WFP EVALUATION

# Impact Evaluation of the School Meal Programme in Jordan

Impact Evaluation Report

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# Acknowledgements

The work described in this report is the result of a collaboration between the World Food Programme's (WFP) Office of Evaluation (WFP) and the World Bank's Development Impact (DIME) department.

The impact evaluation has been pre-registered in the American Economic Association Randomized Control Trials registry at AEARCTR-0010860 (https://www.socialscienceregistry.org/trials/10860).

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# Key takeaways

- The World Food Programme, the Government of Jordan and the World Bank conducted a rigorous impact evaluation, using a randomized controlled trial, to assess the impact of a new delivery model within Jordan's National School Feeding Programme. The programme provides children in poverty pocket areas with healthy meals prepared by women in community-based kitchens.
- The evaluation has found that children's diets become more diverse in schools receiving healthy meals compared with children in schools receiving the status quo meal options: date bars and high-protein biscuits. Receiving healthy meals also makes children less likely to bring food to school, and results in less being spent at the school canteen.
- Children in healthy meal schools are more physically active**.** Student absence decreases by about one school day per school year in healthy meal schools. No short-term impacts were detected for other outcomes such as: attention span, learning and cognition, and student cooperation.
- Women who receive a job offer are much more likely to hold an employment during the intervention period compared to those who did not receive an offer. Women's income triples, and their household income increases by a third. Savings and non-food expenditures increase in households where women received job offers.
- Workers report marginally higher life satisfaction. The men in the employed women's households also report less restrictive attitudes towards women earning more than their husbands. No short-term impacts on other downstream outcomes were detected (bargaining power, social cohesion, food consumption and coping strategies).

# Executive summary

1. With an estimated 418 million children currently benefiting globally, school meals are among the most widespread social safety net programmes in the world.[1] Rigorous evidence from several countries has shown that school feeding programmes increase children's nutrition, enrolment, learning and cognitive abilities.[2] Through the recent focus on Home-Grown School Feeding Programmes, school meals are increasingly recognized as a key investment for governments to create a stable demand for locally produced food, support the creation of local jobs and promote more sustainable food systems.[3] Similarly, policymakers are recognizing the importance of providing balanced, nutritious meals in addition to caloric content to students. However, the innovative element of these new programmes means that little evidence is so far available to indicate whether their goals are being met.
2. To respond to this demand for evidence, the World Food Programme's (WFP) Office of Evaluation and School-based Programme, in partnership with the World Bank's Development Impact Group (DIME), created the School-based Programme Impact Evaluation Window.[4] The window aims to generate a portfolio of impact evaluations to inform policy decisions on the trade-offs in school-based programme designs, support governments to design and scale up their programmes, and contribute to the global evidence base for school meals.
3. The Government of Jordan asked the WFP Jordan country office to pilot and test a new delivery model within Jordan's National School Feeding Programme (NSFP) in partnership with the Royal Health Awareness Society. This new model introduces two important features: a move towards the distribution of healthier school meals, and a change from a centralized to a decentralized procurement of school meals.
4. This impact evaluation (IE) assesses the impact of the new school meals model, by comparing the status quo of centrally-procured fortified date bars, to a new healthier meal; that has been procured locally and assembled in community-based kitchens by local women. These programme innovations are especially pertinent in Jordan; a middle-income country with very high rates of childhood obesity (20.5 percent of children aged between 5 and 9 years old),[5] and one of the lowest rates of women participating in the labour force globally.[6]
5. The primary evaluation questions for the impact evaluation of the school-based programme in Jordan, are as follows:
    - What is the impact of providing healthier school meals on primary school students' dietary diversity, attention span, and educational and learning outcomes?
    - What is the impact of formal wage employment outside the household on the social and economic empowerment of women?
6. Secondary evaluation questions are as follows:
    - Does the introduction of healthier school meals change service delivery (e.g., the timely delivery of the number of meals ordered)?
    - Are there heterogeneous impacts of providing healthier school meals to primary school students?

[1] WFP. 2022. State of School Feeding Worldwide 2022. Rome: WFP.
[2] WFP. 2021. School feeding programmes in low- and lower-middle income countries. A focused review of recent evidence from impact evaluations. Rome: WFP.
[3] Research Consortium for School Health and Nutrition. 2023. School Meals and Food Systems: Rethinking the consequences for climate, environment, biodiversity and food sovereignty. (Working paper).
[4] WFP. 2021. School feeding programmes in low- and lower-middle income countries. A focused review of recent evidence from impact evaluations. Rome: World Food Programme
[5] WHO. 2024. Prevalence of obesity among children and adolescents, BMI > +2 standard deviations above the median (crude estimate). The Global Health Observatory: Explore a world of health data.
[6] World Bank. 2024. World Development Indicators.

- Does women's formal wage employment outside the household impact households' food consumption and food security?
- Does women's employment in community-based kitchens impact their trust and social cohesion in the communities in which the kitchens are based?
- Are there heterogeneous impacts of formal wage employment outside the household on women?
- What are the preferences of women and men in Jordan concerning women's wage employment arrangements?

7. To evaluate the impact on children's nutrition and education outcomes, the impact evaluation uses a cluster-randomized controlled trial (RCT) design. Out of 473 schools (grouped into 456 clusters), 142 schools (138 clusters) are assigned to provide the date-bar model, while 331 schools (318 clusters) are assigned to provide the healthy meal model to their students.
8. The evaluation uses another randomized control trial (RCT) design to assess the impact of women's employment in community kitchens, that prepare healthy school meals, on the local economy. The treatment group consists of 243 women, all eligible applicants, who are offered employment in the kitchen, while the control group consists of 356 women, all eligible applicants, who are not offered employment in the kitchen: due solely to the limited number of jobs available.
9. Data collection for assessing the impact on primary school children includes administrative data, school monitoring data, kitchen monitoring data, a child baseline survey in September 2022 and an endline survey in May 2023. Data collected for assessing the impact of women's employment in kitchens includes monitoring data, baseline surveys (August 2022), two high-frequency surveys (December 2022 and March 2023), and an endline survey (May 2023). The endline survey included a discrete choice experiment to understand employment preferences.
10. Overall, the impact evaluation finds the following:
    a. **Service delivery outcomes:** The healthy school meal modality provides more diverse food groups, less fat, more protein, and less sugar (6 percent of the healthy meal weight consists of sugars, compared to 40 percent of the date bars). Distribution reports, as well as teacher perceptions, show excellent service delivery for both school meal modalities. Compared to children who receive date bars children in healthy meal schools report a higher likelihood of receiving school meals, and greater satisfaction with their meals; 89 percent of students receiving healthy meals report being happy with the meal, compared to 83 percent of those receiving date bars. Teachers believe the healthy meal model positively impacts enrolment and dropouts.
    b. **Impacts on students:** Children's dietary diversity increases by a quarter of a food group in schools receiving healthy meals compared to schools receiving the date-bar model. Children in healthy meal schools are also less likely to bring food to school, bring less money to school, and report increased physical activity levels. Absence days decrease by about one day per school year in the healthy meal schools. The evaluation does not detect significant impacts on other outcomes such as attention span, learning and cognition, and student cooperation, which may in part be due to the short duration of the study. The introduction of healthy meals appears significantly more impactful for boys, compared to girls, in achieving changes in nutrition and physical activity levels.
    c. **Impacts on the local economy from a women's employment perspective:** The evaluation finds that eligible applicants who receive job offers are five times more likely to be employed (either in the community-based kitchens or somewhere else) than applicants without job offers. More importantly, they are also more likely to report to want to remain in the labour force. Since eligible applicants who received and accepted a job offer are paid by the programme, large impacts of the job offer are also observed on applicant and household income; with individual monthly income tripling (176 JOD compared to 52 JOD), and monthly household income rising by a third (456 JOD compared to 340 JOD). Job offers do not appear to affect food consumption, per capita food expenditure, and food security; however, households of applicants with job offers save about 50 percent more and spend 9 percent more on non-food expenditures. In terms of social empowerment, the impact evaluation detects small, but

significant, improvements in women's life satisfaction, and a shift in one dimension of men's attitudes towards gender norms: noting a more favourable view of women earning more than men. The evaluation does not detect significant impacts on agency in intra-household decision making and social cohesion.

d. A discrete choice experiment in the worker endline survey provides some insights into working women's employment preferences. Women appear to value longer contracts and transport services, and view mixed-gender workplaces unfavourably. For men, the gender composition of the workplace is the most important characteristic of a woman's job offer. Salary does not seem to be of particular importance for men or women in general.

11. Considering the positive impacts on children, there is a compelling case for scaling up the provision of healthier meals. The improvements observed in children's diets, and physical activity as a result of healthy school meals are of high importance as rates of overweight and obesity continue to increase with significant private and social costs.[7] The results from this evaluation can inform home-grown school feeding approaches in Jordan, and globally.

[7] WHO. 2024. Prevalence of obesity among children and adolescents, BMI > +2 standard deviations above the median (crude estimate). The Global Health Observatory: Explore a world of health data.

# 1. Introduction

12. With an estimated 418 million children currently benefitting globally, school meals are among the most widespread social safety net programmes in the world.[8]. Rigorous research and evaluation evidence from several countries has shown that school feeding programmes increase children's nutrition, enrolment, learning and cognitive abilities.[9] School meals are increasingly recognized as a key investment for governments to create a stable demand for locally produced food, support the creation of local jobs, and promote more sustainable food systems.[10] Similarly, policy makers are recognizing the importance of providing balanced, nutritious meals in addition to caloric content to students. However, the innovative element of these new programmes means that little evidence is so far available to indicate whether their goals are being met.

13. To respond to this demand for evidence, the World Food Programme's (WFP) Office of Evaluation and School-based Programme, in partnership with the World Bank's Development Impact Group (DIME), created the School-based Programme Impact Evaluation Window.[11] The window aims to generate a portfolio of impact evaluations to inform policy decisions on the trade-offs in school-based programmes' designs, support programmes and governments to design and scale up their programmes, and contribute to the global evidence base for school meals.

14. Jordan's National School Feeding Programme (NSFP) is part of the National School Feeding Strategy (2021–2025) launched by the Government in 2021. As part of the NSFP, over 430,000 students in 2,314 schools in vulnerable areas all around the country receive centrally procured date bars or high-protein biscuits as a school meal every day. The Government of Jordan has asked WFP's country office to pilot and test an alternative school feeding model, which aims 1) to increase children's nutritional diversity by providing healthier meals and 2) to foster socioeconomic development in poverty pockets by providing employment opportunities for women. As part of this alternative model, WFP and implementing partner (Royal Health Awareness Society) are hiring local women in community-based kitchens throughout the country to package school meals for children that consist of a cheese-filled pastry accompanied by one piece of fruit and one vegetable. These programming changes are especially pertinent in Jordan, a middle-income country with very high rates of childhood obesity (20.5 percent of children aged 5–9, WHO 2024) and with one of the lowest rates of women participating in the labour force globally (14 percent, World Development Indicators 2024).

15. This impact evaluation (IE) investigates the two changes in the Jordan school feeding programmes. First, it analyses the impacts of the change in meal composition on children's nutritional diversity, behaviour and learning outcomes. Second, it analyses the impacts of the change in the procurement model on service delivery and kitchen workers' employment opportunities, income, and other socioeconomic outcomes. The impact evaluation also aims to uncover the mechanisms through which realised impacts occur and consider the heterogeneity of impacts based on gender and other socioeconomic characteristics.

16. The report begins by describing the country's context and the programme. This is followed by a discussion on the evaluation methodology and design, limitations, and ethical considerations of the IE. The different data sources and tools used; followed by a discussion of programme implementation and service delivery outcomes. The report then presents the results, using statistical regression analysis on

[8] World Food Programme. 2022. State of School Feeding Worldwide 2022. Rome: World Food Programme.
[9] World Food Programme. 2021. School feeding programmes in low- and lower-middle income countries. A focused review of recent evidence from impact evaluations. Rome: World Food Programme
[10] Research Consortium for School Health and Nutrition. 2023. School Meals and Food Systems: Rethinking the consequences for climate, environment, biodiversity and food sovereignty. Working paper.
[11] World Food Programme. 2021. School-based Programmes Impact Evaluation Window: Concept Note. Rome: World Food Programme

key outcome variables, and qualitative results that corroborate quantitative results. Finally, the report discusses the conclusions and programmatic considerations that follow from the results.

## 1.1. EVALUATION FEATURES

17. The World Food Programme's Jordan country office was included in the School-based Programmes Impact Evaluation Window in May 2022.

18. The impact evaluation involves two randomized controlled trials (RCT) and investigates the following sets of impacts:

    a) The impact of receiving healthier meals prepared in community-based kitchens on primary-school students' education, nutrition, and behaviour, compared to the current practice of offering date bars as school meals;

    b) The impact on women and their households of, eligible applicants, receiving a job offer to package the school meals in community-based kitchens.

19. Firstly, to investigate the impacts on primary-school students the impact evaluation compares children's outcomes from 331 randomly selected schools that receiving meals through the community-based kitchen model, and compares them with the outcomes from children from 142 school schools randomly selected to continue with the date-bar model. The 473 schools participating in the impact evaluation were selected to be within a 45-minute driving distance from the eight community-based kitchens.

20. Secondly, to investigate the impacts of receiving an employment offer for the community-based kitchens, the impact evaluation compares outcomes across two randomized groups of eligible applicants: 243 women assigned to receive a job offer to work in the kitchen, and 356 women assigned not to receive job offer. The 599 workers participating in the impact evaluation are Jordanian and Syrian women who applied for the job and are eligible to work in one of the eight community-based kitchens. The design integrity experienced some challenges during implementation however, overall, the random assignment of eligible applicants to receive job offers or rejections was well followed. Thanks to close monitoring, only 4.2 percent of the respondents in the no job offer group were employed in the community-based kitchens. However, 28 percent of the respondents in the job offer group did not take part in the kitchen work.[12]

21. In total, the impact evaluation focuses on over 2,800 sampled students in 473 schools, and 599 women who applied to work in eight community kitchens. The evaluation spans two semesters: starting in September 2022 and continuing until the end of the 2022/2023 academic year, in June 2023.

22. The primary audience for this evaluation includes the Ministry of Education in Jordan, the World Food Programme's Jordan country office, and its collaborating partners. The evaluation findings are being used to inform the government of Jordan about implementing the National School Feeding Strategy (2021-2025), providing evidence of positive alternative implementation models such as the provision of healthy meals to more students in the country.

23. By investigating how nutrition-sensitive school meals contribute to children's health, nutrition, learning and cognitive outcomes, the results from this evaluation will contribute to the global evidence on the impact of school-meal programmes on children, as well as the extent to which different procurement systems increase the effectiveness of programmes at improving local economies.

## 1.2. COUNTRY CONTEXT

24. Jordan is a lower-middle income country with a population of around 10 million. Jordan has a young population, with 74 percent being under the age of 30. Since 1990 the fertility rate dropped from 5.2 to

[12] The most common reasons cited for declining the job offer among women were: the early work hours, that the job requires long hours of standing, and the distance to the kitchen being unsuitable.

2.8, and life expectancy rose from 70 to 74 years. About 90 percent of the population reside in urban areas, with 42 percent residing in the capital Amman. Jordan hosts approximately 1.3 million Syrian refugees of which 19 percent reside in camps, and the remaining reside among communities.[13]

25. Jordan is largely arid, with a limited supply of fresh water and arable land. The agricultural sector contributes 5.5 percent of GDP and employs 15 percent of the workforce.[14] Although Jordan is self-sufficient in high value crops such as vegetables the country remains dependent on food imports. High dependency on imports, such as importing over 90 percent of cereal product requirements, can leave Jordan susceptible to international trade shocks.[15]

26. Jordan's economy is showing signs of recovery since the COVID-19 pandemic and public health measures. In 2021, the economy grew by 1.8 percent.[16] Nevertheless, the pandemic exacerbated existing labour market challenges including unemployment, particularly among Jordan's youth and women.[17] The participation rate of women in the labour force in Jordan is one of the lowest in the world, at 14 percent in 2023 according to the World Development Indicators. In 2022, the return of international tourism encouraged GDP growth, but unemployment levels only slightly improved.[18]

27. In data on undernutrition reported between 1990 and 2012 there has been overall progress in reducing the incidence of stunting, underweight, and wasting.[19] It is important to note that among school-aged children from 5 to 9 years, the incidence of thinness (3.7 percent overall, 3.7 percent for boys and 3.8 percent for girls) is much lower than the very high rates of overweight (40.9 percent overall, 42 percent for boys and 39.6 percent for girls) and obesity (20.5 percent overall, 24.9 percent for boys and 15.9 percent for girls). However, regional trends differ; with incidence of stunting and wasting higher in the south than central and northern Jordan.[20] National data also shows an increasing trend in low birthweight which is often attributed to malnutrition among mothers.[21]

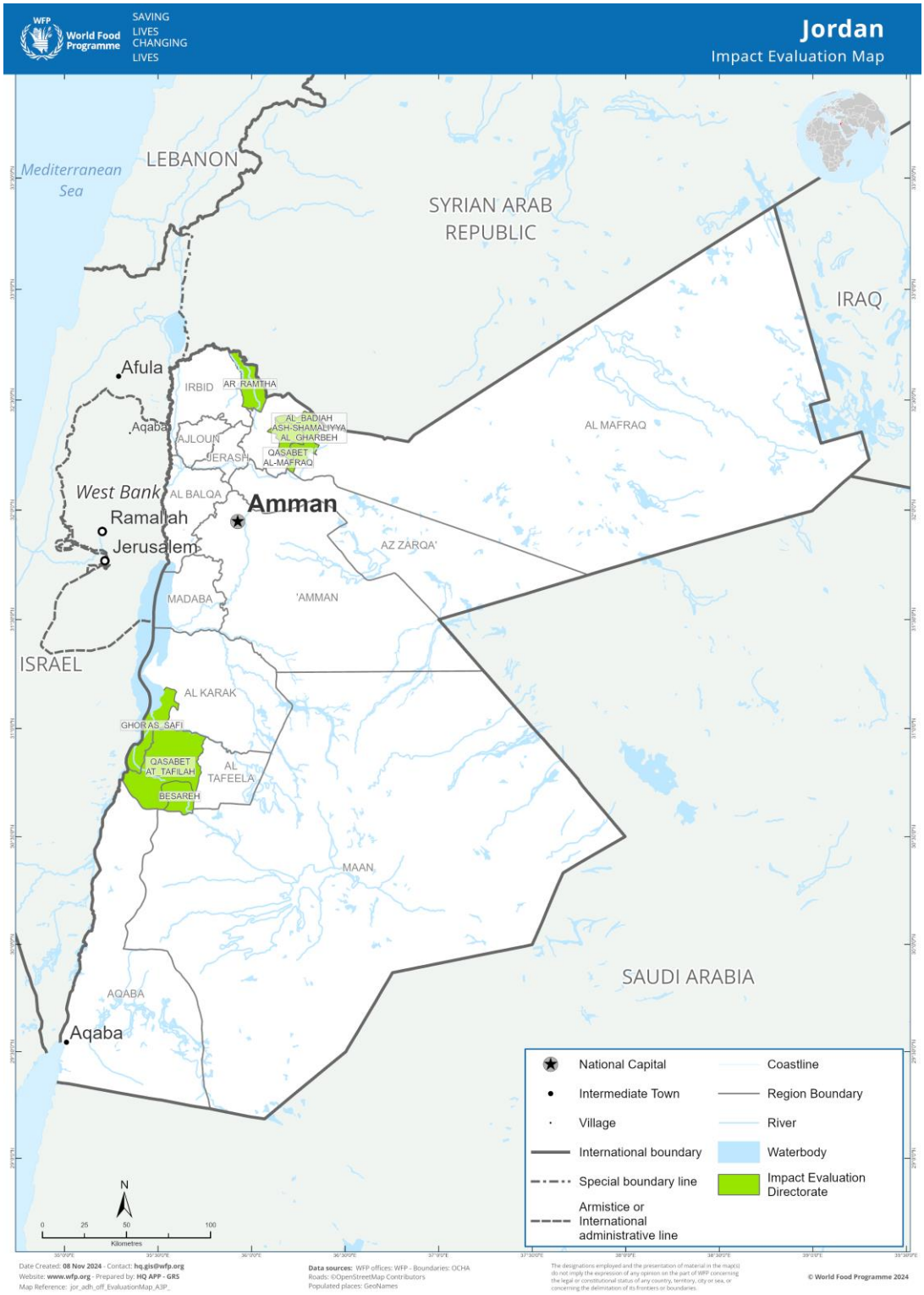
28. At the national scale, Jordan is witnessing increasing levels of malnutrition due to a: higher prevalence of children being overweight, unhealthy consumption habits, and reduced vegetable and fruit intake.[22] Micro-nutrient deficiency is notably found in iron and vitamin D across gender and age groups. Three percent of households in Jordan are considered food insecure and another 53 percent are vulnerable to food insecurity.[23] Among the Jordanian population, the rural governorate of Al-Tafilah faces the most food insecurity at 20 percent, followed by Zarqa at 8 percent.[24] Among the Syrian population, food security remains worryingly low as 84 percent of households in camps and 88 percent of households in communities are food insecure or vulnerable to food insecurity.[25]

29. During the COVID-19 pandemic, 42 percent of households were forced to adopt negative coping strategies due to food insecurity. Strategies include reducing meals or food intake, sending children to

[13] Karasapan, O. 2022. *Syrian refugees in Jordan: A decade and counting*.
[14] Jordan Investment Commission. 2019**.** *Agriculture: sector profile*.
[15] World Bank, FAO, IFAD and WFP. 2020. *Jordan Food Security Update: Implications of COVID-19*.
[16] World Bank. 2021. Jordan Economic Monitor, Fall 2021: En Route to Recovery.
[17] Ibid.
[18] World Bank. 2022. Jordan Economic Monitor, Fall 2022: Public Investment - Maximizing the Development Impact. f
[19] Ministry of Health, UNICEF, WFP, Jordan Health Aid Society International, Department of Statistics, Biolab, and GroundWork. 2019. Jordan National Micronutrient and Nutrition Survey.
[20] Zayed, A, Beano AM, Haddadin, F, Radwan S, Allauzy, S, Alkhayyat M, Al-Dahabrah Z, Al-Hasan Y, and Yousef, AM. 2016. Prevalence of short stature, underweight, overweight, and obesity among school children in Jordan. *BMC Public Health*, 16(1):1040.
[21] Al-Awwad, N. Ayoub, J. Barham R, Sarhan, W. Al-Holy, W. Abughoush, M. Al-Hourani, H. Olaimat, A. and Al-Jawaldeh, A. 2021. Review of the Nutrition Situation in Jordan/ Trends and Way Forward. *Nutrients*. 2021 Dec 28;14(1):135. 5; World Health Organization. 2014. Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition.
[22] Al-Awwad, N. Ayoub, J. Barham R, Sarhan, W. Al-Holy, W. Abughoush, M. Al-Hourani, H. Olaimat, A. Al-Jawaldeh, A. 2021. Review of the Nutrition Situation in Jordan/ Trends and Way Forward. *Nutrients*. 2021 Dec 28;14(1):135.
[23] UN Jordan. 2022. Policy Brief: Towards the Implementation of Jordan's Food Security Strategy.
[24] World Bank, FAO, IFAD and WFP. 2020. Jordan Food Security Update: Implications of COVID-19.
[25] Ibid.; WFP. 2024. See *Food Security Outcome Monitoring (FSOM)* for more updated information.

work, or reducing other necessary expenditures to allow budgeting for food. Negative coping strategies are higher among households headed by women.[26]

**Figure 1: Map of Jordan with areas included in the impact evaluation**




[26] Ibid

# 2. Programme description

30. School feeding interventions started in Jordan in the mid-1970s with strong ownership from the Government. Administered by the Ministry of Education and implemented in cooperation with WFP, the programme was implemented between 1975 and 1996 and provided meals to primary-level students (5–12 years old); with the aim to address food insecurity and increase school attendance and enrolment in remote areas in Jordan. Between 1999 and 2005, a second phase of the school-feeding project started when the Ministry of Education, in collaboration with the Ministry of Planning and International Cooperation, implemented the school feeding activities in underprivileged areas; with the objective of enhancing schoolchildren's health and nutrition. While both programmes reached the same age groups, the first programme in 1975–1996 targeted the rate of student attendance. During the second programme in 1999–2005, improvements to the meal were implemented in addition to incorporating the delivery of health awareness sessions.[27]

31. In 2013, because of the pressing repercussions of an economic crisis and the Syrian refugee crisis, WFP cooperated with the Government of Jordan to expand school feeding activities. The number of beneficiaries increased from 170,000 in 2013 to 350,000 students in 2014, and the meal was diversified, and fortified, with the provision of 80 grams of date-filled biscuits distributed to each student daily. From 2014 –2020, WFP also implemented a Healthy Kitchen Pilot project to experiment with new feeding models as part of the ongoing national project. No rigorous evaluations or research were found on this initial pilot.

