, the primary reason is that consistent attendance and reduced absenteeism are crucial for academic progress. When students attend school regularly, they are more likely to keep up with their studies and perform better academically." – School Principal, Mafraq

Question 3:
Do you believe that the school›s average daily attendance rate would drop if school meals were not offered?

Representative Answers:
"That is a sure thing. The drop would be high and the percentage might reach to 40% absence rate. Moreover, there would be a big burden on the parents to provide daily breakfast for their kids and probably that is not possible, so I would also expect lower academic achievement. On the nutrition aspect, without Healthy Meals it is highly expected that the students would consume more sugars." – School Principal, Mafraq

"There would be a huge negative impact, as it would reveal the different socioeconomic levels of the students, which probably would result in bullying between the students… Absence would be high, and students would not be motivated to come to the school especially they will know that they will remain hungry. I would expect a 30% drop in attendance at least."– School Principal, Tafilah

"The reduction would be significant. Currently, over 22 students out of a total of 370 attend school specifically for the meal provided. The school has many children who are neglected by one or both parents, with 98 students coming from separated families. There is a substantial number of poor families in the area who live on very low incomes, which underscores the importance of Healthy Meals in maintaining their attendance." – School Principal, Tafilah

Question 4:
Do you believe that it is important to provide children with a healthy meal (multiple commodities, nutritionally balanced for their needs) on each school day? Please explain why or why not?

Representative Answers:
"It is very important, as it covers the basic nutrition needs for the students, it will have an impact on their health if they did not consume such items 4 times a week. I think that it would be great if we could also distribute Healthy Meals on Thursdays." – School Principal, Tafilah

"Yes, when the meal boxes arrive, students are eager to help distribute them, particularly enjoying the pastries of oil and za›atar on Wednesdays. Most families in our community rely on a single income, with many mothers being housewives, meaning various types of nutritious food are only available a few days a month or not at all. Providing these meals ensures students receive essential nutrients regularly." – School Principal, Bsera

"Of course! These ingredients are valuable at this age, while they are still growing. Healthy Meals supports their immunity and gives them sufficient energy for school." – School Principal, Mafraq

Question 5:
Does MoE provide sufficient incentives to the teachers involved in managing the meals distribution to ensure that the programme is delivered following correct procedures?

Representative Answers:
"There›s an incentive given from Ministry of Education. The Ministry supports the programme through a dedicated team that gets feedback from the schools and follows up on all operational aspects. Their feedback is positive and the communication is good between them and the schools." – School Principal, Ramtha

"Yes, at the beginning of each scholastic year, the Ministry contacts the school to submit the names of those involved, and at the end of each term, participating teachers, including the cleaner, receive 30 JoD. This helps us ensure that the programme is delivered following the correct procedures." – School Principal, Ramtha

"Yes, the idea of the incentive is good, and it is given to the members who support the School Feeding programme in the school. The Ministry team does regular follow ups, sometimes they take samples of the extra meals to check on the quality, and they always provide and receive feedback from the schools. They observe the distributions." – School Principal, Bsera

Question 6:
Have parents or students given you feedback or questions about school feeding? If "yes", what was the feedback?

Representative Answers:
"Yes, the surrounding community is very happy with the programme. Although the school›s capacity was originally 500 students, we now have 700 enrolled. Parents specifically ask about the school feeding programme when registering their children." – School Principal, Bsera

"During mothers' meetings, parents have provided positive feedback about the school feeding programme. They have praised the fact that their children are well-fed at school. Additionally, parents have become more aware of their children›s nutrition. One specific piece of feedback is that children often request breakfast on Thursdays, indicating that they are accustomed to the regular meals provided at school." – School Principal, Tafilah

"Yes, parents and students have given feedback about the school feeding programme. They have expressed praise and gratitude to the school for providing meals and fruit, noting that it has also helped their household save money." – School Principal, Mafraq

Other Feedback:
"I suggest including 7th and 8th grade students, as they always ask if there are extra meals. The income is very low in our area, and household income has been affected since the war has started in Syria as the boarders closed. Students are not relying on the canteen, which insures that they are eating less junk food and shows the importance of the meal. Many students here come to the school without having breakfast." – School Principal, Ramtha

Feedback from Healthy Meals Kitchen Managers

Question 1:
Do you believe that it is important to provide children with a healthy meal (multiple commodities, nutritionally balanced for their needs) on each school day? Please explain why or why not?

Representative Answers:
"Yes, the impact of Healthy Meals in schools is big because when a poor community like ours has the meals, you can see that the burden on families is lowered. When students are continually asking why we

don't distribute the meals during all days, you know that they eat and enjoy the meal, and that it is very important to them." – Kitchen Manager, Tafilah

"Yes. The meals reduce student absence, and because we are in poor community the distribution of Healthy Meals allows all students to feel that they are equals because all of them get to eat at school. Before this, not all students were able to bring a meal or afford to buy food during the school day." – Kitchen Manager, Ramtha

"Yes. Healthy Meal delivery drivers have told me that when they deliver the meals, the students are waiting for them to arrive. We're in a poor community and a meal at school is very important to them." – Kitchen Manager, Al-Dafyaneh

Question 2:
Have you received any training to help you perform your Healthy Meals Kitchen Manager job (for example, training on food safety and quality)?

Representative Answers:
"Yes, I receive training every semester from WFP and RHAS. The training focuses on how to lead the kitchen staff and also food safety, food handling, and kitchen cleaning." – Kitchen Manager, Mafraq

"At the beginning of each semester, RHAS trains me on the Healthy Meals project, on food handling, and proper kitchen hygiene. There is always direct guidance for me." – Kitchen Manager, Al-Dafyaneh

Question 3:
In your opinion, are you/is your staff appropriately trained to supply meals on all school days, or is additional support recommended (and which type of support)?

Representative Answers:
"They are very well trained for their work. They have received the needed training." – Kitchen Manager, Mafraq

"The workers take HACCP training, and there is always direct guidance regarding the work they do. In fact, when workers are leaving and being replaced, departing workers will stay on temporarily to train and help the new workers to ensure their readiness." – Kitchen Manager, Al-Dafyaneh

Question 4:
In your opinion, are you/ is your staff appropriately equipped with supplies (for example, the necessary type and amount of food commodities, utensils, cookware, food packaging, gloves and hair nets) to supply meals on all school days, or is additional support recommended (and which type of support)?

Representative Answers:
"All the necessary equipment is in place, and nothing is missing in terms of gloves, hair nets, and essential supplies. The Healthy Meals kitchen is replenished every two weeks." – Kitchen Manager, Mafraq

"Yes, they are properly equipped because whenever they ask for supplies, the management tries to be responsive and make the needed supplies available for them." – Kitchen Manager, Tafilah

Question 5:
For women who are employed by the kitchen, would you say that their/your kitchen work and income earning is transformative for <u>them or for their families?</u> If so, how?

Representative Answers:
"Yes, it enhances the living and economic conditions of the women, as they are all are extremely in need. They were selected from families that truly deserve assistance. This job opportunity has been crucial in helping them cover their obligations, such as rent and meeting the needs of their children, especially since some of the children have special needs." – Kitchen Manager, Mafraq

"Yes. When you give a woman financial independence, she will be stronger and part of the decision making process in her house, especially when her husband is unemployed and they have children...and that is the story of the most workers in our kitchen." – Kitchen Manager, Tafilah

"Yes. Now the workers are taking control of their lives more than ever... they say that now they have a good reason to wake up early in the morning. The impact of their work is especially positive on their personalities and mental state." – Kitchen Manager, Al-Dafyaneh

Question 6:
For women who are employed by the kitchen, would you say that their/your kitchen work and income earning is transformative for <u>the community</u>? If so, how?

Representative Answers:
"Yes. At the beginning of the project the community was not accepting female work, but over the years that has changed. Now I receive calls daily asking about when the project will start. also, the workers become more social and have good relations." – Kitchen Manager, Al-Dafyaneh

"Yes. In fact, one female kitchen worker told me, "You moved me from the bottom to the top." This is because the CBO gives trainings to the women about their rights in society and aims to give them empowerment - not only the ability to work in a kitchen." – Kitchen Manager, Tafilah

Question 7:
Do you find it easy or difficult to find and retain kitchen workers?