32. A national education strategy was launched in 2018 by the Government of Jordan, identifying school feeding as a key component. In 2021, a National School Feeding Strategy was subsequentially launched with the aim to support existing NSFP efforts and expand impact at school and community levels. The current NSFP model is based on the daily distribution of two date-filled bars, or high-protein biscuits, to 430,000 students in 2,314 schools across the country targeting poverty-pocket areas.

33. With the objective to promote multisectoral coordination and encourage innovative community-level programmes to achieve the priorities of the National School Feeding Strategy, the Government of Jordan asked WFP to test and pilot alternative delivery models to the current NSFP.

34. In response to this request, in the academic year 2022–23, WFP piloted a new healthy meal intervention, called the community-based kitchen model. Building on the previous experience from the Healthy Kitchen Pilot model the new community-based kitchen model aims to deliver healthier meals using kitchen facilities run by community-based organizations (CBOs). Ten community kitchens were operationalized in the educational directorates of South Ghor, Ramtha, Mafraq, North-East Badiah, Bsaira, and Tafilah and eight kitchens were included in the impact evaluation. In the academic year 2021–2022, the healthy meal model was operationally piloted with three kitchens in two directorates: Madaba and South Shouneh (Figure 1).

35. The community-based kitchen model delivers a stuffed pastry,[28] accompanied by one fruit and one vegetable on four days, followed by one day of date bars per week. The pastries and vegetables are sourced from domestic wholesalers, while the fruits are procured both domestically and internationally. This is compared with five days of date-filled bars per week under the status quo NSFP.[29] The healthy meal menu seeks to deliver 20–30 percent of children's daily caloric requirements while also creating dietary diversity by adding rarely consumed food groups.

[27] World Bank. 2016. SABER Country Report.

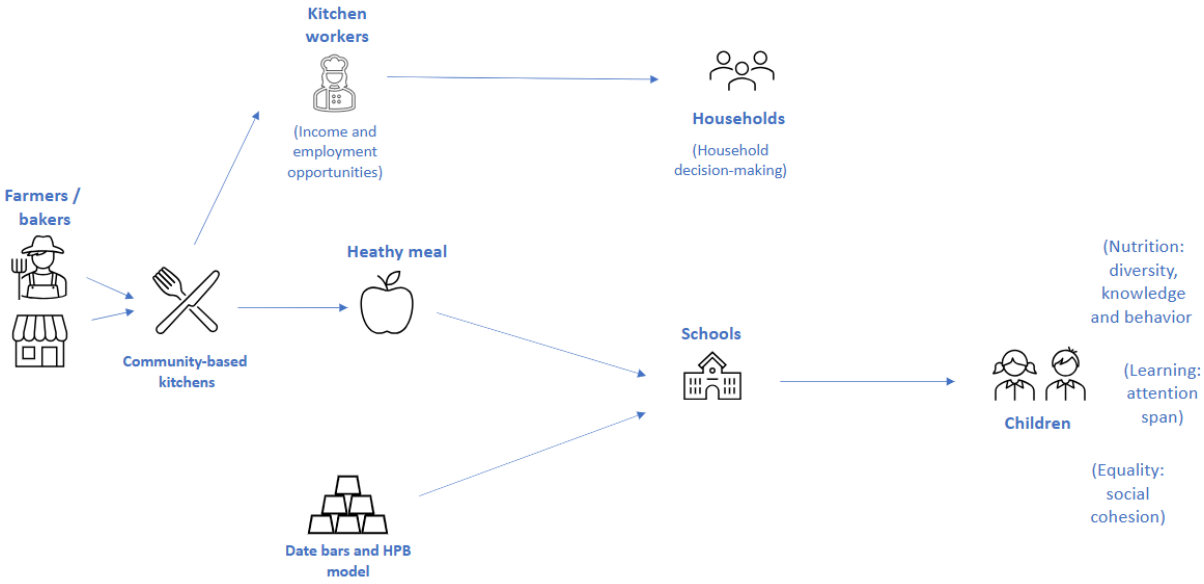
[28] The pastry is filled with either cheese, cheese and thyme, cheese and vegetables, or thyme.

[29] A second model is planned to be introduced at a later stage which includes a social and behavioural change communication component around healthy eating in addition to the community-based kitchen model. This is not part of this impact evaluation. Note that, while the NSFP provides either date bars or high-protein biscuits, the schools assigned to receive the date-bar model during the IE implementation period only received date bars, no high-protein biscuits.

36. Under the community-based kitchen model, the produce is sorted and washed, and meals are assembled and packaged in a kitchen facility run by a CBO. Each kitchen employs 15–30 women workers, creating income and employment opportunities for women in deprived areas.

37. Figure 2 provides a visual representation of the procurement process, and impact pathways of the new healthy meal model compared with the date-bar model.

**Figure 2: Procurement process and impact pathways of the healthy meals model compared with the date-bar model**




Source: authors

# 3. Evaluation design and methodology

## 3.1. EVALUATION THEORY AND HYPOTHESES

38. The programme design allows for an impact evaluation that investigates two different sets of hypotheses. First, the impact on primary-school students of receiving healthier school meals through the community-based kitchen model. Second, the impact on women and their households of being offered a job in community-based kitchens to assemble and package the meals using locally procured and imported inputs. Both sets of hypotheses align with the evaluation questions outlined for the 2021 WFP School-based Programmes Impact Evaluation Window. The impact of women's employment also relates to the questions of the Cash-based Transfers and Gender impact evaluation window.[30]

### Impact on primary-school students receiving health school meals

39. The first set of hypotheses that the impact evaluation aims to test relate to the impacts of primary-school students receiving healthier school meals:

- **Hypothesis one:** Receiving the new healthy meal model (pastry, fruit and vegetable) increases students' dietary diversity.

40. The change from the date-bar model to the community-based kitchen model represents a transition to a healthier school meal; as the latter model provides less sugar, and more diverse food groups. This was also confirmed by the WFP Jordan country office nutritionist. The new healthy meal model provides a stuffed pastry consisting of bread, and either: cheese, cheese and thyme, cheese and vegetables, or thyme, accompanied by a piece of fruit, and a vegetable. The new meal contains about 337.9 kcal, which is approximately the same as the previous model, which offers two date bars at 329.6 kcal. This is interpreted as insignificant from a nutritional perspective in a middle-income context like Jordan. The impact on dietary diversity is expected to materialise primarily through the addition of dairy, vegetables, and fruits to the diet since less than two thirds of children in the lowest wealth quintile of the Jordanian settled population consume dairy and vegetables, and less than half consumes fruit.[31]

- **Hypothesis two:** Receiving a healthier school meal in the morning increases students' attention span during school hours.

41. According to the Jordan National Micronutrient and National Survey conducted in 2019 by the Ministry of Health, less than half of poorer Jordanian children consume breakfast before coming to school.[32] Similarly, in the baseline data for this evaluation, a third of children did not eat before coming to school (see Annex 7). Hunger in the classroom has been shown to negatively affect students' attention span and concentration.[33] For food safety reasons, students receiving the new healthy meal are instructed to eat it in the classroom as soon as meals arrive at the school in the morning. In contrast, the provision and consumption of the date bars in the control model are at the leisure of the school and students. With the structured consumption of a healthier meal before the bulk of the school day the programme aims to increase students' attention and concentration during class.

- **Hypothesis three:** Receiving a healthier school meal improves students' educational and learning outcomes.

[30] WFP. 2021. Cash-Based Transfers And Gender Window: Pre-Analysis Plan.
[31] Jordan Investment Commission. 2019. Jordan National Micronutrient & Nutrition Survey. Agriculture: sector profile.
[32] Of those that do not have breakfast in the morning, about 23 percent bring a packed lunch and 87 percent bring money to buy food in the school (which is used for a sandwich or school meal by 58 percent of this subsample).
[33] Afridi, F., Barooah, B., and Somanathan, R., 2020. Hunger and Performance in the Classroom. Working Paper.

42. Better attention and concentration in the classroom may translate into better educational outcomes for children. The academic literature has found positive impacts of school feeding programmes on test scores when compared to no school feeding.[34] We are not aware of any experimental literature comparing the provision of healthier meals to less healthy alternative meals. Anon-experimental analysis in 2011 finds that healthier diets in schools in the UK lead to fewer absences,[35] and improved test scores. A 2013 study in Chile, which has a similar context to Jordan with high rates of child obesity, finds that increasing the calories of school meals in Chile has no impact on educational outcomes.[36]. The paper suggests that additional calories could worsen the obesity problem among children and that school meals should focus on healthier options instead of increased calories. This impact evaluation can detect the impact of healthier meals on educational and learning outcomes experimentally in the short term over two semesters.

43. The impact evaluation also aims to test additional hypotheses for which the priors about expected effects are not considered as strong by the impact evaluation team. These concern, for example, whether healthier school meals increase student attendance, and whether students receiving healthier meals have lower overall food intake (e.g., because their parents consider the pastries a meal rather than a snack and provide fewer other calories; or because students are full for longer, and therefore acquire fewer calories from the canteen).

44. Due to funding limitations, this impact evaluation was unable to collect detailed intra-household consumption data. It is, therefore, unable to speak to any hypotheses about possible consumption reallocation within the household. Due to the same reason, it was also not possible to collect students' anthropometric data.

### Impact of being offered a job to produce school meals

45. The second set of hypotheses the evaluation aims to test relate to the impact on women and their households of a woman receiving a job offer to assemble and package school meals.

    - **Hypothesis four:** Being offered a job in community-based kitchens increases women's time spent outside the home as well as their earnings.

46. Qualitative information gained during field visits to pilot community-based kitchens indicates that most women hired for the meal preparation have not previously worked outside the home, though some were previously employed (e.g., as teachers, army employees, agricultural day labourers etc.). It is therefore expected that women's time spent outside the home will increase, as will their income.

47. Workers are paid 260 JOD per month (about 367 USD), which is the Jordanian minimum wage at the time of implementation. 20 JOD are deducted as social security payments. Although it was planned that wages would be paid via mobile money or bank accounts most workers continued to receive their wages in cash every two weeks. Contracts were given to workers dated for the end of the project timeline in June; however, no payments are made during school feeding breaks (e.g., semester breaks, Ramadan). The workers are registered with the Jordanian social security system. The work is therefore structured as full-time short-term employment within the social security system, which may have larger effects on downstream outcomes than other sources of income such as casual labour or transfers.[37]

    - **Hypothesis five:** Being hired by the community-based organization to work in the kitchens might lead to increases in women's psychosocial well-being, agency in intra-household decision making, and perception of gender norms.

48. A large body of literature has shown that women entering employment has positive effects on a range of measures of women's bargaining power such as: domestic violence, expenditures, involvement in

[34] WFP, 2021, School feeding programmes in low- and lower-middle income countries. A focused review of recent evidence from impact evaluations.
[35] Belot, M. and James, J., 2011 Healthy School Meals and Educational Outcomes, *Journal of Health Economics* 30: 489–504
[36] McEwan, P., 2013, The impact of Chile's school feeding program on education outcomes., *Economics of Education Review* 32: 122–139
[37] Anderson, S., and Eswaran, M. 2009. What Determines Female Autonomy? Evidence from Bangladesh. *Journal of Development Economics*, 90(2), 179-191.

decision making or mobility, though with some exceptions.[38] The work in the community-based kitchens could, therefore, set in motion a virtuous circle that further improves women's outcomes and unrelated labour force participation; however, the possibility of unintended negative effects cannot be precluded.

49. Finally, while the work does not target the decision making men in the household, the women's employment in the community-based kitchens may also impact the perceptions of men in the household, which can further contribute to the virtuous cycle.

50. This impact evaluation is unable to answer questions about gender-based violence since the WFP country office deemed these too sensitive to be included in the survey in this context.

## 3.2. EVALUATION QUESTIONS

51. From the first set of hypotheses described above, the following primary evaluation question (PEQ) was derived:

    - **PEQ1**: What is the impact of providing healthier school meals on primary school students' dietary diversity, attention span, educational and learning outcomes?

52. From the second set of hypotheses described above, the following PEQ was derived:

    - **PEQ2**: What is the impact of formal wage employment outside the household on women's social and economic empowerment?

53. Secondary evaluation questions (SEQs) include:

    - **SEQ1**: Does the introduction of healthier school meals change service delivery (e.g., the timely delivery of the number of meals ordered)?
    - **SEQ2**: Are there heterogeneous impacts of providing healthier school meals to primary school students? Relevant dimensions of heterogeneity are:
        - student's gender;
        - number of siblings;
        - grade level.
    - **SEQ3**: Does women's formal wage employment outside the household impact households' consumption and food security?
    - **SEQ4**: Does women's employment in community-based kitchens impact their trust and social cohesion in the communities in which the kitchens are based?
    - **SEQ5**: Are there heterogeneous impacts of formal wage employment outside the household on women? Relevant dimensions of heterogeneity are:
        - women's previous labour force participation;
        - women's baseline empowerment, measured as agency in intra-household decisions;
        - household's baseline gender norms;
        - marital status.
    - **SEQ6**: What are women's and men's preferences for women's wage employment contract in Jordan?

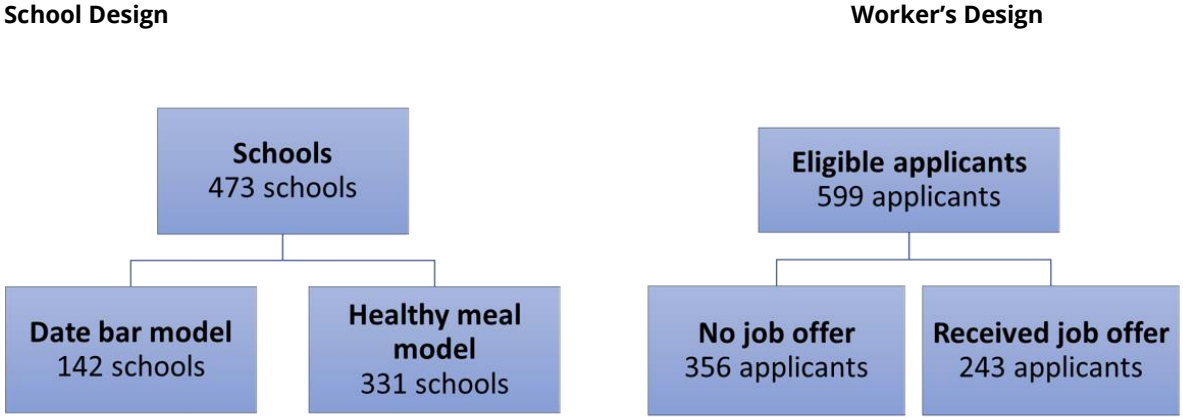
[38] Hearth, R. and S, Jayachandran. 2018. 'The Causes and Consequences of Increased Female Education and Labor Force Participation in Developing Countries'. *The Oxford Handbook of Women and the Economy.* New York: Oxford University Press.

## 3.3. EVALUATION DESIGN

54. The impact evaluation (IE) is designed to investigate two sets of impacts: impact on primary-school students, and impact on employed women and their households. It is therefore designed as two complementary randomized controlled trials (RCT). Randomization was conducted at the school-level and stratified by kitchen catchment area (i.e., a maximum of 45 minutes travel time from the kitchen).

55. A depiction of the experimental design, with details on the design, identification strategy, and inclusion criteria are specified for each component in Figure 3 below. The design extended for two semesters beginning in September 2022 and running until the end of the 2022/2023 academic year in June 2023.

**Figure 3: Impact evaluation design and treatment arms**




### School design (comparison of school meal models)

56. The first RCT employs a cluster design with two randomized groups and includes 473 schools in total. Of the 473 schools (456 clusters, with schools within 50 m distance are combined into one cluster), 142 schools (138 clusters) are randomized into providing the date-bar model to their students; the remaining 331 schools (318 clusters) are randomized into providing the community-based kitchen model to their students.[39] Within each school at least five randomly sampled children are expected to be included in the surveys.

57. In the date-bar model, children receive one packed meal per day for five days each week. The packed meal consists of either: two date bars, or two high-protein biscuits; these meals are centrally procured and delivered to the schools once a semester. The date bar is produced by national manufacturers and procured by WFP. This model is the status quo modality implemented as part of the National School Feeding Programme (NSFP).

58. In the healthy meal model, children also receive a meal per day for five days each week. Children receive a stuffed pastry (filled with either cheese, cheese and thyme, cheese and vegetable, or thyme), plus a vegetable (typically a cucumber), and a fruit (typically an apple or a banana) for four days, and two date bars on one day. The pastry, vegetable, and fruit are sourced from local producers as much as possible (otherwise from other national/regional sources) and assembled and packaged in community-based kitchens run by CBOs. Meals are delivered daily to the schools in the morning and are meant for immediate consumption.

59. Following a request from the Ministry of Education, schools that are immediately next to each other (within 50 meters) are defined as one school complex (a cluster) for the randomization and are

[39] The discrepancy between the number of schools in the date-bar model and the healthy meal model is attributable to programmatic commitments and targets, combined with the desire from the country office to cover all the schools in the healthy meal model as part of their monitoring system.

assigned the same school feeding model. The 473 schools represent 456 clusters. Note that the unequal sizes of the two different treatment groups was needed to ensure that the WFP Jordan country office meets the target that it had previously committed to in terms of students receiving the new meal. The randomization is at the cluster-level (a school complex is a cluster) and stratified by kitchen catchment area within each schooling directorate. This means that within the area around each kitchen that can be reached within 45 minutes travel time, each school cluster was assigned to receive one of the two models described above.

### Workers' design (Employment in community-based kitchens)

60. The second RCT employs a randomized controlled trial (RCT) design with randomization at the individual level. The randomization uses two stratification variables: the hiring kitchen an applicant applied to, and whether eligible applicants had previous experience in commercial kitchens. The treatment group consists of 243 women, all eligible applicants, who receive employment from the kitchen; the number selected corresponds to the operational requirements to run the eight community-based kitchens. The control group consists of 356 women, all eligible applicants, who are not offered employment in the kitchen. A larger number of eligible applicants are assigned to the control group since attrition was expected to be higher in this group.

61. The selection process works as follows: community-based organizations (CBOs) advertise kitchen job vacancies through social media and word of mouth and receive applications. Only women applicants may apply. Kitchen workers are selected through a process that includes scoring each applicant based on predefined criteria and then ranking applicants. Applicants whose score is above a predefined threshold score of 55 are included in a longlist of eligible applicants. Eligible applicants are then drawn randomly to be part of one of four groups:

    a. Received a job offer:

        Eligible applicants in the job offer group are offered work in the local community-based kitchen. Workers are offered wages, training, and daily transport from home to the kitchen in a dedicated bus.

    b. Did not receive a job offer:

        Eligible applicants in the no job offer group are not offered a contract and are temporarily excluded from working at the community-based kitchens for the semester.

    c. Replacement workers:

        Eligible applicants in the replacement group are not offered a contract but can be hired to replace dropouts from the job offer group during the semester. The purpose of this group is to reduce the chances of contamination of the no job offer group. For each kitchen, the number of possible replacements is 25 percent of workers needed. This group is not included in the impact evaluation and is not surveyed.

    d. Workers not included in the impact evaluation:

        A few kitchens had many more eligible applicants than workers required for the specific kitchen, while other kitchens had too few eligible applicants than required for an equally sized control group and replacements. For each kitchen, the size of the no job offer group was restricted to two times the size of the job offer group, and any remaining applicants were randomly assigned to an outside the impact evaluation group.[40] This group is not included in the impact evaluation and is not surveyed.

62. The worker design was implemented in two phases. In the first semester of the 2022–2023 academic year, 215 eligible applicants received a job offer (compared to 315 eligible applicants who did not receive a job offer). In the second semester, additional recruitment took place to fill vacancies due to

[40] This was done for three reasons: 1) to avoid an outsize influence of kitchens with many applicants, 2) because power gains are small when increasing the size of the control group while the size of the treatment group remains the same and 3) for feasibility of data collection within the given time frame.

dropouts, and 28 randomly selected eligible applicants received a job offer (compared to 41 eligible applicants without job offers).

63. The randomization for both components was done with the help of statistical software by the impact evaluation team in close collaboration with the WFP, the Royal Health Awareness Society, and the Ministry of Education to ensure implementation feasibility. All parties were jointly responsible for ensuring that the random assignment was closely adhered to.