Representative Answers:
"It is easy because when we advertise for a Heathy Kitchen worker position, we always interview additional applicants so that we keep a backup list of good candidates." – Kitchen Manager, Tafilah

"It is not difficult. Most are selected from families that were already receiving assistance from the association. The rest came through open calls to apply for work. The kitchen workers are all happy to be working and hopeful for continued employment." – Kitchen Manager, Mafraq

Feedback from Healthy Meals Kitchen Workers

Question 1:
Do you believe that it is important to provide children with a healthy meal (multiple commodities, nutritionally balanced for their needs) on each school day? Please explain why or why not?

Representative Answers:
"Yes, absolutely. The Healthy Meals have contributed to enhancing the child›s role both at school and at home, as the majority of them come to school without breakfast and cannot afford to buy it." – Kitchen Worker, Mafraq

"Yes. It is a nutritious meal, so now, even when the families don›t have enough money to give their children, they know that they will have something good to eat. In fact, when I am walking in the street, the children know that I work for the Healthy Meals kitchen and they keep asking me, "Why don›t you give us meals on Thursdays?" If one of the children is absent because they are sick, they will still ask to have the meal." – Kitchen Worker, Tafilah

Question 2:
Would you say that your kitchen work and income earning has been transformative for <u>you or your family?</u> If so, how?

Representative Answers:
Yes. I am divorced and have three children, also a divorced daughter who has two children. My only

source of income is this job in the Healthy Meals kitchen. My 18-year-old son left school to pursue work to help cover our household expenses and our debts. My job in the Healthy Meals kitchen, and the salary, is very important for us." – Kitchen Worker, Mafraq

"Yes. This is my first work experience. I had to work to cover household expenses such as food and rent. My husband does not work consistently, and the Healthy Meals kitchen is our primary source of household income." – Kitchen Worker, Al-Dafyaneh

Question 3:
For women who are employed by the kitchen, would you say that their/your kitchen work and income earning is transformative for the community? If so, how?

Representative Answers:
"Yes. This work has significantly contributed to developing my skills in learning new things, meeting new people, and building a network of connections that will enhance my chances of finding new job opportunities in the future. This work also plays an effective role in serving school students, which is very important to me." – Kitchen Worker, Al-Dafyaneh

"I feel like I was missing important skills before I began my job. I was just a mother taking care of her children. However, the kitchen played a crucial role in my personal development, raising my general awareness, and enhancing my role in building new relationships that will improve life for my family and community."
– Kitchen Worker, Madaba

NOTE: Within the kitchens surveyed, there were 86 Healthy Meals Kitchen Workers. Workers were paid a salary of JOD 240 and 100% of them were women. 85% of them were ages 25 to 64, with 14% of them in the age 18 to 24 demographic and 1% of them in the over age 65 demographic. When asked if they would be comfortable with the addition of male kitchen workers, the group was evenly divided between those who would be "less comfortable" and those who would be "equally comfortable".

Annex 2: Impact Evaluation Summary

JORDAN'S NATIONAL SCHOOL FEEDING PROGRAMME
IMPACT EVALUATION PRELIMINARY RESULTS

OVERVIEW

An impact evaluation is a scientific method for identifying the causal effects of a program on its beneficiaries and communities. This evaluation seeks to pinpoint specific changes among the National School Feeding Programme (NSFP) beneficiaries directly attributable to the program. It compares the programme's two modalities, the healthy meal modality with the date bar modality, to determine the impact of the healthy meal modality on children and female kitchen workers. The assessment does not focus on measuring the impact of school feeding versus no school feeding; instead, it compares the effects of the two distinct modalities within the NSFP.

The impact evaluation comprises two main components. The first component examines whether children receiving the healthy meal experience greater benefits than those receiving the date bars. The healthy meal modality provides students with a cheese pastry, a fruit, and a vegetable for four days a week and a date bar for one day a week. In contrast, the date bar modality provides a fortified date bar or high-protein biscuit five days a week. The second component explores whether women employed by the program, responsible for preparing healthy meals in community kitchens, experience any changes in their socio-economic development when compared with women who were not offered a job by the programme.

This evaluation was conducted by the World Bank's Development Impact (DIME) department in partnership with WFP and the Ministry of Education (MoE). The sample size included 473 schools and 599 applicant kitchen workers and their households. To identify the causal effects of the program, the impact evaluation used a randomized controlled trial methodology for each component.

PRELIMINARY MAIN FINDINGS ON THE IMPACT OF THE HEALTHY MEAL MODEL:

1. **CHILDREN**

Evaluation question: **What is the impact of providing healthier school meals on primary students' diet, attention span, and educational outcomes?**

- **Dietary diversity increases** by about half a food group in healthy meal schools, mainly driven by fruits, dairy and fish/seafood.
- Children are **less likely to report bringing food to school** in healthy meal schools.
- **Physical activity increases** in healthy meal schools, and students report being **better able to focus and being less tired.**
- School-level **average absence days decrease** by close to 1 school day (out of 7).
- **No impacts detected for other outcomes** (i.e. attention span, learning and cognition, student cooperation).

2. **FEMALE KITCHEN WORKERS**

Evaluation question: **What is the impact of formal wage employment outside the household on women's social and economic empowerment?**

- Women who received a job offer are **five times more likely to be employed**, and more likely to **want to remain in employment in the future**.
- **Individual income triples**, and household income increases by a third; household savings increase by nearly 50%, and household non-food expenditures increase by 8%.
- Workers report marginally **higher life satisfaction**.
- Male household members present **less restrictive attitudes towards women** earning more than the husband.

Evaluation question: **What are women's preferences for formal wage employment contracts?**

- **Longer contracts** and the provision of **transport service** are the main factors influencing job choices. A pick-and-drop transport service is twice as preferred as a 12-month contract.
- A **mixed-gender workplace is never preferred** over a female-only workplace. While women may accept a mixed-gender workplace if an open-ended contract is offered, a 12-month contract is considered insufficient to compensate for a mixed-gender environment.
- **Smaller salary increases** (of 10%) **do not** influence **job choices** for those earning below the minimum wage, while larger increases (20%) do.

Research question: **What are men's preferences for their female household member's employment contract?**

- **Workplace gender composition** is the most important criterion for a job.

Annex 3: CBA Workbook Snapshot

Cost & Benefit Inputs | *Selection:* **Jordan**

Description: This worksheet contains hypotheses from academic literature, macro-economic and health indicators and country-specific data on school feeding. Please report required data in the green cells and verify data in the blue cells. The input column must be filled completely.