**Discrete choice experiment (preferences for women's wage employment contracts)**

Within the workers' design, a discrete choice experiment (DCE) was added into the worker endline survey to answer questions on women's and men's preferences for women's wage employment arrangements outside of the household in Jordan.[41] In this experiment, household members, of both genders, were presented with hypothetical job profiles and asked to state their preferred option for employment. Each profile consists of several attributes which describe the job in question (for example, salary, contract type, etc.), and each attribute took one of several possible levels (e.g., "salary" could take the levels: 260 JOD, 286 JOD, or 312 JOD). Job profiles were combined to form choice sets of two profiles in each set, from which participants were asked to select their preferred profile. See Annex 8 for further details.

## 3.4. ETHICAL CONSIDERATIONS

64. The evaluation strictly adheres to ethical guidelines, including the 2020 United Nations Evaluation Group standards. Oversight and enforcement of ethical considerations are diligently managed by WFP Office of Evaluation and the World Bank DIME team at all phases of the evaluation. Key ethical principles and practices were rigorously implemented, including ensuring informed consent, protecting privacy, confidentiality, and anonymity of participants, ensuring cultural sensitivity, respecting the autonomy of participants, ensuring fair recruitment of participants (including women and socially excluded groups), and ensuring that the evaluation results in no harm to participants or their communities:

- **Informed consent**: Informed consent was collected for each survey round separately. For the worker component, informed consent is obtained from both the applicant, and the household head. For the school component, parental consent and child assent were obtained. Consent forms were distributed to schools, children take home a printed consent form for guardians to sign and return. A picture of the signed consent form was taken by enumerators. Assent was obtained from children by enumerators before proceeding with the survey interview. Refusing to partake in the survey had no bearing on eligibility for WFP support.
- **Ethical oversight**: Ongoing monitoring and management of ethical issues occurred during the study. The impact evaluation received ethical approval from the Solutions Institutional Review Board under application numbers 2022/08/5 (for the worker component), and 2022/08/8 (for the school component).
- **Training and protocols**: Enumerators underwent extensive training and piloting, ensuring uniform and contextually appropriate questioning.
- **Programme exclusion**: Children enrolled in the treatment and control schools kept receiving school meals. The source of variation was the type of meal and procurement source. All eligible applicants were given a chance to be selected. Applicants randomly selected in the intervention group were offered the role. The number of applicants hired was determined by implementation and budgetary needs. If there was a shortfall and the CBO was required to hire more kitchen workers, priority was given to the eligible applicants assigned to the replacement group, or to the eligible applicants outside the impact evaluation sample. If, for operational reasons, more workers

[41] According to previous studies of women's participation in the labour force in Jordan (World Bank 2018; Harvard CID Working paper 2019) and other anecdotal evidence in the field, women in Jordan often seek advice from a man in their household, particularly father or husband, when deciding to take up a job.

were needed, no eligible women were precluded from the opportunity to be hired if programme budgets, and operational needs required it.

65. In summary, the evaluation prioritizes ethical conduct, covering informed consent, privacy, cultural sensitivity, and vulnerable participant protection. Ethical integrity was consistently upheld and monitored to safeguard participants throughout the research process.

## 3.5. CHALLENGES AND LIMITATIONS

66. The impact evaluation has the following limitations:

67. **External validity:** The findings from Jordan may not be universally applicable, and efforts are in place to assess external validity across similar interventions in various countries.

68. **Short-term treatment effects:** Data collection took place at the end of the academic year for both the child and the worker component. This impact evaluation is, therefore, only able to identify the short-term effects of the interventions. Given that the effects of better nutrition on children, and employment opportunities on the empowerment of women may take longer to materialize, the impacts identified in this report may be underestimating the effects that could materialize in the longer term.

69. **Child baseline survey:** The original intent was to track the same children from baseline to endline to construct a panel dataset for the analysis; however, this was not possible due to several issues. The main limitation was the Institutional Review Board (IRB) required the impact evaluation team to remove child-identifying information from the surveys. This meant that it was not possible to interview the same children interviewed at baseline at the endline. Other difficulties consisted in obtaining parental consent through the official ministerial channels, as required by the Institutional Review Board, which meant that only about 30 percent of the planned surveys could be completed. As a result, the baseline survey served as a piloting tool for data collection instruments and was not used for estimating the impact on children's outcomes.

70. **Access to incomplete administrative data:** The impact evaluation team also encountered challenges in accessing and extracting school administrative data supporting the evaluation. The Education Management Information System (EMIS) was to provide data on student demographics, enrolment, attendance, test grades, and anthropometrics for the school years 2021–2022, 2022–2023 and data on enrolment, attendance, and anthropometrics for the school year 2023–24. The impact evaluation team in collaboration with the WFP country office met regularly with the Government of Jordan's technical team to understand issues around data extraction from the national EMIS. However, as of the writing of this final report the impact evaluation team was unable to access the full requested datasets. The datasets not available at the time of writing the report include anthropometric measures and test scores for school years 2022–23; and enrolment, attendance, and anthropometrics data for the school year 2023–24 due to the necessary time to upload the data into the system, estimated to be approximately six months.

71. **Reduction in sample size for worker component:** The healthy school meal composition was changed shortly before the academic year started. This led to a decrease in the sample size for the worker component and a reduction in statistical power.

72. **Non-compliance with treatment status for worker component:** CBOs received a randomized list assigning treatment status to eligible applicants. While eligible applicants were vetted by CBOs for their eligibility, anecdotally some randomly selected workers encountered resistance due to an unfavourable experience in the past. Additionally, some applicants who were offered the job dropped out in the early phase of the programme. Despite preparing a list of replacement applicants, CBOs occasionally hired applicants outside of the impact evaluation or from the control group. This is detailed in Section 6.

73. **Attrition in worker component surveys:** As detailed in Section 5, the surveys with eligible applicants and their household members had declining response rates in each survey round, despite measures to improve them (such as compensating respondents for their time spent answering the surveys). During

these surveys, response rates from household heads were consistently lower than from eligible applicants, and response rates by treatment status differed slightly.

74. **Data quality issues with time-use data:** The field team encountered many challenges with the collection of time-use data. Despite the repeated re-training of enumerators and discussion of these challenges during data collection, the time-use data has been excluded from the analysis due to low data quality.

# 4. Data collection

## 4.1. SCHOOL DESIGN

75. Data collection for the school design includes administrative data, school and kitchen monitoring data, and children baseline and endline surveys. Annex 1 provides a summary of all the outcomes of interest, and the relevant data collection tools.

76. Administrative data has been collected through the Education Management Information System (EMIS) platform and serves as the basis for estimating the impact on attendance in Section 6. The EMIS in Jordan is managed by the technical partner of the Government of Jordan: the Queen Rania Center for Education and Development; it is a comprehensive data system designed to enhance the efficiency and effectiveness of educational administration. Schools across the country collect and report key educational indicators through EMIS. These indicators include enrolment figures, attendance records, and students' test scores at various points throughout the academic year. EMIS data on enrolment and attendance was obtained for the years 2021–2022 and 2022–2023; from which data could be matched across both years for 27,479 students from 426 schools in the impact evaluation sample. Only students included in the enrolment lists in both years are included in the analysis, and students in enrolment lists but with no entry in the data sets capturing absenteeism are assumed to have zero absence days. This reflects the discussions on the database structure and data entry with the Government of Jordan.

77. School and kitchen monitoring data were collected throughout the year and served to provide food delivery indicators in Section 5.

78. The children's baseline survey was administered in September 2022. Children in 139 schools successfully completed the survey out of the impact evaluation sample of 473 schools, representing a 30 percent completion rate. The baseline survey served as a piloting tool for data collection instruments.

79. The children's endline survey was administered before the end of the school year in June 2023, nine months after the introduction of the new healthy meal model. At endline, 2857 children in 422 schools (or 90 percent of the impact evaluation sample) successfully completed the survey. Table 1 provides the breakdown of the survey completion rate by treatment status. The child endline survey serves as the main source of data for estimating the impact on children's outcomes in Section 6.

**Table 1 Children's survey completion rates (percent of targeted schools)**

| | | | School completion rate | | |
|---|---|---|---|---|---|
| | **Completed child surveys** | **Number of schools** | **Total** | **Healthy meal schools** | **Date bar schools %** |
| **Baseline** | 1,401 | 139 | 30% | 23.94% | 32.02% |
| **Endline** | 2,857 | 422 | 89% | 90.94% | 85.21% |

## 4.2. WORKERS' DESIGN

80. Data collection for the worker's design included kitchen monitoring data, a baseline survey (one for the applicant and one for a man in the household), two high-frequency applicant surveys, an endline survey (one for the applicant and one for a man in the household), and qualitative focus group discussions.

81. Baseline, high-frequency surveys, and endline surveys serve as the main data collection processes for assessing the impact on women applicants and the men in their households. Annex 2 provides details on the estimation strategy.

82. Both the applicant baseline survey, and the man in the applicants' household baseline survey were administered in August and September 2022; the endline surveys were administered at the end of the academic year in June 2023. The high-frequency surveys were administered in December 2022 starting shortly after the baseline, and then again in March 2023. Each survey was conducted with both the eligible applicant, and an adult man in their household. Additionally, qualitative data was collected in October and November 2023 to complement quantitative data. Figure 4 provides a representation of the data collection timeline.

83. The applicants' survey completion rate at the baseline was 85 percent, with no major differences between treatment groups (84.7 percent for the job offer group, and 85.1 percent for the no job offer group). The baseline surveys took place after applicants had been identified as eligible during interviews that the CBOs conducted but before treatment assignment was communicated.

84. Attrition rates increased throughout the data collection periods despite compensation for respondents' time being distributed after baseline to reduce further survey attrition. As shown in Table 2, completion rates were 79 percent in the first high-frequency round, and 74 percent in the second high-frequency round. This further decreased at endline, with a survey completion rate of 68 percent. Completion rates substantially deviated at endline, with the no job offer group reporting a survey completion rate of 62.6 percent and the job offer group a response rate of 77 percent.

**Table 2 Applicant worker's survey completion rates (in percent)**

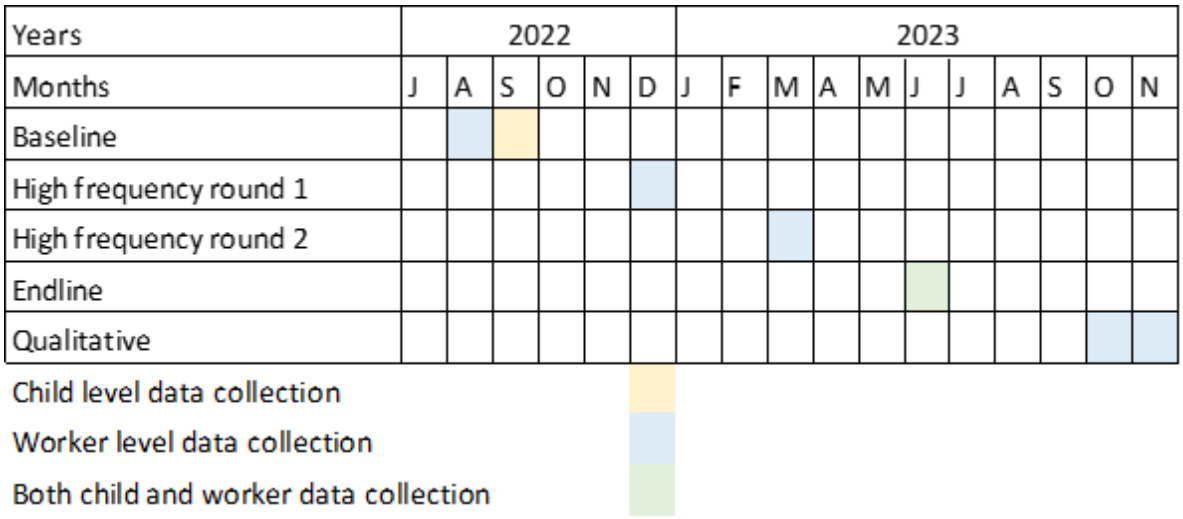
| | Total | Job offer group | No job offer group |
|---|---|---|---|
| Baseline | 85% | 85.12% | 84.76% |
| Baseline (2nd round of applicants) | 88% | 85.71% | 90.24% |
| High frequency (Round 1) | 79% | 85.58% | 75.23% |
| High frequency (Round 2) | 74% | 81.07% | 69.94% |
| Endline | 68% | 76.95% | 62.64% |

**Table 3 Man in the applicants' household survey completion rates (in percent)**

| | Total | Job offer group | No job offer group |
|---|---|---|---|
| Baseline | 72% | 71.63% | 71.75% |
| Baseline (2nd round of applicants) | 75% | 71.42% | 78.05% |
| High frequency (Round 1) | 69% | 74.88% | 64.44% |
| High frequency (Round 2) | 60% | 67.48% | 55.05% |
| Endline | 55% | 62.55% | 50.00% |

85. The survey completion rate by the men in the household was further reduced to 55 percent, as reported in Table 3, with a 12.5 percentage points difference in completion rate between the job offer, and no job offer groups.

**Figure 4: Data collection timeline**




86. In addition to the quantitative data collection, the impact evaluation also employed qualitative methods in the form of focus group discussions (FGDs), and key informant interviews (KIIs). These were collected six months after the quantitative endline survey and triangulated the perspectives of suppliers and applicants; including those who received a job offer but subsequently dropped out. Annex 4 provides the details of the qualitative data collection.

# 5. Project implementation

## 5.1 SCHOOL DESIGN

88. Meal distribution and students' perceptions have been reported from school and kitchen monitoring data as well as child endline data. Service delivery is reported to be excellent in both date bar, and healthy meal schools. Children in healthy meal schools report that they are more likely to receive school meals and have higher satisfaction with meals compared with children in date bar schools. Teachers report excellent delivery in both date bars and healthy meal schools.

89. This section presents the following outcome indicators:
    - meal composition and nutritional support;
    - meal distribution (from monitoring distribution reports);
    - meal distribution (self-reported by students) and students' satisfaction;
    - teacher's perception of service delivery.

### 5.1.1 Meal composition and nutritional support

90. The two school-meals models differ in their composition. The date-bars model provides two date-filled bars for five days a week. In the new healthy meal model, students receive a pastry plus a piece of fruit (typically a banana or an apple), and a vegetable (typically a cucumber) for four days a week, and two date bars on one day of the week. The pastries differ throughout the week to offer a combination of cheese with vegetables, cheese with thyme and olive oil, and cheese alone.

91. The new model provides more diverse food groups and less sugar, as tables 4 and 5 below show. In terms of nutritional support, the new model provides slightly more calories at 337.9 kcal whereas the old model is at 329.6 kcal. Additionally, the new heathy meal model includes a higher protein, and somewhat lower fat, content than the status quo model. Most striking, however, is the difference in sugar content. The date-bar model contains 31.78 g of total sugars (40 percent of the total weight of the 80 g meal), whereas the healthier model contains 19.93 g of total sugars (6 percent of the total weight of the 330 g meal). Excessive sugar consumption has been shown to increase the risk of developing obesity, cardiovascular disease, hypertension, obesity-related cancers, and dental caries in children.[42]

[42] Vos, M., Kaar, J., Welsh, J., Van Horn, L., Feig, D., Anderson, C., Patel, M., Cruz Munos, J., Krebs, N., Xanthakos, S., and Johnson, R. 2017. Added Sugars and Cardiovascular Disease Risk in Children: A Scientific Statement From the American Heart Association. *Circulation*, 135(19).

**Table 4 New model: Healthy-meal menu breakdown and nutritional value**

| Item | Weight (g) | Kcal | Protein (g) | Carbs (g) | Fat (g) |
|---|---|---|---|---|---|
| Pastry | 90 | 262.48 | 9.91 | 39.29 | 8.58 |
| Cucumber | 120 | 12.12 | 1.21 | 2.42 | 0 |
| Apple | 120 | 62.4 | 0.31 | 16.57 | 0.2 |
| **Total** | **330** | **337.9** | **11.43** | **58.28**<br>*Thereof:*<br>Added sugar: 2.7<br>Natural sugar: 16.23<br>Total sugar: 19.93 | **8.78** |

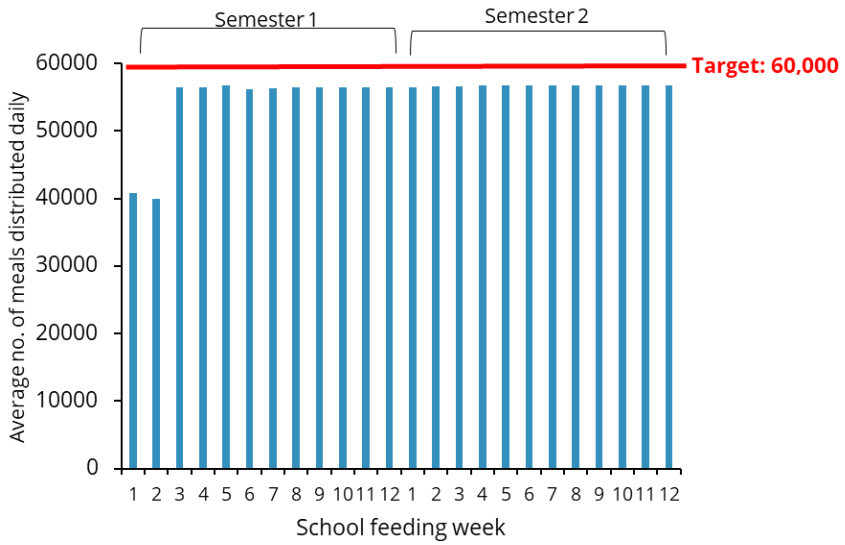
**Table 5 Status quo model: Date-bar menu nutritional value**

| Item | Weight (g) | Kcal | Protein (g) | Carbs (g) | Fat (g) |
|---|---|---|---|---|---|
| Two date bars | 80 | 329.6 | 4.8 | 56<br>*Thereof*:<br>Added sugar: 4.56<br>Natural sugar: 27.21<br>Total sugar: 31.78 | 9.6 |

### 5.1.2 Meal distribution (from distribution reports)

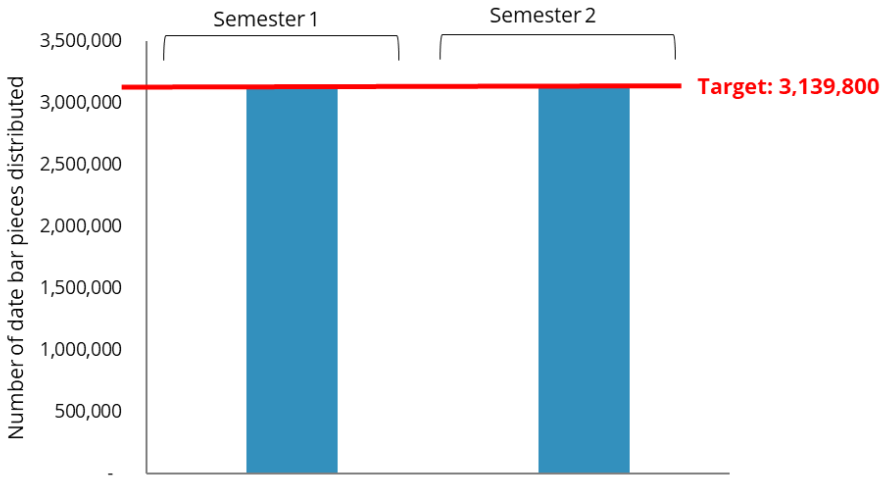
92. Distribution reports from school monitoring data show that delivery targets set by the programme are close to being met for both groups, once all kitchens are operational. Healthy meal distribution happens daily in the morning. On average, 55,248 healthy meals are distributed to healthy meal schools every day. Figure 5 shows the average number of meals distributed daily by week; note that in the first two weeks of the first semester, three kitchens (Balama, Tafilah, Bsaira) were not operational. Date bar distribution happens by semester. Figure 6 reports the number of bars distributed per semester, indicating the target of 3,139,800 date bars distributed per semester.

**Figure 5: Healthy meal distribution report**




*Source*: school monitoring data

**Figure 6: Date bar distribution report**

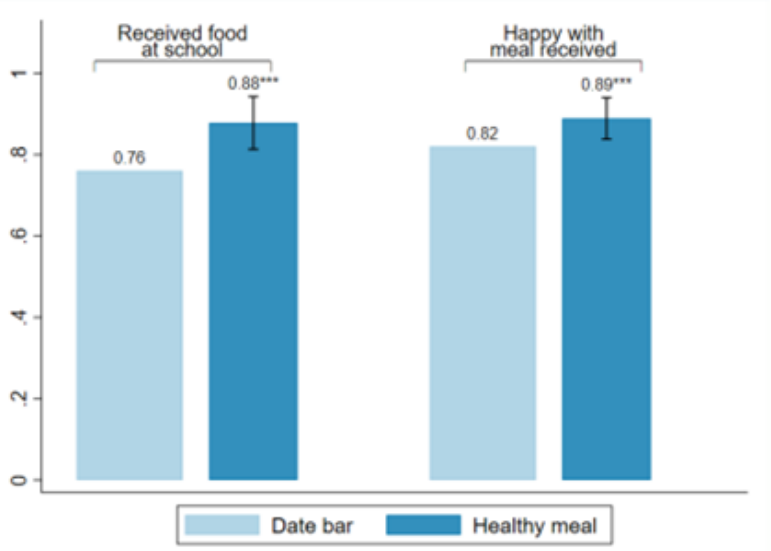



*Source*: school monitoring data, targeted control group only.

### 5.1.3. Meal distribution and students' satisfaction

93. The high level of service delivery shown in the distribution reports is supported by data from the children's endline survey, with some differences. Children in the healthy meal schools report that they are more likely to receive school meals. Figure 7 below shows that 76 percent of students in date bar schools during endline report receiving meals on the last school day compared to 88 percent of students in healthy meal schools. While this data may indicate actual differences in schools giving out meals to students, it could also be possible that some children forgot that they have received a meal in this self-reported endline data.

**Figure 7: Student perception of meal delivery and happiness**




94. When disaggregating children's responses geographically in Table 6 below, there is little variation in the share of students who reported receiving food in the healthy meal group, which is above 85 percent in all kitchen catchment areas. Greater variation can be found among students in date bar schools e.g., with 59 percent of students reporting having received meals in Mafraq, and 92 percent in Tafilah. This may suggest that schools are more likely to follow programme requirements for giving out food to students in healthy meal schools as compared to date bar schools.