Country informations				
Country name	**Jordan**			
World Bank country code	**JOR**			
OECD country/group code	**WLD**			
Modelling assumptions				
	Unit	Value	**Need input**	Notes
Modelling				
Discount Rate	%	10.00%	**NO**	*Approx. World Bank Social Discount Rate; see paper The Social Discount Rate: Estimates for Nine Latin American Countries by Humberto Lopez*
Year N (last year for which data is available to run the CBA, e.g. 2024)	year	2022	**YES**	*This is usually the year before the current year.*
Cost input				
	Unit	Value	**Need input**	*Notes*
Costing framework				
Cost categories framework:	**Framework 3: national cost categories (total cost)**			*Select from drop-down list. You can modify the cost categories names in the "Costing framework" backup worksheet.*
Cost treatment:	**Actual costs (no treatment)**			*Select from drop-down list.*
Cost data				
Size of the programme				
Number of beneficiaries	#	68,000	**YES**	*Actual data or average number of beneficiaries of past years.*
Actual total costs				
Commodities	USD	514,915	**YES**	*Cost per beneficiary: USD 7.57*
Logistics, storage and utilities	USD	562,326	**YES**	*Cost per beneficiary: USD 8.27*
Management and administration (incl. staff)	USD	1,379,586	**YES**	*Cost per beneficiary: USD 20.29*
Capital costs	USD	42,406	**YES**	*Cost per beneficiary: USD 0.62*
Community contributions	USD	0	**YES**	*Cost per beneficiary: USD 0*
0	USD	0.00	**YES**	*Cost per beneficiary: USD 0 (for presentation purposes, the two last categories are merged in the cockpit's table and graphs.)*
Total cost of the programme	USD	2,499,233	**NO**	*Total cost per beneficiary: USD 36.75*
Standardization data - PLEASE DO NOT MODIFY THE BELOW AREA				
Modalities included in the programme				
Does the programme include meals?	0/1			
Does the programme include biscuits?	0/1			
Does the programme include take-home rations?	0/1			
Benefit input				
	Unit	Value	**Need input**	*Notes*
1. Value Transfer				
1.A. Value of the direct transfer				
(a) Primary & pre-primary schooling				
Age of beginning of school	years	6	**YES**	*National data: can vary from country to country. You should use theoretical/legal ages.*
Age of end of school	years	18	**YES**	
Number of years during which the children receive school meals	years	7	**NO**	*NB: The model will assume this is the programme duration.*
(b) Annual transfer value				
Fortified biscuits, snacks	USD	-	**YES**	*Country estimate: value of the closest substitute food available in the local market, at local current prices.*
Hot meal	USD	75	**YES**	*Country estimate: value of the closest substitute food available in the local market, at local current prices.*
Take-home rations	USD	-	**YES**	*Country estimate: value of the closest substitute food available in the local market, at local current prices.*
Total transfer value	USD	75	**NO**	*Calculation.*
2. Return on Investment				
2.A. Return on investment from additional income due to increased income (1.A. + 1.B.)				
Return on investment	%	54%	**NO**	*Average of evidences from academic literature (see "ROI average" worksheet)*
Investment rate	%	15%	**NO**	*Source: Growth theory through the lens of development economics, Massachusetts Institute of Technology Department of Economics Working Paper Series, December 2004*
Lifetime of an investment	years	10	**YES**	*Make a hypothesis on the average lifetime of a productive asset (5-10 years)*
NB: the model assumes that interests are not reinvested in the capital.				
3. Improved Education and Increased Productivity				
GDP growth				
GDP growth rate in Jordan in 2020	%	-1.55%	**AUTO**	*Source: World Bank.*
Projected GDP growth rate in 2021-2030	%	2.92%	**NO**	*Source: OECD GDP long-term forecast. The figure shown in this sheet is an average.*
Projected GDP growth rate in 2031-2041	%	2.49%	**NO**	*Source: OECD GDP long-term forecast. The figure shown in this sheet is an average.*
Projected GDP growth rate after 2040	%	2.13%	**NO**	*Source: OECD GDP long-term forecast. The figure shown in this sheet is an average.*
Base wage				
Scope of the educational effect				
Poverty headcount ratio at national line in Jordan in 2012-2022 (average)	0/1	5.00%	**AUTO**	*Source: World Bank. This is a 10-year average.*
Income quintiles on which school feeding can be an incentive to education	0/1	1st only	**NO**	*Should be one of the following: "1st only", or "1st and 2nd", or "1st to 3rd"*
Base wage calculation				
Average GNI per capita in Jordan in 2012-2022	USD	4097.00	**AUTO**	*Source: World Bank. This is a 10-year average. In case of need, you can enter this figure manually and overwrite the formula.*
Income share held by lowest 20% in Jordan in 1960-2022 (on average)	%	7.53%	**AUTO**	*Source: World Bank. This is a 62-year average.*
Lowest quintile average GNI per capita in Jordan in 2012-2022	USD	1542.23	**NO**	*Calculation.*
Income share held by second 20% in Jordan in 1960-2022 (on average)	%	11.47%	**AUTO**	*Source: World Bank. This is a 62-year average.*
Second quintile average GNI per capita in Jordan in 2012-2022	USD	2349.92	**NO**	*Calculation.*
Income share held by third 20% in Jordan in 1960-2022 (on average)	%	15.46%	**AUTO**	*Source: World Bank. This is a 62-year average.*
Third quintile average GNI per capita in Jordan in 2012-2022	USD	3166.40	**NO**	*Calculation.*
Base wage	USD	1542.23	**NO**	*Calculation. By default, the model uses the lowest quintile GNI per capita as base wage, except in countries in which more than 20% of the population lives under the poverty line.*
Life expectancy				
Average start of working life	years	18	**YES**	*Country data (usually available in national statistics).*
Average end of working life	years	60	**YES**	*Country data (usually available in national statistics).*
Life expectancy at the birth of the children in Jordan (2014)	years	73.97	**AUTO**	*Source: World Bank.*
3.A. Increased productivity due to better primary education				
Return to another year of schooling in Jordan	%	8.9%	**NO**	*Source: Montenegro, Claudio E.; Patrinos, Harry Anthony. 2014. Comparable estimates of returns to schooling around the world. Policy Research working paper ; no. WPS 7020. Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/830831468147839247/Comparable-estimates-of-returns-to-schooling-around-the-world*
Scenario selection:	**Scenario 3: ongoing school feeding programme with unstable economic situation (last year data may not be representative)**			*Select from drop-down list. The only difference between scenarios 2 and 3 is that scenario 3 uses a 3-year average for the calculations while scenario 2 uses last year data only.*
Last year before the beginning of the programme	year		NO	
Treatment group (schools with school feeding), MALE children				
Enrolment rate in 2020	%	97.90%	**YES**	*In unstable economic conditions, a 3-year average mitigates the impact of shocks*

Cost & Benefit Inputs — *Selection:* **Jordan**

Description: This worksheet contains hypotheses from academic literature, macro-economic and health indicators and country-specific data on school feeding. Please report required data in the green cells and verify data in the blue cells. The input column must be filled completely.

Country informations	
Country name	**Jordan**
World Bank country code	**JOR**
OECD country/group code	**WLD**

Modelling assumptions	Unit	Value	Need input	Notes
Modelling				
Discount Rate	%	10.00%	NO	*Approx. World Bank Social Discount Rate; see paper The Social Discount Rate: Estimates for Nine Latin American Countries by Humberto Lopez*
Year N (last year for which data is available to run the CBA, e.g. 2024)	year	2022	YES	*This is usually the year before the current year.*

Cost input	Unit	Value	Need input	Notes
Costing framework				
Cost categories framework:	**Framework 3: national cost categories (total cost)**			*Select from drop-down list. You can modify the cost categories names in the "Costing framework" backup worksheet.*
Cost treatment:	**Actual costs (no treatment)**			*Select from drop-down list.*
Cost data				
Size of the programme				
Number of beneficiaries	#	68,000	YES	*Actual data or average number of beneficiaries of past years.*
Actual total costs				
Commodities	USD	514,915	YES	*Cost per beneficiary: USD 7.57*
Logistics, storage and utilities	USD	562,326	YES	*Cost per beneficiary: USD 8.27*
Management and administration (incl. staff)	USD	1,379,586	YES	*Cost per beneficiary: USD 20.29*
Capital costs	USD	42,406	YES	*Cost per beneficiary: USD 0.62*
Community contributions	USD	0	YES	*Cost per beneficiary: USD 0*
0	USD	0.00	YES	*Cost per beneficiary: USD 0 (for presentation purposes, the two last categories are merged in the cockpit's table and graphs.)*
Total cost of the programme	USD	2,499,233	NO	*Total cost per beneficiary: USD 36.75*
Standardization data - PLEASE DO NOT MODIFY THE BELOW AREA				
Modalities included in the programme				
Does the programme include meals?	0/1			
Does the programme include biscuits?	0/1			
Does the programme include take-home rations?	0/1			