**Table 6 Received food at school on last school day by kitchen**

| Kitchen catchment area | Date bar schools | | Healthy meal schools | |
|---|---|---|---|---|
| | Number of students | Share who reported receiving food on last school day | Number of students | Share who reported receiving food on last school day |
| | (1) | (2) | (3) | (4) |
| Balama | 127 | 0.59 | 347 | 0.88 |
| Mafraq | 115 | 0.70 | 309 | 0.87 |
| Um Jmmal | 123 | 0.84 | 307 | 0.89 |
| Dafyaneh | 96 | 0.85 | 261 | 0.85 |
| Ramtha | 109 | 0.68 | 228 | 0.86 |
| South Ghour | 56 | 0.93 | 148 | 0.90 |
| Tafileh | 108 | 0.75 | 275 | 0.92 |
| Bsera | 49 | 0.92 | 121 | 0.85 |

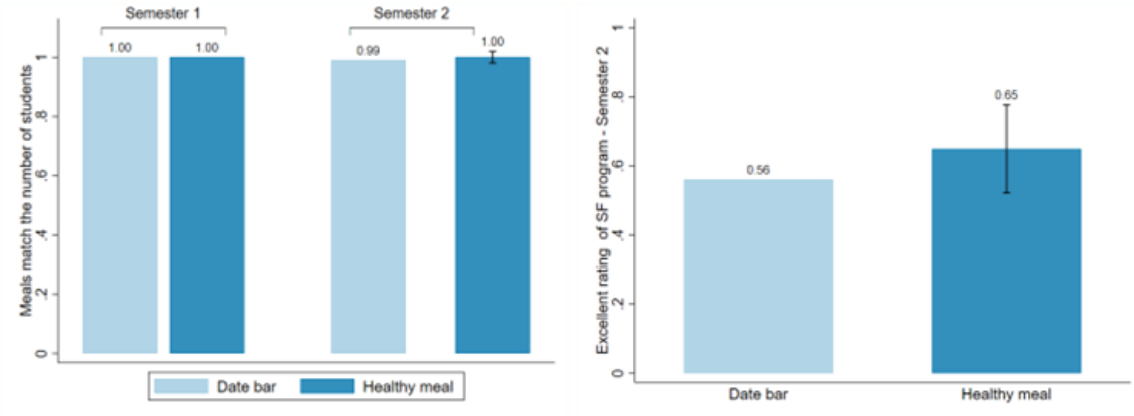
95. At endline, students receiving healthy meals reported being more satisfied with the meal than children receiving date bars only, though this increase is from a high base. About 82 percent of children in date bar schools report that they are happy with the food received, which increases to 89 percent in healthy meal schools (see Figure 7).

### 5.1.4. Teacher perspective of service delivery

96. School monitoring data captured teachers' perceptions of school meal distribution. Figure 8 shows that teachers confirm that the number of date bars or meals delivered matches the number of students in both groups in semesters one and two. Figure 8 also indicates that teachers in healthy meal schools are 9 percentage points more likely to rate the school-meals programme as excellent, with 56 percent of teachers in date bar schools rating the programme as excellent, against 65 percent among teachers in

healthy meal schools. However, the difference is not statistically significant, possibly due to the small number of observations in the country office monitoring data.[43]

**Figure 8: Teacher perception of school-meals programme**

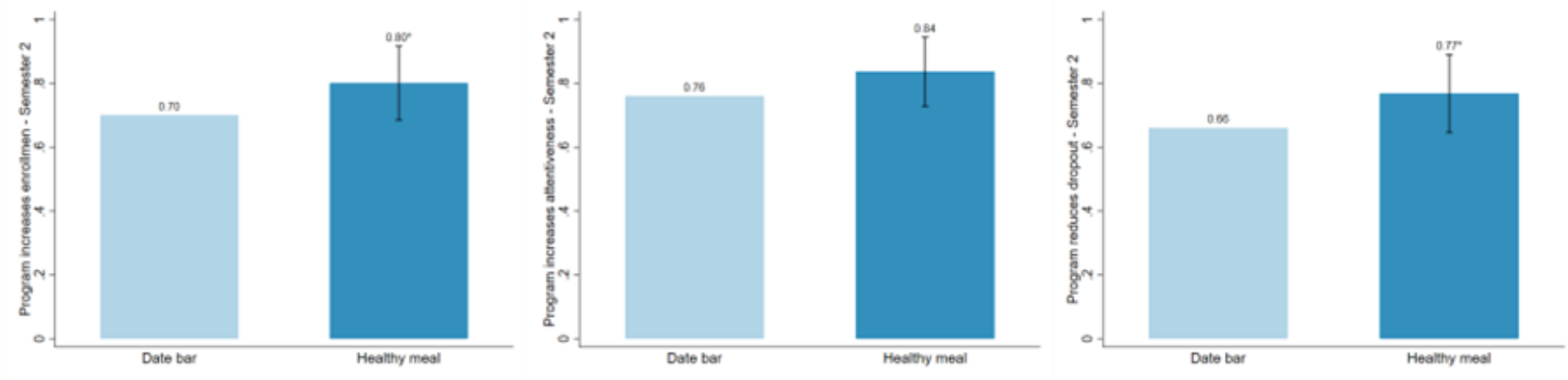



*Source*: school monitoring data

97. Figure 9 indicates that teachers reported that healthy meals have a more positive impact on student enrolment, dropouts, and attentiveness than the date-bar model, though the difference is not statistically significant for attentiveness.

[43] 360 schools were covered in the monitoring data for semester one, and 226 schools in semester two. The overall sample is 473 schools, and child endline data covered 422 schools. Potential differences between endline and monitoring data could also be attributed to the fact that the monitoring data is not a random sample. It could be likely that closer schools are monitored more frequently. Closer schools may also mean that field monitors can arrive on time and observe meal delivery.

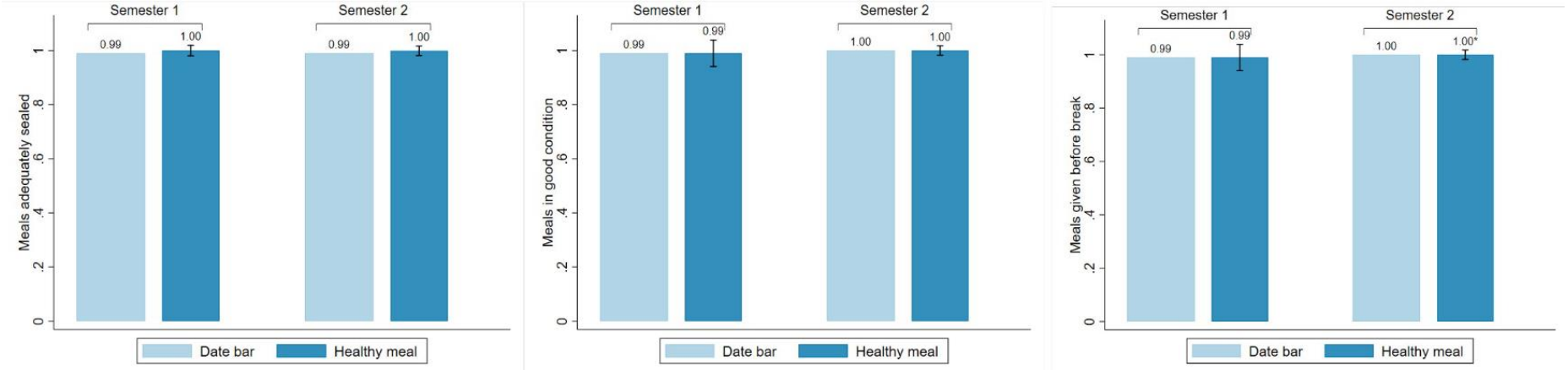
**Figure 9: Teacher perceptions on the impact of school meals on student enrolment, attentiveness, and dropouts**




*Source*: school monitoring data

98. The monitoring data does not report any quality issues among either the date bar schools or healthy meal schools; as demonstrated by the answers to questions about proper meal packaging, and whether the meals were received in good condition shown in Figure 10. In both groups and semesters, meals were distributed before the break in close to, or above 95 percent of schools included in the monitoring data (Figure 10).

**Figure 10: Meals conditions**




*Source*: school monitoring data

## 5.2 WORKER COMPONENT

99. The random assignment of eligible applicants to receive job offers (or not) was well followed, as shown in Table 7. Respondents in the no job offer group were very unlikely (4.2 percent) to work in community-based kitchens, however, some respondents in the job offer group (28 percent) did not take part in the kitchen work.

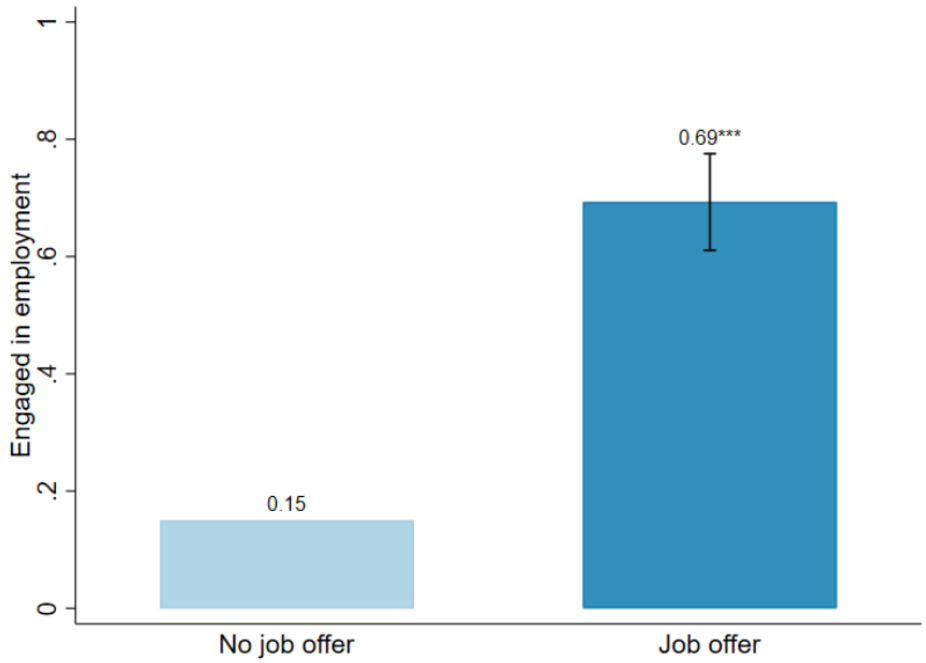
**Table 7 Compliance with treatment status - worker component (percent)**

| Treatment assignment | Worked in community-based kitchen | Did not work in community-based kitchen |
|---|---|---|
| Job offer | 72% | 28% |
| No job offer | 4.2% | 95.8% |

100. Of the women who were assigned to receive a job offer, 72 percent took up the offer and worked in the community-based kitchens. Some non-compliance was observed among the eligible applicants who did not receive a job offer, of which 4.2 percent worked in the community-based kitchens despite being assigned to the control group.

101. Regression analysis using workers' survey data confirms that women who received job offers were much more likely to be employed during the intervention period than those who did not receive offers. As Figure 11 shows, about 70 percent of those with job offers engaged in employment, compared to only 15 percent of those without job offers.

**Figure 11: Likelihood of employment (take up of treatment assignment)**




102. Since job take-up and dropouts are endogenous – determined by individuals' decisions to participate or not –, the results presented in this report primarily focus on intention-to-treat (ITT) estimates. ITT analysis, a methodological approach often used in randomized controlled trials, includes every participant according to the original random assignment, regardless of their subsequent adherence or withdrawal. In Section 8, we also present local average treatment effects (LATE) that focus on those who were induced to engage in employment because of the job offer.

103. Qualitative evidence from FGDs aligns with conclusions drawn from the quantitative data such as: significant dropout rates observed among kitchen workers at the start of the programme, and that the random selection of workers was not always clearly understood by the community kitchen applicants. The stated reasons for dropouts varied. While some women who dropped out feared losing social assistance if taking up paid employment, a minority received other employment, or chose to continue their education, and others were unable to make arrangements for care responsibilities. Moreover, some women dropped out during the semester due to unforeseen circumstances, e.g., due to sickness of household members. These women often relayed that they would have preferred to stay in employment and the CBOs tried to accommodate these situations by granting additional unpaid leave. However, in some cases the personal circumstances could not be managed while the women were working, even with an additional period of unpaid leave.

# 6. Main findings

104. The following sections describe the impact of the programme on children found in the school design, and the impact of the programme on eligible applicants and their households from the worker's design.

## 6.1. SCHOOL DESIGN: IMPACT ON CHILDREN

105. The analysis in this section compares the outcomes of children receiving healthy meals to the outcomes of children receiving date bars. The order of this section follows the order of expected impacts stemming from the evaluation theory: from more direct to more indirect impacts of the programme. The following indicators are covered:

- dietary diversity;
- nutritional behaviour;
- attendance;
- attention span and cognitive ability;
- learning;
- physical activity;
- student perception and behaviour.

106. All analyses employ the intention-to-treat (ITT) effect estimates as described in Annex 2. Regression estimates are reported in a table format in Annex 5, and Annex 6 repots baseline estimates.

### 6.1.1 Dietary diversity

**Summary of findings**: Children in healthy meal schools consume about a quarter of a food group more compared to children in date bar schools. The difference is mainly driven by components of the healthy meal, especially fruits, vegetables, and dairy.

107. As the evaluation theory laid out, the transition from a relatively high-sugar content snack to a healthy meal with more diverse food groups is expected to result in an increase in the overall child dietary diversity score. This impact is primarily expected to materialise through the addition of dairy, vegetables, and fruit to the children's diet.

108. The individual dietary diversity score for a child is based on the Minimum Dietary Diversity for Women indicator and captures whether children consumed nine food groups in the last 24 hours, as self-reported by the responding children. The nine components are starchy staples; dark green leafy vegetables; other vitamin-A-rich fruits and vegetables; other fruits and vegetables; organ meat; meat and fish; eggs; legumes and nuts, and milk and milk products. For each component, the responses were coded as values one if consumed and zero if not consumed. The score sums the responses of all nine food groups, and, therefore, ranges from zero to nine.

109. Children receiving healthy school meals report consuming a quarter of a food group more than children receiving only date bars. That is, out of the 9 food groups, the children in date bar schools report consuming 5 different food groups on average, whereas the healthy meal group report consuming 5.25 different food groups on average (see Table 8).

110. The increased diversity, as seen in Table 8 , is mainly driven by an increase in the consumption of vitamin-A-rich fruits and vegetables (a 7.9 percentage points increase from 56 percent as a comparison mean), other fruits and vegetables (a 4 percentage points increase from 87 percent as a comparison mean), and dairy (a 5.7 percentage points increase from 69 percent as a comparison mean). The

increase in vegetables, fruit and dairy consumption reflects the changed menu composition of the new school meals: with the addition of a cucumber, and an apple or banana to the meal as well as the cheese found in the pastries. No patterns of heterogeneous impacts on dietary diversity in terms of gender, number of siblings or student grade are detected.

**Table 8 Impact on child dietary diversity score**

| | Child Individual Dietary Diversity Score | Starchy staples | Dark green leafy vegetables | Other vitamin-A-rich fruits and vegetables | Other fruits and vegetables |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Treatment variable | 0.252** | 0.008 | -0.007 | 0.077*** | 0.039** |
| | (0.101) | (0.013) | (0.028) | (0.029) | (0.016) |
| Control group mean | 4.997 | 0.931 | 0.402 | 0.559 | 0.872 |
| Number of students | 2778 | 2778 | 2778 | 2778 | 2778 |
| Number of schools | 421 | 421 | 421 | 421 | 421 |
| | Organ meat | Meat and fish | Eggs | Legumes and nuts | Milk and milk products |
| | (1) | (2) | (3) | (4) | (5) |
| Treatment variable | 0.012 | 0.032 | 0.032 | -0.006 | 0.056** |
| | (0.017) | (0.027) | (0.027) | (0.025) | (0.022) |
| Control group mean | 0.091 | 0.596 | 0.493 | 0.347 | 0.695 |
| Number of students | 2778 | 2778 | 2778 | 2778 | 2778 |
| Number of schools | 421 | 421 | 421 | 421 | 421 |

Note: The table reports estimates based on the OLS specification (1). Treatment variable is a dummy variable equal to 1 if the school attended by child was assigned to provide healthy meals. Missing values of outcome in Columns 1 and 2 in Panel A and Columns 1 and 2 in Panel B are set to the median of the control group of the corresponding outcomes and a dummy variable, which equals 1 if a value of the respective outcome is missing and 0 otherwise, is included in regression. All regressions include kitchen catchment area and date fixed effects. Standard errors are clustered at the school cluster level, reported in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

### 6.1.2. Nutritional behaviour

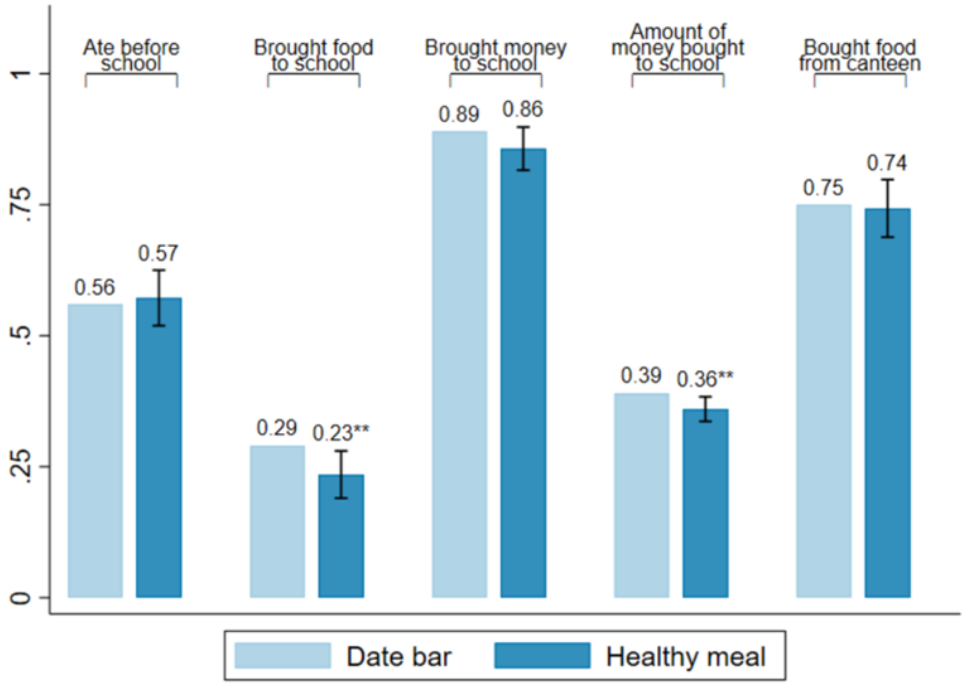
**Summary of findings**: At endline, children receiving healthy meals are 6 percentage points less likely to bring food to school and bring 0.03 JOD less money to school, about the price of one snack, which can be unhealthy, at the cafeteria. Heterogeneity analysis indicates that this improvement in nutritional behaviour is concentrated on boys. These results suggest that the healthy meals substitute both for food from home, and from the cafeteria, and reduce the monetary burden on parents to feed their children at school.

111. A primary evaluation question that the impact evaluation investigates is whether receiving the healthy meal changes children's nutritional behaviour. This concerns overall food intake and is examined through questions that capture whether the child ate breakfast before school, brought food to school, brought money to school, and/or bought food from the school canteen. The hypothesis is that the healthy meal, with less sugar and less fat, more protein, and more food groups, is more filling for a longer period than the date-bar model. Children may thus reduce their intake of snacks bought at the school canteen (which mainly offer unhealthy snacks such as sugary juices, biscuits, or crisp packets). Parents may also perceive the meal as more nutritious and therefore provide less food to bring to school or less lunch money.

112. Figure 12 indicates that students in healthy meal schools on average are significantly less likely to report bringing food to school (23 percent) than students in date bar schools (29 percent). In addition, children in healthy meal schools bring a smaller amount of money to school than those in date bar schools; a difference of 0.03 JOD compared to a mean of 0.36 JOD on the last school day before the interview. While this may appear small, the snacks at the school canteen (such as crisp packets or juice boxes) are typically sold for a price of 0.05 JOD; therefore indicating that students in healthy meal

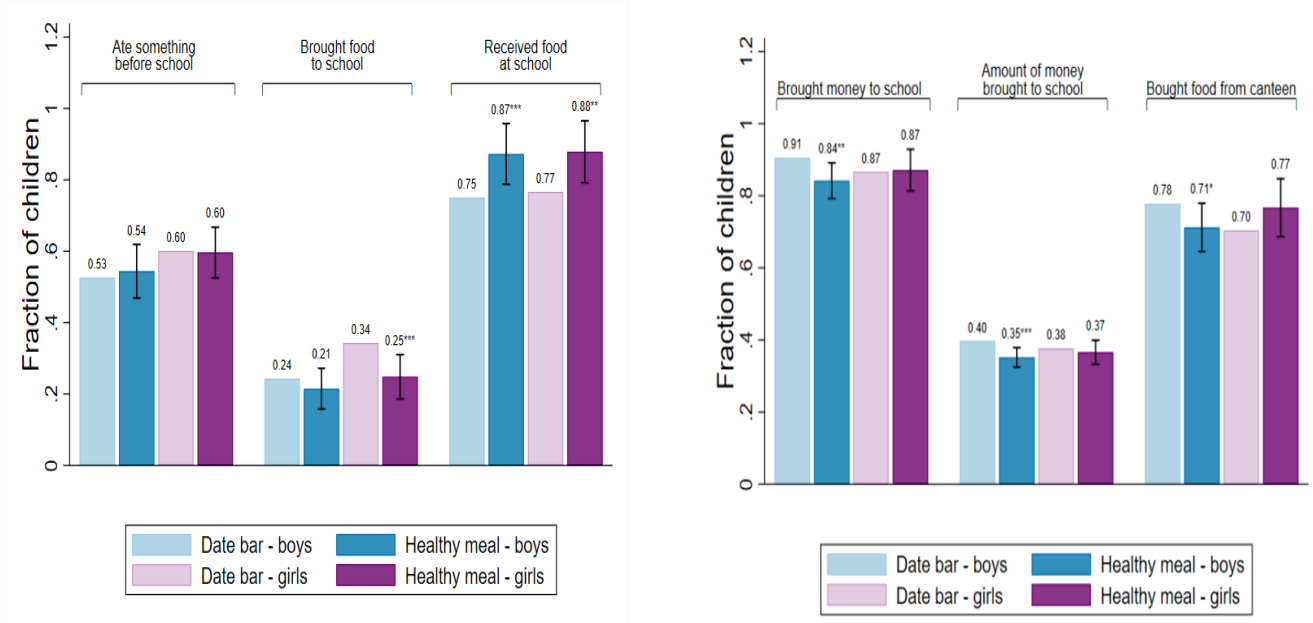
schools may consume one fewer unhealthy snack a day from the school canteens. There are no other significant changes in measures of child nutritional behaviour (eating before school, as well as the likelihood of bringing money to school and of buying from the school canteen). Overall, these results suggest that the healthy meals substitute both for food from home and from the cafeteria. The reduction in food and money sent with children to school could also represent a sizeable monetary relief for their families.