Benefit input	Unit	Value	Need input	Notes
1. Value Transfer				
1.A. Value of the direct transfer				
(a) Primary & pre-primary schooling				
Age of beginning of school	years	6	YES	*National data: can vary from country to country. You should use theoretical/legal ages.*
Age of end of school	years	18	YES	
Number of years during which the children receive school meals	years	7	NO	*NB: The model will assume this is the programme duration.*
(b) Annual transfer value				
Fortified biscuits, snacks	USD	-	YES	*Country estimate: value of the closest substitute food available in the local market, at local current prices.*
Hot meal	USD	75	YES	*Country estimate: value of the closest substitute food available in the local market, at local current prices.*
Take-home rations	USD	-	YES	*Country estimate: value of the closest substitute food available in the local market, at local current prices.*
Total transfer value	USD	75	NO	*Calculation.*
2. Return on Investment				
2.A. Return on investment from additional income due to increased income (1.A. + 1.B.)				
Return on investment	%	54%	NO	*Average of evidences from academic literature (see "ROI average" worksheet)*
Investment rate	%	15%	NO	*Source: Growth theory through the lens of development economics, Massachusetts Institute of Technology Department of Economics Working Paper Series, December 2004*
Lifetime of an investment	years	10	YES	*Make a hypothesis on the average lifetime of a productive asset (5-10 years)*
NB: the model assumes that interests are not reinvested in the capital.				
3. Improved Education and Increased Productivity				
GDP growth				
GDP growth rate in Jordan in 2020	%	-1.55%	AUTO	*Source: World Bank.*
Projected GDP growth rate in 2021-2030	%	2.92%	NO	*Source: OECD GDP long-term forecast. The figure shown in this sheet is an average.*
Projected GDP growth rate in 2031-2041	%	2.49%	NO	*Source: OECD GDP long-term forecast. The figure shown in this sheet is an average.*
Projected GDP growth rate after 2040	%	2.13%	NO	*Source: OECD GDP long-term forecast. The figure shown in this sheet is an average.*
Base wage				
Scope of the educational effect				
Poverty headcount ratio at national line in Jordan in 2012-2022 (average)	0/1	5.00%	AUTO	*Source: World Bank. This is a 10-year average.*
Income quintiles on which school feeding can be an incentive to education	0/1	1st only	NO	*Should be one of the following: "1st only", or "1st and 2nd", or "1st to 3rd"*
Base wage calculation				
Average GNI per capita in Jordan in 2012-2022	USD	4097.00	AUTO	*Source: World Bank. This is a 10-year average. In case of need, you can enter this figure manually and overwrite the formula.*
Income share held by lowest 20% in Jordan in 1960-2022 (on average)	%	7.53%	AUTO	*Source: World Bank. This is a 62-year average.*
Lowest quintile average GNI per capita in Jordan in 2012-2022	USD	1542.23	NO	*Calculation.*
Income share held by second 20% in Jordan in 1960-2022 (on average)	%	11.47%	AUTO	*Source: World Bank. This is a 62-year average.*
Second quintile average GNI per capita in Jordan in 2012-2022	USD	2349.92	NO	*Calculation.*
Income share held by third 20% in Jordan in 1960-2022 (on average)	%	15.46%	AUTO	*Source: World Bank. This is a 62-year average.*
Third quintile average GNI per capita in Jordan in 2012-2022	USD	3166.40	NO	*Calculation.*
Base wage	USD	1542.23	NO	*Calculation. By default, the model uses the lowest quintile GNI per capita as base wage, except in countries in which more than 20% of the population lives under the poverty line.*
Life expectancy				
Average start of working life	years	18	YES	*Country data (usually available in national statistics).*
Average end of working life	years	60	YES	*Country data (usually available in national statistics).*
Life expectancy at the birth of the children in Jordan (2014)	years	73.97	AUTO	*Source: World Bank.*
3.A. Increased productivity due to better primary education				
Return to another year of schooling in Jordan	%	8.9%	NO	*Source: Montenegro, Claudio E.; Patrinos, Harry Anthony. 2014. Comparable estimates of returns to schooling around the world. Policy Research working paper ; no. WPS 7020. Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/830831468147839247/Comparable-estimates-of-returns-to-schooling-around-the-world*
Scenario selection:	**Scenario 3: ongoing school feeding programme with unstable economic situation (last year data may not be representative)**			*Select from drop-down list. The only difference between scenarios 2 and 3 is that scenario 3 uses a 3-year average for the calculations while scenario 2 uses last year data only.*
Last year before the beginning of the programme	year		NO	
Treatment group (schools with school feeding), MALE children				
Enrolment rate in 2020	%	97.90%	YES	*In unstable economic conditions, a 3-year average mitigates the impact of shocks*

Iron deficiency in in age group 5-14	DALYs	0.0027	NO	*Source: Global Burden of Disease 2017. Calculation on major risk factors related to malnutrition causing DALYs*
Vitamin A deficiency in in age group 5-14	DALYs	0.0021	NO	*Source: Global Burden of Disease 2017. Calculation on major risk factors related to malnutrition causing DALYs*
Iodine deficiency in Jordan in age group 5-14	DALYs	0.0003	NO	*Source: Global Burden of Disease 2017. Calculation on major risk factors related to malnutrition causing DALYs*
Unsafe water, sanitation and handwashing in in age group 5-14	DALYs	0.0010	NO	*Source: Global Burden of Disease 2017. Calculation on major risk factors related to malnutrition causing DALYs*
(d) Gender gap				
Gender gap Iron deficiency	DALYs	0.0009	NO	*Calculation*
Gender gap Vitamin A deficiency	DALYs	0.0008	NO	*Calculation*
Gender gap Iodine deficiency	DALYs	0.0001		
Gender gap Unsafe water, sanitation and handwashing	DALYs	0.0003	NO	*Calculation*
(e) Caloric adjustment				
Daily nutritional intake covered by the programme	%	20%	YES	*Daily nutritional intake covered by the programme (amount delivered vs. amount needed)*
Real effect				
Impact of the programme on adjusted DALYs due to nutrition irrespective of ge	DALYs	0.0022	NO	*Calculation*
Impact of the programme on adjusted DALYs due to nutrition for gender equalit	DALYs	0.0004	NO	*Calculation*
4.C. Reduced DALYs due to health intervention (deworming)				
DALYs per person (boys) due to intestinal worms in Jordan in age group 5-14	DALYs	0.0000	NO	*Source: Global Burden of Disease 2017. Calculation on major intestinal nematode infections causing DALYs*
DALYs per person (girls) due to intestinal worms in Jordan in age group 5-14	DALYs	0.0000	NO	*Source: Global Burden of Disease 2017. Calculation on major intestinal nematode infections causing DALYs*
Gender gap Intestinal worms	DALYs	0.0000	NO	*Calculation*
Impact of the programme on adjusted DALYs due to deworming irrespective of	DALYs	0.0000	NO	*Calculation*
Impact of the programme on adjusted DALYs due to deworming for gender equ	DALYs	0.0000	NO	*If deworming intervention is in place, this value is the same as the theoretical impact. If not, it is 0.*
5. Local farmer impact				
(1) Commodity sourcing				
Share of commodities purchased in the country	%	80%	YES	*Country input: Based on country office information*
Cost of commodities purchased in the country	USD	411932.00	AUTO	
Thereof, share of commodities purchased at retailers (mayorista)	%	40%	YES	*Country estimate: Based on country office input or interviews*
Thereof, share of commodities purchased at co-operatives (minorista)	%	0%	YES	*Country estimate: Based on country office input or interviews*
Thereof, share of commodities purchased at local farmers	%	60%	YES	*Country estimate: Based on country office input or interviews*
		100%	AUTO	
(2) Local farmer revenue				
Revenue through national retailers	USD	164772.80	AUTO	
Retailer margin	%	15%	YES	*Country estimate: Based on country office input or interviews*
Share of retailer purchases coming from local farmers	%	2%	YES	*Country estimate: Based on interviews with retailers*
Revenue for local farmers coming from retailer purchases	USD	2801.14	AUTO	
Revenue through national co-operatives	USD	0.00	AUTO	
Co-operative administrative cost	%	7%	YES	*Country estimate: Based on country office input or interviews with co-operatives*
Share of co-operative revenue re-distributed to local farmers	%	93%	AUTO	
Revenue for local farmers coming from co-operative purchases	USD	0.00	AUTO	
Direct revenue for local farmers	USD	247159.20	AUTO	
Total revenue for local farmers	USD	249960.34	AUTO	
Total revenue for local farmers per beneficiary	USD	3.68	AUTO	

Annex 4: Annex 4: Reference Guide

GDP Growth Rate: World Bank DataBank World Development Indicators, filed 7/2022

GNI per Capita: World Bank DataBank World Development Indicators, filed 7/2022

Income Share Held by Lowest 20%: World Bank DataBank World Development Indicators, filed 7/2022

Income Share Held by Second 20%: World Bank DataBank World Development Indicators, filed 7/2022

Income Share Held by Third 20%: World Bank DataBank World Development Indicators, filed 7/2022

Poverty Headcount Ratio: World Bank DataBank World Development Indicators, filed 7/2022

Life Expectancy At Birth: World Bank DataBank World Development Indicators, filed 7/2022

GDP per Capita, Current USD: World Bank DataBank World Development Indicators, filed 7/2022

Domestic Public Healthcare Expenditure, USD: World Bank DataBank World Development Indicators, filed 7/2022

Domestic Private Healthcare Expenditure, USD: World Bank DataBank World Development Indicators, filed 7/2022

External Healthcare Expenditure, USD: World Bank DataBank World Development Indicators, filed 7/2022

Rates of Return to Education: Montenegro, Claudio E.; Patrinos, Harry Anthony. 2014. Comparable estimates of returns to schooling around the world. Policy Research working paper; no. WPS 7020. Washington, DC: World Bank Group.

GDP Long Term Forecast: OECD GDP Long Term Forecast; https://data.oecd.org/gdp/gdp-long-term-forecast.htm

WFP

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