**Figure 12: Student behaviour of eating before school, bringing money to school, buying food from canteen**




113. The heterogeneity analysis (Figure 13) indicates that this improvement in nutritional behaviour is concentrated on boys. Comparing boys in healthy meal schools to boys in date bar schools: the boys in

**Figure 13: Heterogeneity analysis for nutritional behaviour by gender**



healthy meal schools are 7 percentage points less likely to bring money to school, bring 0.05 JOD less to school, and are 7 percentage points less likely to buy food from the school canteen. In contrast, girls in healthy meal schools are 9 percentage points less likely to bring food to school, but they are 7 percentage points more likely to buy food from the school canteen (though this impact is insignificant) and report no differences in the likelihood or the amount of money brought to school.

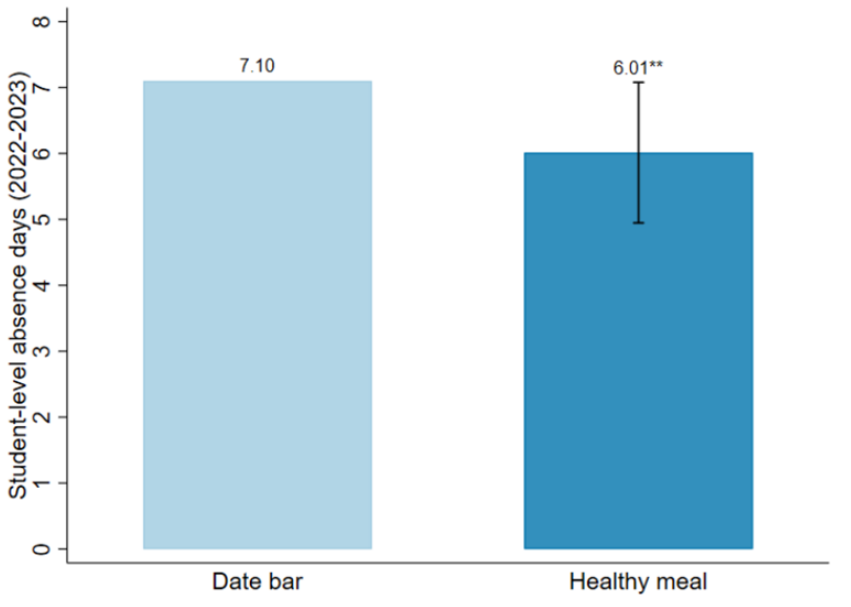
### 6.1.3. Attendance

**Summary of findings**: The average number of absence days reduces by about one school day in healthy meal schools in the academic year 2022–23 compared to schools receiving the date-bar model. This difference is statistically significantly different from zero.

114. The impact evaluation tests whether healthy school meals encourage student attendance. There is consensus in the literature that school meals can alleviate absenteeism and encourage enrolment;[44], though no experimental evidence on the impact of healthier meals is known. This analysis relies on data from Jordan's EMIS system.

115. In the academic year 2022–2023 students in healthy meal schools appear to be, on average, absent one fewer school day than students in schools receiving date bars. In date bar schools, students are absent approximately seven days in the school year, but in healthy meal schools students are absent approximately six days per school year. This decrease in absence days of about 15 percent is statistically significant (Figure 14).

**Figure 14: Student level absence (2022-23)**




*Source*: EMIS data

[44] World Food Programme. 2021. School feeding programmes in low- and lower-middle income countries. A focused review of recent evidence from impact evaluations. Rome: World Food Programme.

### 6.1.4. Attention span and cognitive ability

**Summary of findings**: No significant impacts of the change in meal modality were detected for measures of attention span and cognitive ability.

116. Hunger has been shown to decrease attention span and concentration.[45] Therefore, the consumption of healthy meals earlier in the school day, compared to the consumption of date bars at leisure, could improve child attentive capacity and cognitive ability. Attention span is measured by the Stroop test, fluid intelligence is measured through Raven's matrices, and cognitive memory is measured by the digit span test.

117. As reported in Annex 5, the Stroop test did not detect a statistically significant differences on child attention span. In addition, there is little difference in scores between healthy meal and date bar schools with respective scores of 5.14 and 5.25. Similarly, no impacts are detected on the tests of cognitive ability. For example, children receiving healthy meals scored 3.67 in Raven's matrices and 12.98 in the digit span tests on average; whereas children receiving date bars scored 3.6 in Raven's matrices and 12.78 in the digit span test (see Annex 5).

### 6.1.7 Learning

**Summary of findings**: There were no significant impacts detected on standardized tests of students' reading and writing abilities from the change in meal modality.

118. While the literature shows evidence for positive impacts of school meals programmes on learning outcomes when compared to no school meals, there is no current literature that shows improved performance as a result of a menu change. If attention and concentration in the classroom improves, child educational and learning outcomes could improve. However, the short-term nature of this impact evaluation over two semesters, and the small change in calories between the meal modalities, make finding an effect unlikely. This finding is also supported by the null effects for attention span and concentration in the last sub-section. Child learning was measured using the Early Grade Reading Assessment (EGRA) and Early Grade Mathematics Assessment (EGMA) standardized tests to assess literacy and numerical skills, respectively.

119. No impacts were detected on standardized tests of students' reading and writing abilities at endline (see Annex 5)**.** Most point coefficients are negative and one coefficient in each of the EGMA and EGRA subtasks is negative and marginally significant (Subtraction level 1 for EGMA and Reading comprehension score for EGRA). Again, the short-term nature of the evaluation over two semesters, and the fact that the evaluation compares meal modalities, rather than school meals to no school, meals might explain this null result.

### 6.1.7. Physical activity

**Summary of findings**: Children receiving healthy school meals report significantly higher levels of physical activity than children receiving only date bars. They find it easier to focus on learning and report to be less tired to be active. Heterogeneity analysis indicates that the positive impact on physical activity is larger for boys than for girls.

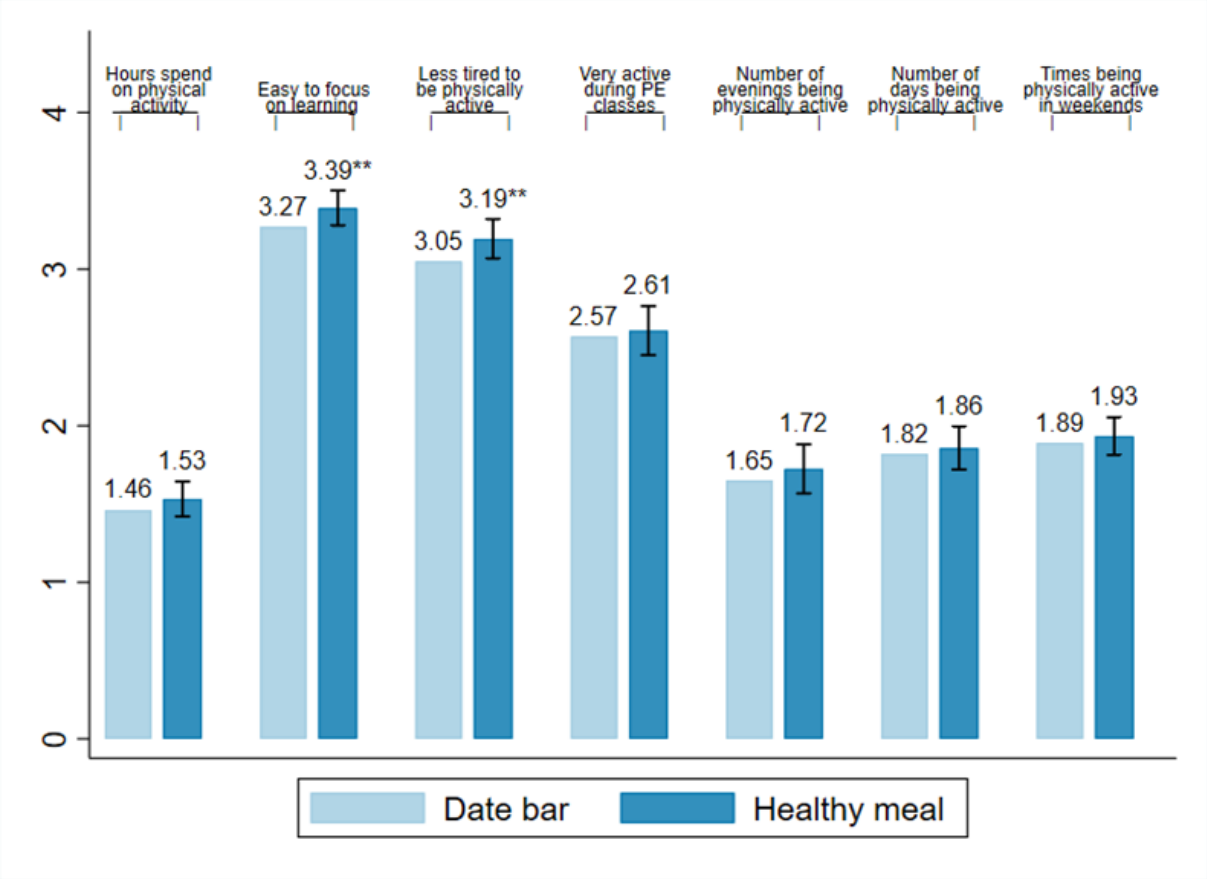
120. The evaluation also tested whether the change in meal modality had any impact on children's physical activity levels. Students' physical activity could improve due to the slower energy release of the healthy school meal rather than the sugar crash possibly associated with date bars. Studies have found that

[45] Afridi, F., Barooah, B., and Somanathan, R., 2020, Hunger and Performance in the Classroom." Working Paper.

foods with high sugar content can lead to fatigue,[46] tend to increase restless behaviour (e.g., fidgeting), and affect boys more than girls.[47] However, due to the complex interactions between genetics and the environment, the relation between nutrition and physical activity is often difficult to generalize.[48]

121. Physical activity is measured using seven different variables, which are then aggregated into an inverse covariance-weighted index:
    - hours spent on physical activity in the last week;
    - easy to focus on learning at school (Likert scale);
    - less tired to be physically active in the last week[49] (Likert scale);
    - very active during PE classes in the last seven days (Likert scale);
    - number of evenings physically active in the last seven days;
    - number of days being physically active in the last seven days;
    - Number of times being physically active in the last weekend.

**Figure 15: Disaggregated results for physical activity**




122. Children receiving healthy school meals report higher levels of physical activity, with a significant point estimate of 0.09 standard deviations (SD) for the index (see Annex 5). When investigating the individual

[46] Mantantzis, K., Schlaghecken, F., Sünram-Lea, S.I. and Maylor, E. A. 2019. Sugar rush or sugar crash? A meta-analysis of carbohydrate effects on mood. *Neuroscience & Biobehavioral Reviews*, 101, pp.45-67.
[47] Schlitz, F and De Witte, K. (2022). Sugar rush or sugar crash? Experimental evidence on the impact of sugary drinks in the classroom. *Health Economics*. 31(1), pp.215-232.
[48] de Oliveira, K.H.D., de Almeida, G.M., Gubert, M.B., Moura, A.S., Spaniol, A.M., Hernandez, D.C., Pérez-Escamilla, R. and Buccini, G., 2020. Household food insecurity and early childhood development: Systematic review and meta-analysis. *Maternal & Child Nutrition*, 16(3), p.e12967.
[49] The question asked children to report how often they were too tired to play, walk, run, ride a bike, or do sports during the last week, with four indicating never and zero indicating always.

components of the index (Figure 15), positive point estimates are observed for all seven variables. Impacts of receiving the healthy meals are largest, however, for children reporting that they are less tired to be physically active (coefficient of 0.14 SD), and that they find it easier to focus on learning (0.12 SD).

123. Heterogeneity analysis (Figure 16) shows that the positive impact on physical activity is concentrated on boys. When comparing, boys in the schools receiving healthy meals to boys in schools receiving date bars the difference in the physical activity index is 0.15 SD, and highly statistically significant. This is confirmed when looking at the seven components of the physical activity index (Figure 17). For boys, differences between healthy meal and date bar schools are individually significant for three components: hours spent on physical activity, whether they report to be easy to focus on learning, and whether they report being less tired to be physically active, but none are individually significant for girls.

**Figure 16: Heterogeneity analysis for physical activity index by gender**

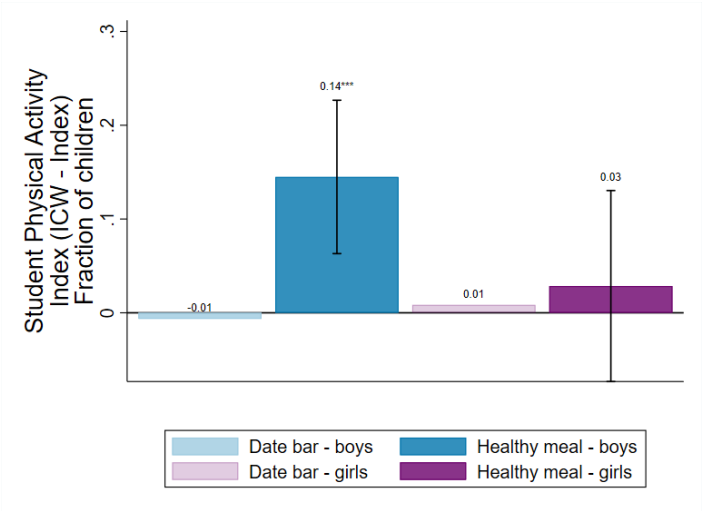
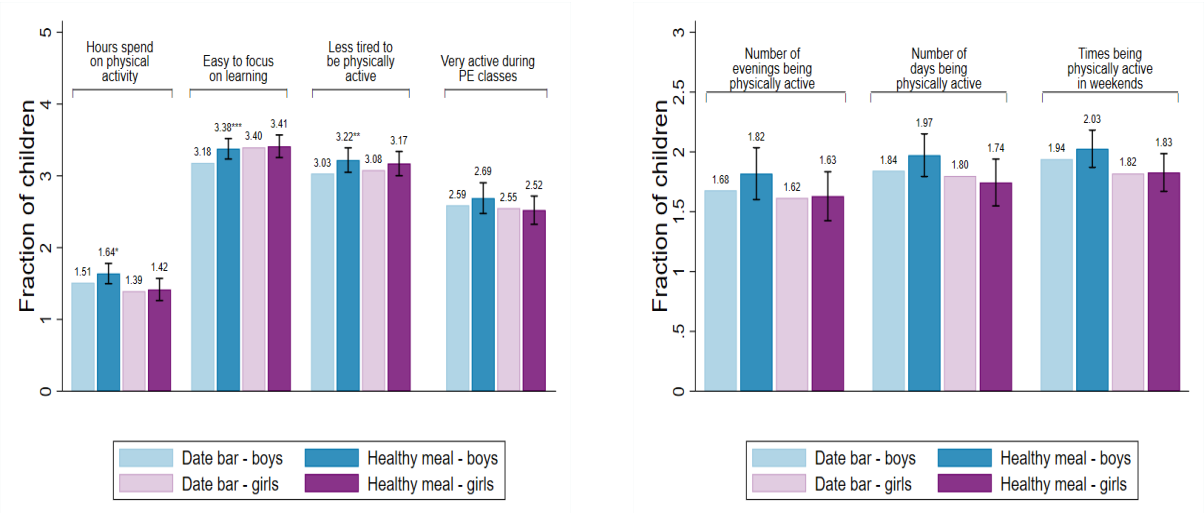



**Figure 17: Heterogeneity analysis for the components of the physical activity index by gender**




### 6.1.7. Student perception and behaviour

**Summary of findings**: Changes were not detected in student perceptions or experience of conflict at school due to the change in meal modality.

124. Of interest to the WFP country office and the Government of Jordan is the question of impact on behaviour among children: particularly if receiving the same food – without the need for additional supplementation by parents – could reduce conflict at school. To capture any prevalence of conflict, an index is constructed that comprises five variables capturing whether students:
    - Feel embarrassed on days when they do not bring food to school (reverse-coded).
    - Are proud of the food parents prepared for school.
    - Feel embarrassed on days when they do not bring money for the cafeteria to school.
    - Find it hard to talk to other children.
    - Enjoy going to school.

    Additional questions capture whether children voluntarily or involuntarily shared their meals.

125. The difference between the student behaviour index in date bar and healthy meal schools is small, and not statistically significant at 0.03 SD. One of the components shows a marginally significant coefficient; with more children receiving healthy meals reporting that they are proud of the food parents prepared for school (see Annex 5).

## 6.2. WORKER'S DESIGN: IMPACT ON WORKERS AND HOUSEHOLDS

126. The following sections describe the impact of the programme on eligible applicants and their households. The analysis estimates impact by comparing the outcomes of eligible applicants who were offered employment in the community-based kitchens with, outcomes of eligible applicants who were not offered employment in the community-based kitchens.

127. The following indicators are covered:
    - individual employment;
    - individual and household income;
    - household welfare;
    - gender;
    - individual psychosocial wellbeing;
    - social cohesion.

128. Main estimates employ intention-to-treat (ITT) effects: pooling two high-frequency surveys and one endline survey. Local average treatment effects (LATE) are also provided for selected indicators. Annex 6 presents the regression results in a table format. Heterogeneity analysis was also implemented for four dimensions: women's baseline employment, baseline marital status, baseline women's agency, baseline women's gender norms. While some coefficients are significant due to the large number of tests conducted, no clear patterns of heterogeneity were detected. These results are not reported.

129. At baseline the average age of the applicants in the sample was 32 years old. The youngest applicant was 18 years old, while the oldest was 70 years old. In addition, 54 percent of the applicants were married, while 33 percent were single. Most of the applicants were Jordanians, accounting for 87 percent of the sample, 12 percent were Syrians, and one individual came from another Arab country. Around 95 percent of the applicants reported to be literate (able to read and write), and 35 percent completed primary school. The applicant households consisted of an average of 5.44 members, with 3.95 of them being adults (>18 years). Each household had an average of two children: one boy and one girl.

### 6.2.1. Individual employment

**Summary of findings**: Eligible applicants are five times more likely to be employed during the follow-up surveys if they are offered a job in the community-based kitchens. Eligible applicants with a job offer are also more likely to want to have a job in the next 12 months.

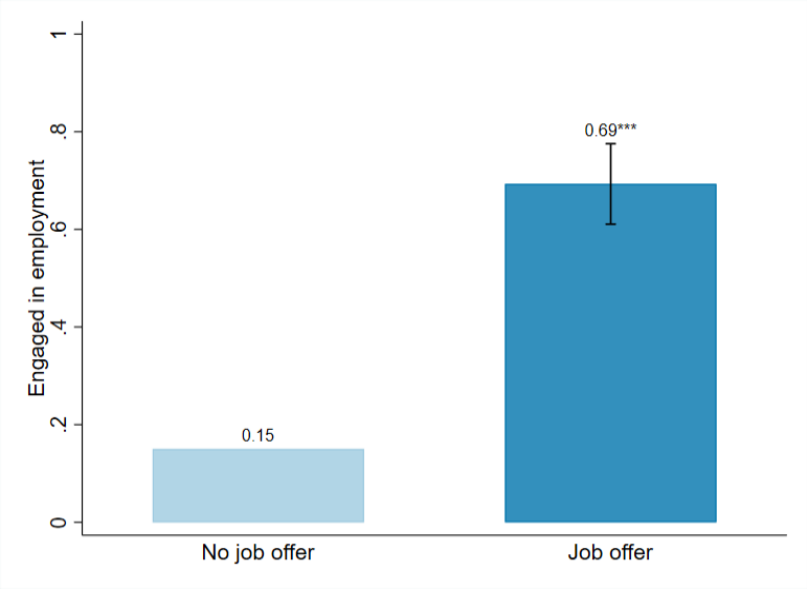
130. The community kitchens, which assemble and package meals for the healthy meal model, are expected to generate an increase in employment opportunities for women in poverty pocket areas. Employment is measured with five indicators: current employment status, number of days worked, job satisfaction, job search, and future plans.

**Employment status**

131. At baseline, before the programme began, only 13 percent (41 applicants in total) of applicants reported being employed in the previous 12 months. The three main types of activities reported are agriculture (35 percent), domestic work (16 percent), and food production (8 percent). Only 3 percent had a secondary employment.

132. At follow-up**,** eligible applicants who received job offers were 54 percentage points more likely to be employed compared to eligible applicants who did not receive job offers. While 15 percent of the women with no job offer reported being employed at follow-up, 69 percent of those with the job offer reported being employed at the time of the follow-up survey (Figure 18). The main types of activities reported by women with no job offer are food production (38 percent) and other (40 percent), while the main types of activities reported by women with the job offer are food production (77 percent) and other (19 percent).

**Figure 18: Applicants engaged in employment**




133. The five-fold increase in employment at follow-up was supported by qualitative discussions where women described their struggles to find alternative employment. The most highlighted factors relate to lack of opportunities in the area, social perceptions, and limited transport options.

"I am encouraged to go for other work, but the thing is you don't always find good opportunities." – Kitchen worker, Ramtha FGD group

"Sort of the same thing for me. First, you need to find a suitable type of job, then second you must convince your family. But anyway, in this area, it is hard to find good work for women. I mean, even university graduates are not finding work." – Kitchen worker drop-out, Ramtha FGD group

**Number of days worked**

134. Among applicants who reported being employed, the number of days worked by those who received the job offer was not significantly different from those employed who did not receive the job offer (see Annex 6). Before the programme began the average number of working days with a primary employer within a week was 3.85 for an average of 3.92 months of work.

**Job satisfaction**

135. No impacts were detected on job satisfaction on average (see Annex 6). The qualitative focus group discussions shed light on some features of the kitchen work that the women enjoyed – in particular, women with previous working experience described the contrast of the community kitchen job with other types of work typically available in their areas.

"The kitchen work is so different than work with factories. [at the kitchen] It is not about having a competitive level of productivity, there's better work hours. You do not have to work 8 hours straight and they are considerate. If they see you tired, you can take a break. But at factories, you have specific hours to go for a break. Here the time spent standing is not so bad. When I was working in factories, I had to stay standing for hours on end." – Kitchen worker, Balama FGD group

"The CBOs managers are helpful and kind, and the women help each other, they notice when you are tired or have a headache. But at the chips factory, there was a lot of pressure. I left because they would count each and every minute you go away for a toilet break." – Kitchen worker, Balama FGD group

"Yeah, at the kitchens, everyone is very cooperative." – Kitchen worker drop-out, Balama FGD group

136. The women also describe a stark contrast in the working environments in agricultural work: which represents the most frequent outside employment opportunity. One woman in South Ghor shared that the "*agricultural work here is plenty, but you work long hours, it's back breaking and you don't get the same team spirit*".

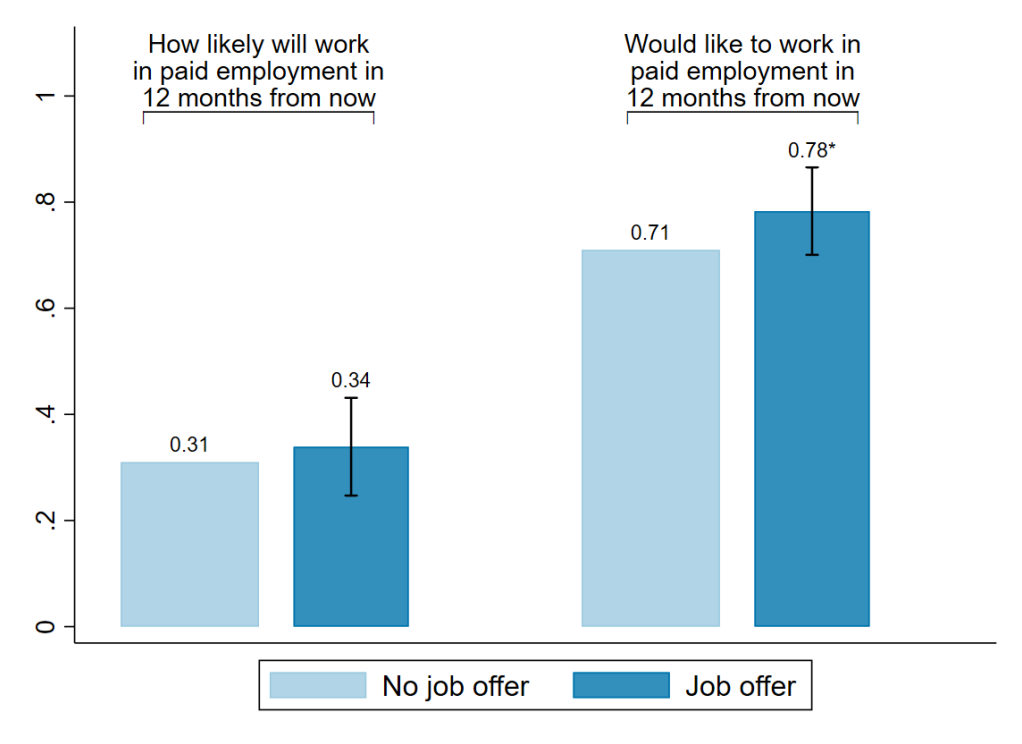
137. A discrete choice experiment in the worker endline survey provides some insights into the women's employment preferences.

**Job search and future employment**

138. At baseline, 59 percent of the eligible applicants reported being actively engaged in job search in the past 12 months. Among those who were not actively job hunting, the main three reasons for not doing so were: lack of available work in nearby areas (40 percent), being engaged in household duties (35 percent), and being tired of searching unsuccessfully (13 percent). At follow-up, the eligible applicants with and without job offers were not differentially engaged in job search (see Annex 6).

139. As seen in Figure 19, at follow-up the eligible applicants with and without job offers had similar expectations about future employment; with 31.4 percent of those without job offers, and 34 percent of those with job offers saying that it is likely they will be employed 12 months from the survey date. However, a larger share of those with job offers expressed wanting to be employed in 12 months compared to the comparison group (78 percent and 71 percent respectively). Offering employment hence increases women's desire to remain attached to the labour force.

**Figure 19: Applicants likelihood and preference of employment 12 months from now**




140. A phrase that echoed in all qualitative discussions among women was: "we do not like holidays; we want to keep working!". Women who previously did not hold employment before working in the kitchens expressed their surprise at how differently their time was spent, and how they felt more involved in their homes and community now that they worked. Many postulated that work helped organize their day, and that they could not imagine themselves not working in the future.

    "I took a day off on Sunday and I felt like something was missing." – Kitchen worker, Dafyaneh FGD group

141. Similar views were also maintained by the women who dropped out due to unforeseen circumstances. However, both women who held job offers and women who did not highlighted the caveats of limited opportunities in their communities that may hamper employment and entrepreneurship in the future.

    "The CBO has held training sessions but, really, more support is needed on how to, in practice, create a profitable business out of such skills as homemaking. That is what we feel is missing." – Kitchen worker, FGD group

    "We have attended quite a few skills courses. But the next step is the difficult part and that is what we would like to see. How do you find and reach customers? What do we do about transport or delivery? Where do we find startup capital?" – Kitchen worker, Tafilah FGD group

142. With the aim of future employment in mind, many women expressed the desire for more tailored training courses for skills that could develop into employment or home-based businesses. Typically, CBOs provided short courses, often on making cheese, pickles, soaps, and hand-woven baskets. Women often raised that these courses would be better complemented with courses on marketing and financial management. Those who had tried to start their own small-scale food production in their homes described how they were restricted by start-up capital, and an inability to reach the market.

### 6.2.2 Individual and household income

**Summary of findings**: Eight months after having received the job offer, eligible applicants offered a job in the community-based kitchens report individual income three times larger, and a household income a third larger than that of eligible applicants without a job offer.

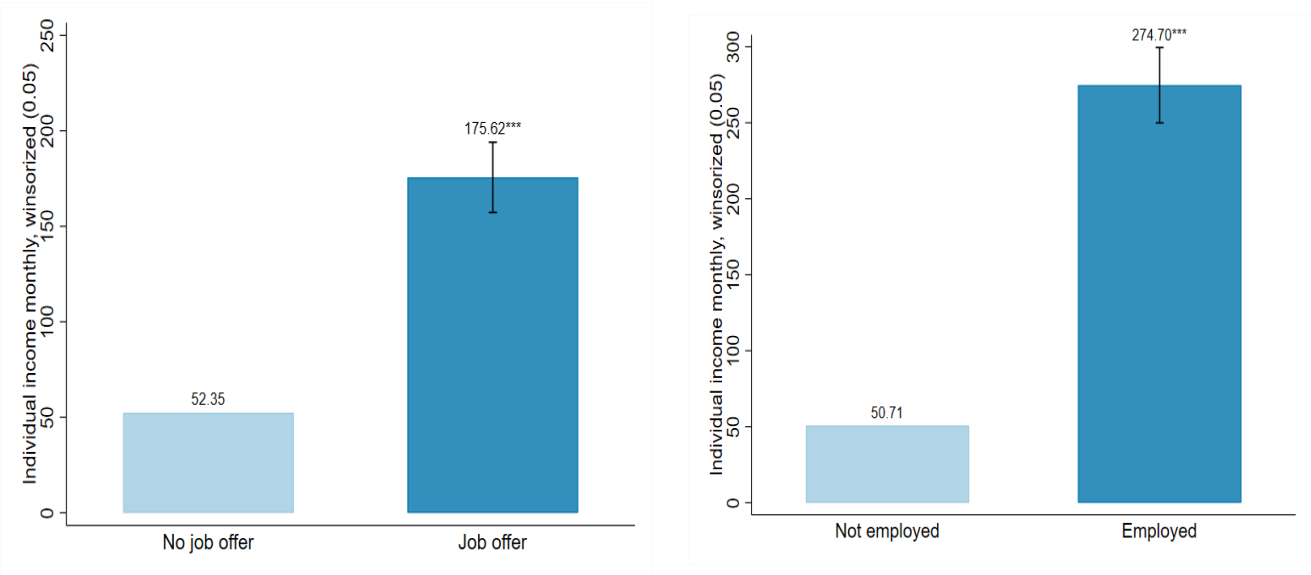
143. By providing employment opportunities the programme aimed to increase individual and household income to marginalized women in poverty pocket areas. This section assesses the impact on providing economic opportunities to women on individual and household income.

**Individual income**

144. Eligible applicants reported an individual mean income of 31 JOD monthly at baseline, with a median and minimum of 0 JOD and maximum of 370 JOD monthly; about half of applicant income is earned through a salary, and the remaining half are pension and transfers from the Jordanian government, international organizations, or NGOs.

145. At follow-up, as seen in the left plot of Figure 20, job offers resulted in a threefold increase in income as eligible applicants who received and accepted a job offer are paid by the programme. While the average income of those without job offers is 52 JOD those with job offers report earning 176 JOD per month (a 124 JOD increase).[50] Local average treatment effect (LATE) results, which estimate the increase in income from employment due to being offered a job in the kitchens, indicate a follow-up income of 275 JOD for applicants who take-up the job relative to a follow-up income of 51 JOD for applicants who do not take up the job (see right plot of Figure 20). This represents a fivefold increase.

**Figure 20: Individual income (Left: ITT estimate; Right: LATE estimate)**




**Household income**

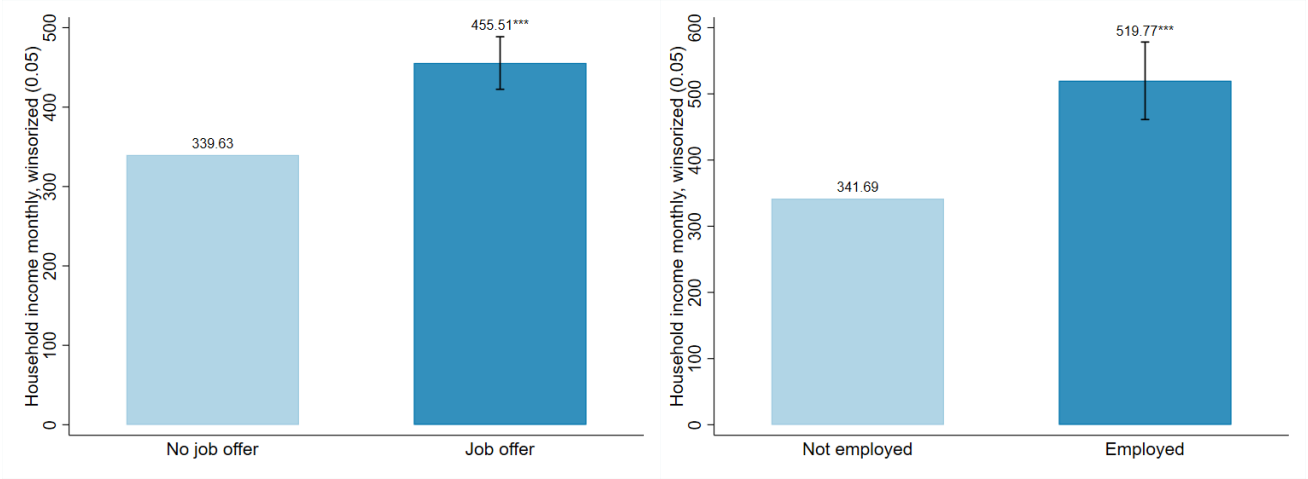
[50] There are multiple reasons why this difference does not equate to the actual salary. The main two are probably the following: not all the women who received the job offer ended up staying in the community-based kitchen (Table 7, indicates that 28 percent of them dropped employment), and some women in the comparison group found employment somewhere else (Figure 19 indicates that 15 percent are employed).

146. It is important also to test whether providing income economic opportunities to women translates not only to higher individual income but also to higher household income. At baseline, household income was reported as 278 JOD on average with a minimum of 0 JOD and maximum of 877 JOD. Similar to applicant income, about half of the household income (135 JOD) comes from salary and the remaining half from pensions and transfers of the government, international organizations, or NGOs.

147. At follow-up, as seen in the left plot of Figure 21, household income increased by a third, or 116 JOD, for those receiving a job offer compared to those without a job offer. This increase is mainly due to the woman applicant's income, as an increase in the number of employed household members is detected (from 0.8 to 1.354 per household), but there is no change in the number of household members who run a business or have another source of income.

148. Local average treatment effect (LATE) results indicate a follow-up income of 520 JOD for households of applicants who take-up the job; relative to a follow-up income of 342 JOD for households of applicants who do not take up the job (a 178 JOD increase, see right plot of Figure 21).

**Figure 21: Household income (Left: ITT estimates; Right: LATE estimates)**




149. In the qualitative discussions, all women who had received a job offer pointed to the noticeable difference of having an individual income and being able to contribute to overall household income. This was particularly true in households where women are the sole earners.

> "Everything is better now, there were things that we absolutely could not buy or rarely did buy like chicken and meat- at least not regularly… We even have extra leftover income to organize dinners together after work" – Kitchen worker, Tafilah FGD group

### 6.2.3 Household welfare

**Summary of findings**: Likely due to the short duration of the evaluation, no impacts were detected on households' use of coping strategies and shocks, food insecurity, or food expenditures and consumption. Expenditures on non-food items at follow-up were slightly higher for households of applicants with job offers: mainly driven by cleaning products. Households of eligible applicants with job offers were more likely to use a savings mechanism, and saved more, compared to households of eligible applicants without job offers.

150. With an increase in individual and household income, this section explores whether the income increase translates into higher household welfare. Household welfare is measured with the following

indicators: coping strategies and shocks; food insecurity; food consumption; household expenditures; savings, credits and transfers.

**Coping strategies and shocks**

151. Coping strategies and shocks were measured at the household level using the standardized reduced Coping Strategies Index (rCSI) and the Livelihood Coping Strategies – Food Security index. At baseline for the eligible applicants the rCSI has a mean of 20.9 and ranges from 0 to 56. The Livelihood Coping Strategies – Food Security index consists of four indicators ranging from 0 to 1, which measure a lack of coping strategies (mean 0.08), stress coping strategies (mean 0.91), crisis coping strategies (mean 0.45), and emergency coping strategies (mean 0.05).
152. No impacts were detected on households' use of coping strategies and shocks (Figure 22). Coping strategies are not likely to be affected by interventions with a short duration, like the one being studied, due to their lower frequency in Jordan.

**Food insecurity**

153. Household food insecurity was measured with the Food Insecurity Experience Scale (FIES). The baseline average for eligible applicants was 5.68, ranging from 0 to 8. About half of the sample was classified as severely food insecure (FIES of 7-8), a third was moderately food insecure (FIES of 4-6), and the rest was food secure (FIES of 0-3). No impacts are detected on food insecurity on average (Figure 22).

**Figure 22: Coping strategies and food insecurity**


**Food consumption**

154. The food consumption score (FCS) of eligible applicant households was at baseline an average of 45.6 (out of a possible 112) with a minimum of 2 and a maximum of 105. Two thirds of households had an acceptable food consumption status, 25 percent had a borderline status, and the remainder had a poor consumption status (based on the thresholds of 0-21: Poor; 21.5-35: Borderline; >35: Acceptable). The most consumed food groups were cereals and tubers, oil, and vegetables.

155. The evaluation does not find significant impacts on the food consumption score (FCS) from receiving the job offer (see Annex 6). When investigating the different food categories at follow-up a small but

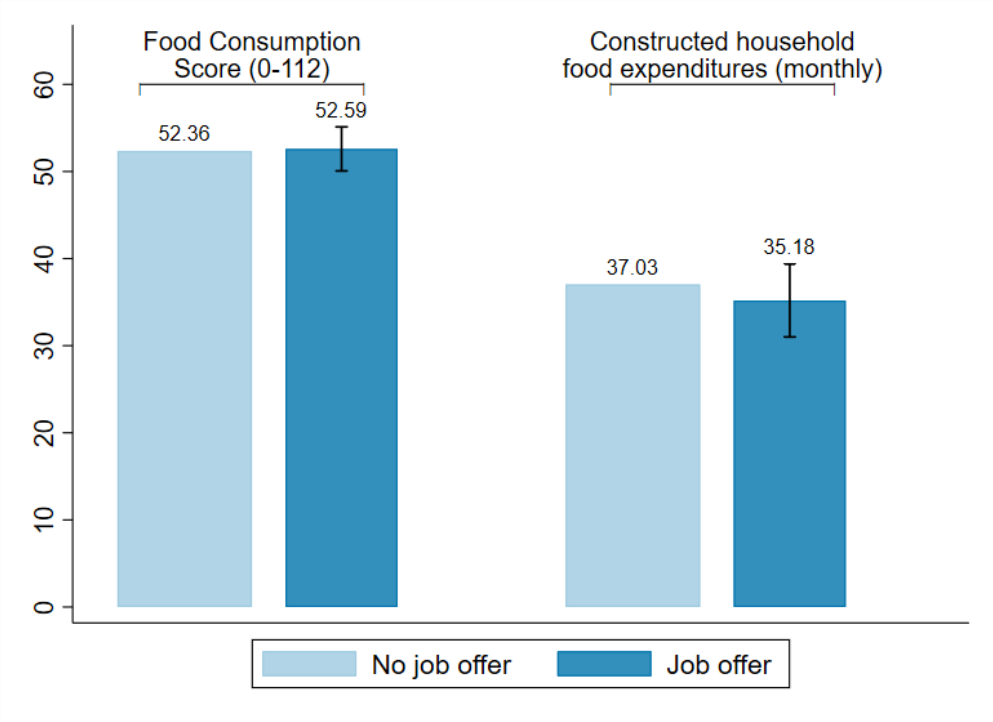
significant increase in the frequency of fruit consumption is detected because of the job offer; 17 percent of the mean of those households where applicants did not receive a job offer.

**Household expenditures**

156. Expenditures on food items averaged 30.3 JOD per capita per month at baseline, ranging from 4.3 to 94.1 JOD. Expenditures on non-food items per capita were an average of 44 JOD per month at baseline, ranging from 7 to 124 JOD. Among the non-food items, the three most important in terms of monetary value were: rents and utilities, transport and communication, and tobacco.

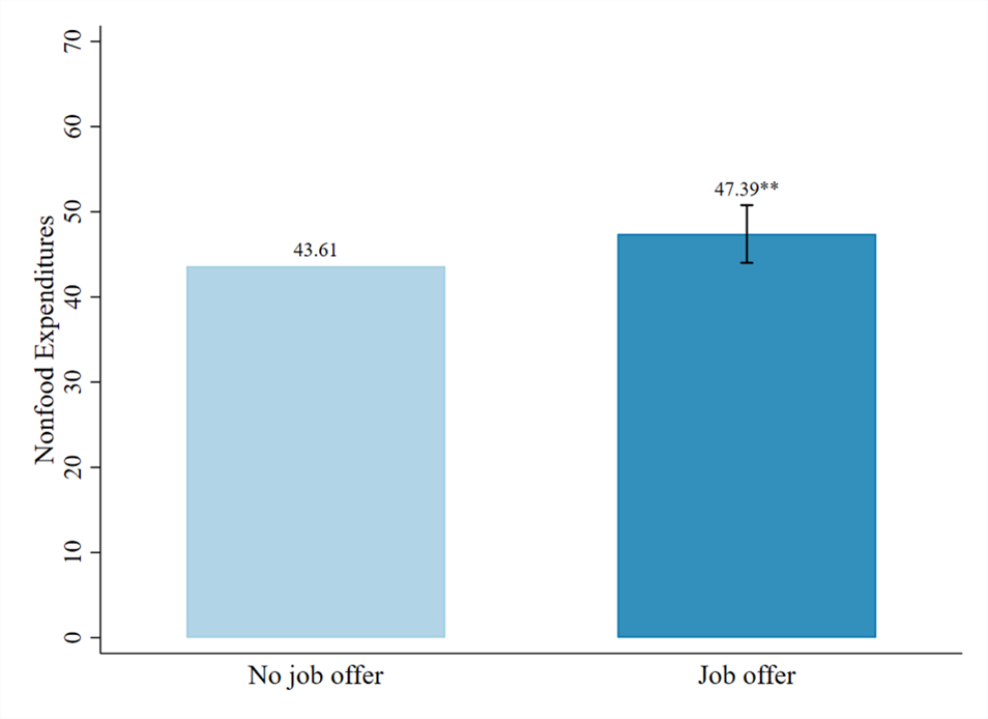
157. Expenditures on food items per capita were not significantly different between households of eligible applicants who received job offers and those who did not (Figure 23). Mainly due to the rise in household income reported above, the share of household's food expenditures in household income declined from 72.6 percent to 52.1 percent (20.5 percentage points lower) in the treatment group.

**Figure 23: Food consumption score and household food expenditures**




158. Expenditures on non-food items per capita at follow-up were slightly higher for households of applicants with job offers: 4 JOD (9 percent of the mean for those without job offers) (Figure 24). When looking at different expenditure types, households of applicants with job offers spent significantly more on cleaning products per capita (0.36 JOD); although point estimates are higher across all expenditure categories indicating a pattern of overall higher expenditures on non-food items. It is worth noting that women with job offers receive training on food safety and hygiene at the community-based kitchens; although the empirical set-up does not allow for testing whether the training is related to the increased spending on cleaning products.

**Figure 24: Non-food expenditures**




159. Qualitative discussions highlighted variation in the use of income. Women reported that a change in income due to the kitchen employment meant that debts were repaid, the financial burden on the household was reduced, and items that were previously unaffordable could now be purchased. The main hindrance to decisions about expenditures, and the ability to save reported across all groups of women were debts, and the number of dependents in the household. Women explained that those who have working husbands are more able to spend their income on extras for the house, or for children; while family size and the presence of several non-working household members reduces ability to spend income on food and non-food items. Women reported how their income is spent on various items both small and large. A woman in Balama exclaimed, "carpets for example! That made a huge difference in the winter". Aside from necessities, a few women were able to support their children with private tutoring.

"We can see the difference at home, income has reduced the burden of loans which is heavy. But … I feel as though I am always paying it off, but it never finishes." – Kitchen worker, Dafyaneh FGD group

"For me, when I pay off my loan, I feel the difference – so for those who have a working husband you feel the effect of having your own income." – Kitchen worker, Dafyaneh FGD group

"It is true, my pregnant daughter is separated and is living with me. I am single, and she does not have income. I do not know how I will pay for her surgery and care." - Kitchen worker, Dafyaneh FGD group

"It depends on the situation. We are 11 in my household, only myself and another work. So, the wage is barely enough." – Kitchen worker, Dafyaneh FGD group

160. In contrast, young single women living at home with parents described that their income is theirs alone to spend and reported that their contribution to household expenditures is optional. As one worker stated, "I like to help out of course, but my parents do not pressure me to contribute, it is my choice". Since most women reported barely keeping up with expenses their resilience and ability to cope were described as minimal. Many pointed to the difficulty of being able to set aside savings, and although

interested in creating savings groups among themselves; could not feasibly do so. Rarely did the women describe how they were able to set aside small amount. Below, a unique case is described:

"The first thing I did when I had income, was that I prepared for the long run. So, I put it towards my project, I bought 4 chickens and started simple. It is so simple and maybe it is nothing but to me it feels like it's the world, it's my treasure even if it is small" – Kitchen worker, Balama FGD group

**Savings, credits, and transfers**

161. An average of 38 percent of households used a form of saving mechanism at baseline. Savings in the last three calendar months totalled 23.44 JOD on average, and the total amount borrowed per household in one calendar month averaged 312.72 JOD. 6 percent of households reported sending transfers in the last 12 months.

162. Nearly one year after the launch of the community-based kitchens households of eligible applicants with job offers were more likely to use a savings mechanism and saved more compared to households, without job offers. The share of households who used a savings mechanism increased from 23 percent to 28 percent, and households saved 1.8 JOD more: a 48 percent increase on the comparison group mean. No differences were detected in applications to loans and loan value, or transfers to others. Figure 25 depicts the findings on all these financial indicators.

**Figure 25: Financial indicators**


### 6.2.4 Gender

**Summary of findings**: There is no evidence indicating that applicants' gender norms, or agency in household decision making, change because of working in the community-based kitchens. There is some evidence that men's attitude towards women earning more than men become less restrictive.

163. Several studies have pointed to the relationship between individual income, changes in gender norms, and agency in intra-household decision making. This section explores the extent to which the increase in income as a result of the community kitchen model leads to changes in gender norms and intra-household decision making.

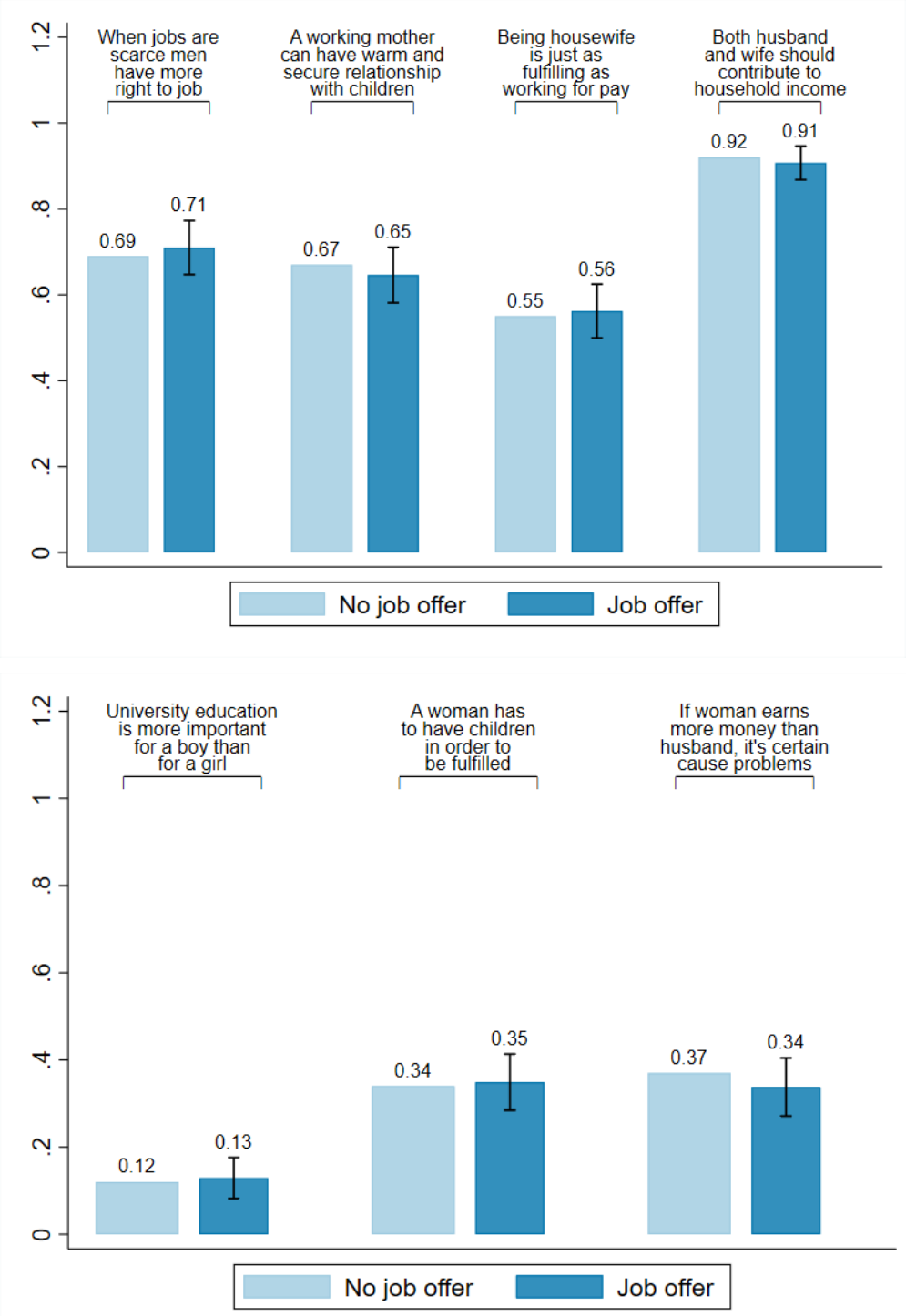
**Gender norms**

164. Gender norms are measured using seven indicators. Each of the seven indicators corresponds to a statement about gender roles, to which the respondent expresses agreement or disagreement on a Likert scale. The same set of statements are presented separately to the participating woman, and the primary decision making man in the households, to capture the opinions of both.

165. The statements are: "when jobs are scarce men have more right to a job than women" (62 percent of women and 81 percent of men agree at baseline); "a working mother can establish just as warm and secure a relationship with her child" (66 percent of women and 60 percent of men agree at baseline); "being a housewife is just as fulfilling as working for pay" (54 percent of women and 53 percent of men agree at baseline); "both the husband and the wife should contribute to household income" (94 percent of women and 89 percent of men agree at baseline); "university education is more important for a boy than for a girl" (10 percent of women and 22 percent of men agree at baseline); "a woman has to have children in order to be fulfilled" (40 percent of women and 45 percent of men agree at baseline); "if a woman earns more money than her husband, it's almost certain to cause problems" (33 percent of women and 31 percent of men agree at baseline).

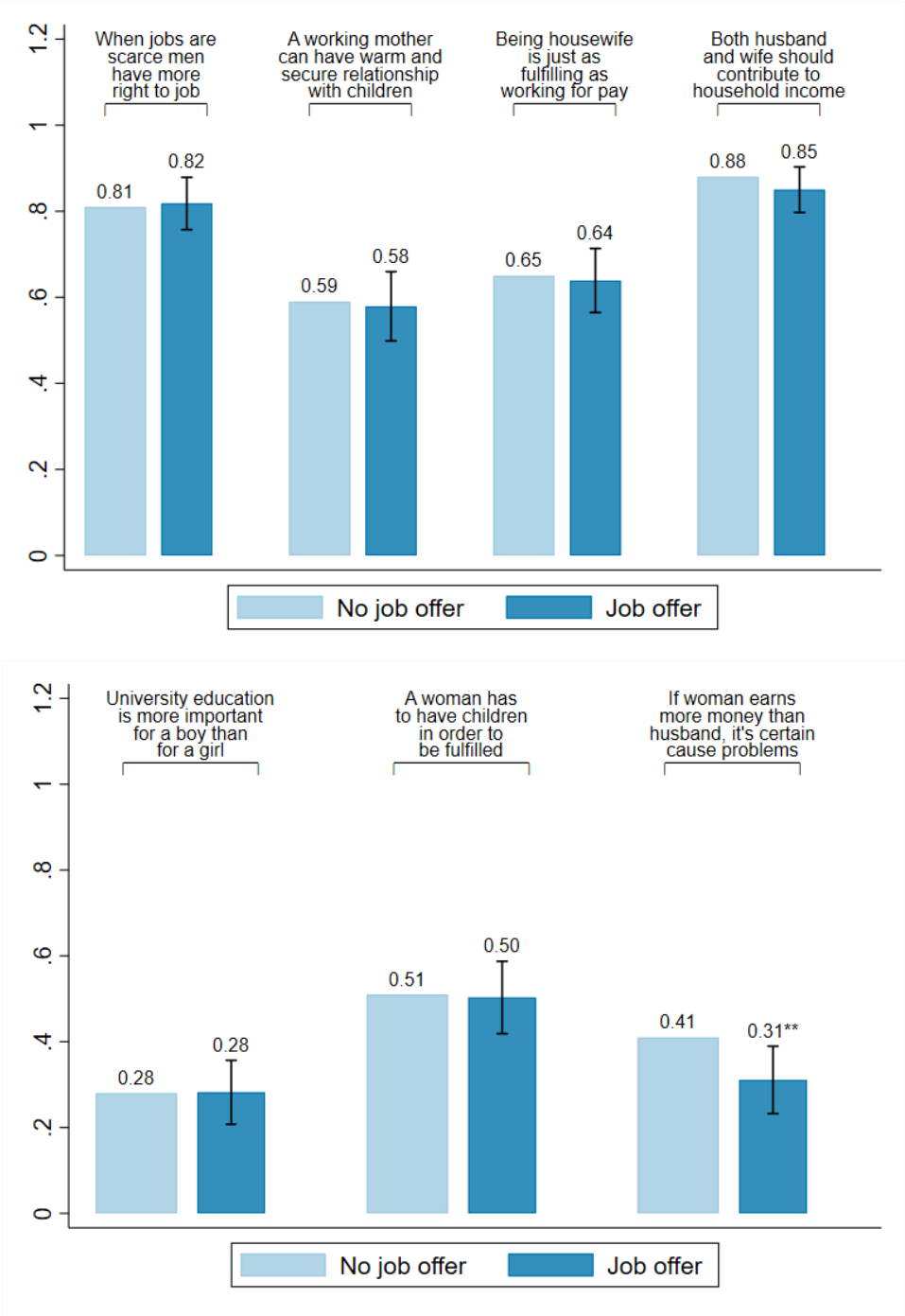
166. Nearly one year after receiving the job offer the share of women agreeing with these statements is not statistically different between those with a job offer, and those without (Figure 26).

**Figure 26: Gender norms: Applicant's perspective**




167. At follow-up the share of decision making men in the households agreeing with the statements is not statistically different between the households of those with a job offer and those without, except for the last statement ("if a woman earns more money than her husband, it's almost certain to cause problems"). This indicates that men in the households of those who received a job offer may have developed less restrictive gender norm because of the program, as they are 10 percentage points less likely to say that a woman earning more than the husband will cause problems (31 percent compared to 41 percent, Figure 27).

**Figure 27: Gender norms: Perception of men as household heads**




168. The qualitative discussions included some information about external support that strengthened women's bargaining position in the household. This support came through improved social capital, CBO management and positive feedback about the programme from the local community. However, norms often limit what can be negotiated. One woman explained that "some families, even if they are starving, won't let their daughters work outside the home". Nevertheless, many among the participants in the qualitative discussions affirmed that norms around taking up paid employment outside the home could be negotiated: whether for themselves, or eventually for others in the community.

"The community respects this [kitchen] work, so this helps me a lot in my personal experience. Many ask if there are opportunities to work here" – Kitchen worker, Tafilah FGD group

169. The kitchen work challenged some aspects of typical gender norms since it meant women worked outside the home, left before daybreak, and could not be home to prepare breakfast and lunch for the family. This is strongly reflected in the qualitative discussions where the good reputation of the CBO manager and community perceptions of the kitchen were raised as factors that supported acceptance of women's employment in the kitchen.

"On the first day, my husband literally ran after me because he was confused as to why I left the house at 5AM. I had told him about the job, but I don't think it really sunk in. When he realized I was working with [CBO manager], he relaxed. Her reputation is good, and she is well-known" – Kitchen worker, Ramtha FGD group

"At first the community had a bad impression, since we go to work very early, the neighbours talked a bit negatively but when they understood the nature of our work [that it is all women], now they all ask us for job opportunities!" – Kitchen worker, Mafraq FGD group

170. As such, the CBO reputation among the community seems of great importance. Particularly when certain conditions are met some norms can be acceptably pushed. It must be noted that economic necessity alone was not described as a parameter to encourage women's employment outside the home.

**Agency in intra-household decision making**

171. Intra-household decision making is measured using the question: "In your household, who usually makes decisions about [...]?" for four consumption decisions, and four-time use decisions. The participating woman applicant, and the primary decision making man in her household are asked these questions separately: to capture the agency of both. The decision domains for consumption and time use are:
    i. Major household purchases
    ii. Purchases from the income made by the primary decision-making man.
    iii. Purchases from the woman respondent's income
    iv. Healthcare for each respondent
    v. Each respondent's time use on work in self-employment
    vi. Each respondent's time use on work for a salary
    vii. Each respondent's time use on work on household chores
    viii. Each respondent's time use on leisure

    The eight questions are coded so that a one means the woman decides, a zero means the woman and the man decide together, and a minus one means that the man decides. For both the women and the men, an indicator is constructed as an inverse covariance-weighted index of these eight decisions. This means that, for both the women's and men's index, a higher value implies higher agency for women.

172. Perceptions of norms about women's agency in the community is measured using the question "In your community, who usually makes decisions about [...]?" again for eight decisions and to both eligible woman applicants and decision making men. The decision domains for consumption and time use are:
    i. major household purchases;
    ii. purchases from men's income;
    iii. purchases from women's income;
    iv. healthcare for women;
    v. women's time use on work in self-employment;
    vi. women's time use on work for a salary;
    vii. women's time use on work in household chores;

viii. women's time use on leisure.

Each of the eight questions are coded such that: a one means the woman decides, a zero means women and men decide together, and a minus one means that men decide. For both the women and men, a perception of norms about women's agency indicator is constructed as an inverse covariance-weighted index of these eight decisions. This means that, for both the women's perceptions and men's perceptions index, a higher value implies that the respondents perceive that women in the community have more agency in decision making.

At follow-up, none of these four indices are significantly impacted by receiving a job offer (see Figure 28).

**Figure 28: Agency**


173. Many factors influence bargaining power: with income being one determinant. The women across the qualitative focus group discussions illustrated the complex interplay between perceptions about needs and contributions, family, and external support.

174. Most women did not describe a radical shift in how household decisions were being made as a result of their employment. It was a commonly shared experience that "you already know where the income will go, it's either rent, food or loan repayment, there is not much to discuss". However, in further discussions on intra-household bargaining, the women relayed that by contributing financially to the household, they were able to barter for some support in housework.

"Men are the poor ones "masakeen", and now women are the empowered ones. It [our income] might not seem like much, but it has made a huge difference to us and our families. Not all of the responsibility for the housework is on us, we can take off part of it" – Kitchen worker, Dafyaneh FGD group

179. Women describe an improvement in their bargaining power in their families. For example, with their husbands they do no longer feel the need to ask for permission to spend. The women described that through improved confidence, independent income, and new social relations outside of the home - their position and ability to bargain in the family improved as well.

"Generally, we can make some more decisions and be heard, the income makes a huge difference. You can become stronger and more respected in the family." – Kitchen worker, Tafilah FGD group

"[laughing] Before my husband used to think he was better than me, now I think I am better than him!" – Kitchen worker, Tafilah FGD group

"There are definitely fewer arguments at home. You have your own life. We do not have to ask them [husbands] anymore for money so we can make our own decisions" – Kitchen worker, Tafilah FGD group

### 6.2.5 Individual psychosocial wellbeing

**Summary of findings**: Eligible applicants are slightly more satisfied with their life if they are offered a job while their grit, stress, and depression levels do not change compared to those with no job offer.

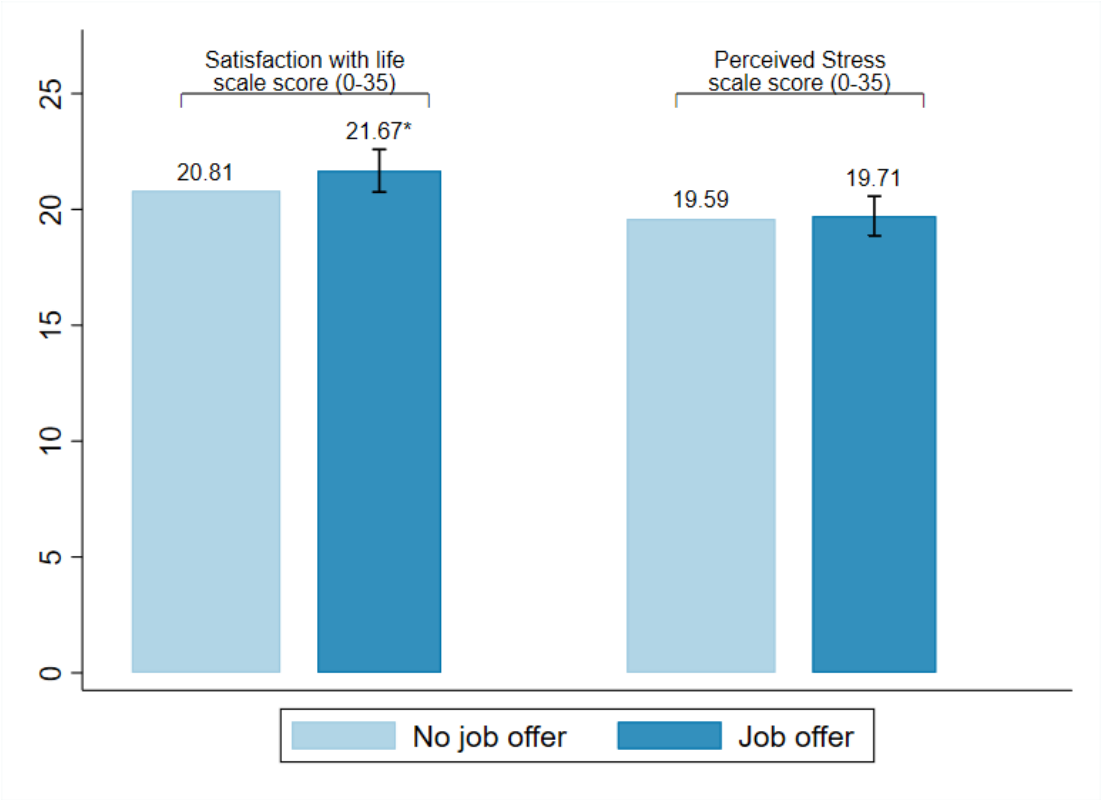
180. With an increase in individual employment, this section assesses whether the job offer has an effect on psychosocial outcomes such as grit (i.e., perseverance and passion for long-term goals), life satisfaction, perceived stress, and depression.

181. Grit is measured using the Short Grit Scale, which ranges from 0 to 5 and at baseline has a mean of 3.8, indicating relatively high levels of grit. Life satisfaction is measured with the Satisfaction With Life Scale, which ranges from 0 to 35 and with a mean of 21.2 at baseline; indicating respondents are on average slightly satisfied with life. Stress is measured with the Perceived Stress Scale, ranging from 0 to 40 and with a mean of 20.6 at baseline: indicating moderate perceived stress. Depression is measured with the PHQ-9 scale ranging from 0 to 27 with a mean of 6.6: indicating mild depression on average.

182. One year after having received the job offer, the evaluation does not find evidence of differences on the levels of grit, stress, and depression between the respondents who received a job offers and those who did not (Figure 29).

183. Respondents who received job offers are marginally more satisfied with life; as their average life satisfaction is higher than those without job offer by 0.9 points: equivalent to 4 percent of the mean comparison (Figure 29).

**Figure 29: Psychosocial outcomes**

### 6.2.6. Social cohesion

**Summary of findings**: The impact evaluation does not detect changes in social capital and trust as a result of receiving job offers.

184. Kitchens are run by a community-based organization (CBO) which employs 15-30 women from neighbouring deprived areas. This section will assess whether greater social cohesion and trust are detected among eligible applicants who are offered employment opportunities.

185. Social cohesion and trust were measured using 12 questions that were combined into one overall standardized index capturing all 12 questions, and four standardized sub-indices that measure different aspects of social cohesion as follows:

1. The social relations sub-index consists of three questions:
    - How many groups or associations (such as youth groups or community centres) have you been a member of since September 1st, 2022?
    - Number of positions of responsibility you held in any group over the last 12 months,
    - Since September 1st, 2022, what number of days did you volunteer in community activities?
2. The focus on the common good sub-index consists of two questions:
    - You can count on the help of women in your community when you have difficulties. How much do you agree with this statement?
    - Do you work with community to achieve common goals?
3. The connectedness sub-index consists of three questions:
    - Are there people who hate you and wish you failed or to sabotage your success? (reversed).
    - Since September 1st, 2022 has there been tension between members of your community? (reversed),
    - How close do you feel to your community?
4. The trust sub-index consists of four questions:
    - Out of ten people in the village, how many are honest and trustworthy people?
    - On a scale of one (not at all confident) to five (full confidence): How much confidence do you feel you have in the following people; if for example, if we would like to pass money to you through them, would you be confident that you will receive your transfer through: 1) your relatives; 2) your neighbours, and 3) other people you know?

**Discrete choice experiment findings (preferences for women's wage employment contracts)**

Findings from the discrete choice experiment are used to explore preferences for women's wage employment contracts. Estimates are provided for respondents separately by gender. For women, working conditions considered important are: longer contracts, the availability of transport, and a single-gender workplace. Salary is the least important consideration of the characteristics covered. For men, the gender composition of the workplace really matters, and no other job characteristics can compensate for a mixed-gender workplace in their view. A detailed discussion of the discrete choice experiment results can be found in Annex 8.

186. No impacts from receiving job offers are detected on the overall index or any of the sub-indices (Figure 30). Social cohesion and trust were also discussed in qualitative work. It was reiterated across all kitchens in the qualitative discussions that the women developed friendships among their new colleagues. The women gave many examples of home visits, cooking together after work and checking on one another while sick. However, many of these categories of activities are typical cultural minutiae. In fact, none of the focus group discussions gave examples of leaning on community members in hard

times, volunteering together to attain community goals, or holding positions of responsibility within group projects: all of which are pillars of the social cohesion index. This may point to trust being built among colleagues working in the kitchen without spilling over to the rest of the community.

> "Among ourselves we don't have any issues. Outside of the CBO, some of the Syrian ladies hear negative comments like 'why don't they hire Jordanians', but the CBO doesn't keep anyone more than two years to allow for some rotation among the community."

**Figure 30: Social cohesion indicators**

# 7. Conclusions

187. The following section responds to the primary evaluation questions (PEQ) and secondary evaluation questions (SEQ) by briefly summarising the main findings from the impact evaluation: first discussing the school design and then the worker's design.

### School design

**PEQ1: What is the impact of providing healthier school meals on primary school students' dietary diversity, attention span, educational and learning outcomes?**

188. Findings from the children's endline survey, conducted at the end of the second semester of the implementation, show that children's dietary diversity increases by a quarter of a food group in schools receiving healthy meals compared to schools receiving the date-bar model. This increase is mainly driven by increased consumption of fruit, vegetables, and dairy, which are provided by healthy meals.

189. Students' nutritional behaviour also improved along other dimensions. Children in healthy meal schools are less likely to bring food to school (by 6 percentage points) and bring less money to school. This suggests that healthy meals substitute for meals from home, and from the school cafeteria; therefore, reducing the monetary burden on parents to supply school meals for their children.

190. In addition, healthy meals support other healthy behaviours in children. Students in schools that receive healthy meals are more physically active than those in schools receiving date bars; with children reporting that they are less tired to be active, and that they find it easier to focus on learning.

191. In terms of educational outcomes, absenteeism improves by one day in the healthy meal schools during the school year of implementation (2022–23) for the sample of schools that can be matched in the administrative data. However, the change in meal modality does not lead to detectable changes in students' attention span, measures of cognitive memory (digit span test), or measures of student behaviour, and voluntary and involuntary meal-sharing. These findings may be explained by the fact that the evaluation looks at two meal modalities with similar calories, rather than the introduction of school meals from no school meals, and the short-term follow-up after two scholastic semesters.

**SEQ1: Does the introduction of healthier school meals change service delivery (e.g., the timely delivery of the number of meals ordered)?**

192. The new school-meals modality provides more diverse and healthier food groups, as well as less sugar and less fat. The healthier meal model offers similar nutritional support in terms of calories (283.5 kcal for the healthy meal model, 344 kcal for the date-bar model). However, with the addition of a vegetable, a piece of fruit, and dairy in the pastry, the new model provides more diverse food groups than the date bar modality. The healthier meal also offers more protein (10 g for the healthy meal model, 5 g for the date-bar model), and less sugar (20 g of total sugar for the healthy meal, about 32 g of total sugar for the date-bar meal).

193. Monitoring data's distribution reports of the meals, as well as teacher perceptions, show excellent service delivery for both school meal modalities, with delivery numbers reaching close to targets, meals matching the number of students, no reports of quality issues, and processes followed as per protocols.

194. Teachers serving as school-meals focal points prefer the healthy meal model over the date bar modality. They are 7 percentage points more likely to rate the school meals programme as excellent in healthy meal schools; although this difference is insignificant due to a small number of observations in

the country office monitoring data. These teachers also believe that the healthy meal model has a positive impact on enrolment and dropouts.

195. Students also prefer the healthy meals and are more likely to report receiving them. 90 percent of children in healthy meal schools report receiving meals on the last school day, compared to 77 percent in date bar schools. While the date bars are well liked by students, with 83 percent of children reporting that they are happy with the meal, this number significantly increases to 89 percent for the students receiving the healthy meals.

**SEQ2: Are there heterogeneous impacts of providing healthier school meals to primary school students?**

196. The introduction of healthy meals appears significantly more impactful for boys compared to girls in achieving behavioural change. When comparing boys in healthy meal schools to boys in date bar schools, the former are significantly less likely to bring money to school and buy food from the cafeteria. In contrast, girls in healthy meal schools are less likely to bring food to school, compared with girls in date bar schools. Similarly, the increase in physical activity due to healthy meals is larger for boys than for girls, with a treatment effect on the physical activity index of 0.15 SD for boys compared to 0.02 SD for girls.

### Worker's design

**PEQ2: What is the impact of formal wage employment outside the household on women's social and economic empowerment?**

197. The results of the impact evaluation indicate large and significant impacts on the economic empowerment of women from the offer of wage employment, while effects on the social empowerment of women are limited. Eligible applicants with a job offer are five times more likely to have been employed during the intervention period than those applicants who randomly did not receive job offers (69 percent compared to 15 percent), as indicated by the follow-up surveys. While no impacts on most other employment-related outcomes are detected (perceived likelihood of working in 12 months, number of days worked, job satisfaction and job search), the offer of formal wage employment marginally increases women's desire to remain attached to the labour force (78 percent compared to 71 percent).

198. Since eligible applicants who received and accepted a job offer are paid by the programme, large impacts are also observed on applicant, and household income; with the individual monthly income of eligible applicants with job offers more than tripling compared to those without job offers (176 JOD compared to 52 JOD), and the monthly household income of eligible applicants rising by a third (456 JOD compared to 340 JOD). When comparing employed to not-employed applicants (in an instrumental variable framework for a LATE analysis), individual income is five times higher, and household income is 1.5 times higher.

199. In terms of social empowerment, the impact evaluation detects small but significant improvements in women's life satisfaction. Other psychosocial outcomes do not appear to be affected.

200. Applicants with job offers report higher satisfaction with life, with a score of 21.67 that is higher than the score of the comparison group of 20.81, and the difference being significant at the 10 percent level.

201. Agency in intra-household decision making process do not seem to change significantly, for men or women, because of the job offers. The qualitative data provides anecdotal evidence that women's bargaining power in the household increases in some cases, but this is not detected in the quantitative results. In terms of gender norms women's attitudes do not differ significantly; however, men in households where women received a job offer are 10 percentage points less likely to agree that a woman earning more than the husband is certain to cause problems than men in households where

no job offer was received (31 percent compared to 41 percent). It is possible that effects on these psychosocial indicators, and agency in intra-household decision making may take longer to materialise, or that they may only be affected by longer-term employment.

**SEQ3: Does women's formal wage employment outside the household impact households' consumption and food security?**

202. Job offers do not appear to affect food consumption, food expenditure per capita, or food security. No differences were found between those who received job offers and those who did not in terms of the food consumption score, monthly food expenditures per capita, the Food Insecurity Experience Scale, and the reduced Coping Strategies Index.

203. However, households with job offers are more likely to save money (28 percent compared to 23 percent), save about 50 percent more (5.5 JOD compared to 3.7 JOD), and spend more on non-food items by about 10 percent. It is possible that these patterns are observed because households in this middle-income setting are already comparatively food secure: such that additional income can be spent on non-food items. These results are supported by qualitative evidence which records that the income earned from kitchen employment is spent on household items, business investments and loan repayments.

**SEQ4: Does women's employment in community-based kitchens impact their trust and social cohesion in the communities in which the kitchens are based?**

204. There are no indications that job offers for kitchen employment impact women's social capital and trust in the community.

**SEQ5: Are there heterogeneous impacts of formal wage employment outside the household on women?**

205. Heterogeneity analysis for four dimensions (women's baseline employment, baseline marital status, baseline women's agency, and baseline women's gender norms) was implemented. While some coefficients are significant due to the large number of tests conducted, no clear patterns of heterogeneity were detected.

**SEQ6: What are women and men's preferences for women's wage employment contracts in Jordan?**

206. The discrete choice experiment indicates that longer contracts, specifically 12-months, and open-ended contracts, along with a pick-up and drop-off service, are viewed positively. However, a mixed-gender workplace environment is seen negatively by women and men. The simulation from this experiment shows that extending contract duration or providing pick-up and drop-off service may significantly increase the likelihood of job offer take-up, while mixed-gender workplaces would likely deter women from accepting offers.

# 8. Considerations for future programmes

207. This impact evaluation of the WFP's healthy school meals programme in Jordan highlights positive impacts, after two semesters of implementation, on both the children in schools, and the kitchen workers responsible for packaging healthy meals. Considering the favourable effects observed on children, there is a compelling case for scaling up the provision of healthier meals. The following considerations are based on the above impact evaluation findings from Jordan and can support any future scale-up of the healthy meals model.

### Consideration 1. Strengthening the Education Management Information System (EMIS) and ensuring reliable data.

208. Strengthening data infrastructure is essential. Collaborating with government agencies to enhance the EMIS infrastructure will provide a reliable foundation for programme monitoring. This involves incentivizing accurate and timely data entry, as well as implementing stringent data quality controls. For WFP monitoring data: strengthening data coverage and data collection frequency is similarly essential.

### Consideration 2. To ensure the long-term sustainability of the healthy meals it may be important to explore simplified models and evaluate their cost-effectiveness.

209. Drawing lessons from experiences in other countries and adapting effective strategies will enhance the programme's long-term viability. This entails comparing cost–benefit ratios, automating tracking, and monitoring data collection as much as is feasible; as well as simplifying procurement and delivering processes to maximize efficiency.

210. Recognizing that children in healthy-meal model schools are less likely to bring money to school in a context where the cafeteria is run as a profit-making enterprise by teachers; the programme may want to consider exploring the impact on teachers. Supporting teachers by actively mitigating any negative consequences arising from a reduction in children bringing money to schools could foster a positive teaching environment.

### Consideration 3. Understanding any long-term impacts on health measures such as obesity and learning outcomes.

211. Building upon the short-term positive impact on children, the programme may want to consider exploring the long-term impacts. Conducting comprehensive studies to measure enduring health benefits for children and incorporating specific indicators into the programme's evaluation framework will contribute to a more profound understanding of the programme's impact over an extended period.

### Consideration 4. Regarding the impact on the women in the local labour force the programme can actively explore ways to enhance job accessibility for women in poverty-pockets areas.

212. Integrating transportation services into employment contracts may help overcome mobility barriers, and implementing targeted community engagement initiatives may help address cultural barriers: making job opportunities more accessible and empowering for women.

# Annex 1: Main outcomes of interest

**Table 9 Outcomes of interest and measurement indicators**

| Outcome type | Outcome name | Categories | Measurement indicators | Measurement level | Measurement tool |
|---|---|---|---|---|---|
| **Service delivery outcomes** | | | | | |
| Primary | Service delivery | Food delivery | • Food delivery: Meals are delivered to schools on time and in quantities that correspond to student numbers<br>• Food diversity: meal composition<br>• Nutritional support: number of calories and macronutrients of school meals | Schools | School and kitchen monitoring |
| | | Food quality | • Self-reported child satisfaction | | EL survey |
| **Children outcomes** | | | | | |
| Primary | Education | Enrolment and education progression | • Enrolment<br>• Attendance<br>• Retention<br>• Repetition | Child | Administrative |
| | | Focus/attention span | • Stroop test | | EL survey |
| Primary | Learning | Reading and writing | • Early Grade Reading Assessment (EGRA)<br>• Early Grade Math Assessment (EGMA) | | EL survey |
| | | Cognitive ability | • Forward and backward digit span | | |

| Outcome type | Outcome name | Categories | Measurement indicators | Measurement level | Measurement tool |
|---|---|---|---|---|---|
| | | | • 15-item Standard Progressive Raven's Matrices | | |
| Primary | Nutrition | Food consumption | • Food intake: Dietary Diversity Score | | |
| Secondary | | Nutritional behaviour | • Nutritional behaviour: Buying meals at the school canteen; time spent on physical activity | | |
| Secondary | Conflict | Prevalence of conflict between children at school | • Frequency and experience of conflict between children due to food related inequities (food brought to school, school money) | | |
| **Applicant's household outcomes** | | | | | |
| Primary | Household income and welfare | Income | • Income by household member and source | Household | BL/EL survey |
| Secondary | | Resilience and vulnerability | • Coping strategies and shocks<br>• Food Insecurity Experience Scale (FIES) | | |
| | | Finances | • Savings & credit<br>• Transfers | | |
| Primary | Nutrition | Food consumption | • Food intake: Dietary diversity on household level (FCS) | | |

| Outcome type | Outcome name | Categories | Measurement indicators | Measurement level | Measurement tool |
|---|---|---|---|---|---|
| | Gender | Time-use | • Time allocation to different daily activities | Primary decision making man | |
| | | Intra-household bargaining | • Agency in intra-household decision making with regards to finances, time-use, etc. | | |
| | | Gender norms and attitudes | • Perspective on gender roles | | |
| **Applicant's outcomes** | | | | | |
| Primary | Income and welfare | Employment | • Current employment status<br>• Days worked<br>• Job satisfaction<br>• Job search | Applicant | BL/EL, High frequency survey |
| | | | • Future plans: employment plans during school breaks and after turnover (only BL and EL) | | BL/EL, High frequency survey |
| | | Time-use | • Time allocation to different daily activities | | |
| | | Income | • Income for applicants and source | | |
| | | Expenditures | • Food and non-food expenditure (only BL and EL due to sensitive nature) | | |
| | | Resilience and vulnerability | • Coping strategies and shocks<br>• Food Insecurity Experience Scale (FIES) | | |

| Outcome type | Outcome name | Categories | Measurement indicators | Measurement level | Measurement tool |
|---|---|---|---|---|---|
| | Gender | Psychosocial outcomes (only woman applicant) | • Grit<br>• Life satisfaction and wellbeing<br>• Perceived Stress Scale<br>• Depression Scale (PHQ-9) | | |
| | | Intra-household bargaining | • Agency in intra-household decision making with regards to finances, time-use, etc. | | |
| | | Gender norms and attitudes | • Perspective on gender roles | | |
| Secondary | Community | Social cohesion | • Social capital<br>• Trust | | |

# Annex 2: Estimation strategy

### School design

213. The main econometric analysis of the data consists of linear regression to estimate the intention-to-treat effect (ITT). The impact on children of providing healthy school meals is estimated by the following equation:

$$y_{csf} = \alpha + \beta * T_s + \theta_K + \theta_T + \varepsilon_{csf}.$$

214. $y_{csf}$ indicates the outcome of child (c) in school (s) at endline; α is a constant, $T_s$ is an indicator equal to 1 if the school (s) attended by child (c) was assigned to provide healthy meals (which is 0 for the schools assigned to receive date bars). $\theta_K$ is kitchen catchment area fixed effect, and is a date fixed effect included to control for specific days in which nutrition patterns are different. Given that baseline data is not available, it is not possible to carry out an analysis of covariance (ANCOVA), which typically improves statistical power by controlling for the baseline value of an outcome. The parameter $\beta$ is interpreted as the change in $y_{csf}$ due to the school being assigned to providing the pastry, fruit, and vegetable meal rather than the date bars. Standard errors are clustered at the school cluster level.

### Worker component

215. The impact on applicants of being offered employment in a community-based kitchen is estimated by the following intention-to-treat (ITT) equation:

$$y_{wf} = \alpha + \beta * T_w + \gamma_1 * y_{wb} + \theta_K + \theta_E + \varepsilon_{wf}.$$

216. $y_{wf}$ indicates the outcome of applicant (w), or their household at follow-up; α is a constant, $T_w$ is an indicator equal to 1 if applicant (w) was offered a job (which is zero for the no job group). $y_{wb}$ is the outcome of applicant (w), or their household at baseline (if available), and $\theta_K$, $\theta_E$ are strata fixed effects for the kitchen, and experience of the applicant respectively. β is to be interpreted as the change in $y_{wf}$ due to the woman being offered to be hired in a community kitchen. The analysis pools the high-frequency surveys and the endline surveys. Standard errors are clustered at the applicant level to account for intra-applicant autocorrelation.
217. In addition to the intention-to-treat specification to estimate the impact on applicants, an instrumental variable approach to estimate the local average treatment effect (LATE) is employed. To estimate this parameter, a dummy variable that captures whether applicant (w) is employed in the follow-up data is instrumented by the treatment assignment indicator. This local average treatment effect captures the impact on the subsample of eligible applicants that were induced by the job offer to be employed.

### Discrete choice experiment

218. In the discrete choice experiment (DCE) examining women's preferences, target participants were women who were willing, and would like, to work outside of the household. This included eligible applicants in the job offer and no job offer groups. The target participants of the DCE examining men's preferences on the work arrangements of women in the household were men participating in the impact evaluation's household survey. For the women's DCE, the final sample includes 410 women in the endline survey of the impact evaluation. The final sample for the men's DCE includes 318 men from the endline household survey of the impact evaluation.

219. In the discrete choice experiment, it is assumed that everyone, when having the choice between two (or more) alternatives, chooses the one that maximizes their utility.51 The utility function is specified as an indirect utility function defined by the attribute levels in the alternative plus a random error term reflecting the researcher's inability to perfectly measure utility:

$$U_i = V(\beta, X_i) + \varepsilon_i$$

220. V is a function defined by the attribute levels for alternative i, εi is a random error term, Xi is a vector of attribute levels defining alternative i, and β is a vector of estimated coefficients. Each estimated coefficient is a preference weight and represents the relative contribution of the attribute level to the utility that respondents assign to an alternative. εi is assumed to follow an independently and identically distributed extreme value.
221. Trade-off rate, or marginal rate of substitution, is measured as the level of job attributes an individual is willing to give up in order to receive a higher level of another job attribute. This can be estimated as the ratio of the value of the coefficient of interest to the negative of the cost attribute.
222. It is possible to estimate the proportion of applicants who would prefer a hypothetical job versus the basic job (the current job offer of the community-based kitchens in the school meals programme). To simulate policy effects, we change only one attribute at a time while holding all others constant and observe how the probabilities change. The logit probability of choosing alternative i rather than alternative j thus becomes:

$$Pr(choice = i) = \frac{e^{V(\beta, X_i)}}{\sum_j e^{V(\beta, X_j)}}$$

[51]A. Brett Hauber, Juan Marcos González, Catharina G.M. Groothuis-Oudshoorn, Thomas Prior, Deborah A. Marshall, Charles Cunningham, Maarten J. IJzerman, John F.P. Bridges. 2016. Statistical Methods for the Analysis of Discrete Choice Experiments: A Report of the ISPOR Conjoint Analysis Good Research Practices Task Force, *Value in Health* 19(4): 300–315.

# Annex 3. Stakeholder analysis

223. The stakeholder analysis for this evaluation identifies those who may influence or be influenced by the evaluation's outcomes. Stakeholders encompass internal and external parties: including programme beneficiaries. The primary user is the WFP Jordan country office and the Government of Jordan, but the evaluation aims for broader utilization of its findings.

224. Stakeholder categories include:

- Internal Jordan-based stakeholders: key personnel within the country office.
- Internal stakeholders outside of Jordan: Involving the WFP Office of Evaluation, the WFP Regional Bureau for the Middle East, Northern Africa & Eastern Europe in Cairo (RBC), Social Protection Division/School-based Programmes, and other headquarters divisions.
- Populations in need: school-aged children and communities in programme areas.
- External stakeholders: Comprising international NGOs, donors, United Nations agencies, the World Bank, and local forums.
- National stakeholders: Encompassing government entities at national and sub-national levels (e.g., Ministry of Education), implementing partners such as Queen Rania Centre for Entrepreneurship, community-based organizations (CBOs), as well as local NGOs.

225. Stakeholder engagement methods differ by category but may involve reviewing and providing input on evaluation documents, actively monitoring the evaluation's design during programme implementation, participating in workshops, and offering feedback on evaluation reports.

226. The engagement aims to ensure that diverse perspectives are considered, and that the evaluation's results are effectively used by stakeholders.

# Annex 4: Qualitative surveys

227. In addition to the quantitative data collection, the impact evaluation also employed qualitative methods – in the form of focus group discussions (FGDs) and key informant interviews (KIIs) – collected 6 months after the quantitative endline survey, triangulating the perspectives of suppliers and those receiving treatment - including those who received a job offer but dropped out.

228. The qualitative research targeting employed women was carried out in all the four of the programme communities across the governorates of Jordan: Tafilah, Karak, Mafraq and Irbid (n=36 for those who maintained employment in the kitchens for the duration of the evaluation; n=15 for those who dropped out)

229. The qualitative research targeting suppliers was carried out in all five areas of supplier activity: Balqa (Deir Alla), Karak, Irbid, Tafilah and Mafraq (n=4 for the bakeries, and n=9 for the farmers)

230. The sampling frame for the workers aimed to reach a representative sample at the governorate level. At the kitchen level, a random list of workers was generated. a replacement list was also generated, in case any of the participants were unavailable, or refuse to participate.

231. Next, the list of participants was communicated with the implementing partners: the Royal Health Awareness Society and Decapolis, who, in turn, contacted the participants either in person, or by telephone. They explained the objectives of the research and asked if they were interested to participate in an interview/focus group discussion. If participants agreed to participate, they were informed about the date and place in which the meeting was scheduled.

232. In total, nine KIIs and seven FGDs with 36 individuals who had received a job offer were conducted (total n= 60).

233. Data collection: Qualitative data was collected between October and November 2023. Trained field office staff from WFP Jordan and a DIME field coordinator conducted all KIIs and FGDs in Arabic. FGDs lasted 90 minutes, and KIIs 60 minutes. Each FGD was comprised of six to eight participants. All FGDs and KIIs were recorded and transcribed in Arabic.

234. FGDs with the women who received a job offer broadly focused on the following thematic areas: 1) Uptake of job offer, participation in kitchen employment and future employment plans; 2) Perceived changes in the household including time use, agency, gender norms, time use, household earnings, consumption patterns, individual wellbeing, and intra-household relationships, and 3) Feedback and recommendations for the project.

235. KIIs with the bakeries and farmers focused primarily on perceived benefits of the project to the suppliers as well as to the communities receiving school meals, and to a secondary extent, project implementation processes. Questions on the benefits questions focused broadly on 1) perspectives on the economic impact; 2) Supply chain collaboration, and 3) quality and sustainability.

236. Qualitative data analysis: The team undertook a thematic analytic approach to identify the salient themes related to perceived programme benefits and changes across different KII and FGD transcripts. The data analysis included three phases: 1) The development and piloting of an initial coding tree and codebook; 2) The coding of KII and FGD transcripts, and 3) Thematic analysis of salient themes. All transcripts were translated from Arabic to English and coded using Excel.

237. In the first analysis phase, an initial coding tree was developed based on qualitative tools as well as the programme evaluation theory (deductive approach). Two transcripts were pilot coded using the initial coding tree. Based on new or differing themes arising from the data, the coding tree was adjusted. The final codebook for the kitchen workers component included: parent, child, and grandchild codes relating to:

- navigating job offer and future employment aspirations;
- psychosocial impact and partner dynamics;
- perceived impact on household;
- programme feedback.

238. The final codebook for the supplier component included parent, child and grandchild codes relating to:

- perceived economic impact;
- perceived community influence;
- quality and sustainability;
- programme and implementation feedback.

239. To further illustrate, for perceived impacts on household, different codes were used for the type of perceived benefit (e.g. household earnings; consumption patterns, etc.), these had sub-codes indicating a change or no change).

240. During the second analysis phase all remaining transcripts were coded, and, where needed, the coding tree reiteratively revised based on emerging themes and findings.

241. In the third analysis phase the data was summarized by grouping codes into themes

.

# Annex 5: Regression output for child endline results

**Table 10 Result tables child outcomes**

| Outcome | Healthy meal (SE) | Date bar mean | N |
|---|---|---|---|
| **Panel A. Service Delivery** | | | |
| **Student perceptions** | | | |
| Received food at school | 0.12*** | 0.76 | 2778 |
| | (0.03) | | |
| Happy with meal received | 0.07*** | 0.82 | 2347 |
| | (0.03) | | |
| **Teacher perceptions** | | | |
| *Semester 1* | | | |
| Meals match the number of students | 0.01 | 0.99 | 182 |
| | (0.01) | | |
| Sealed meals | 0.01 | 0.99 | 182 |
| | (0.01) | | |
| Good condition | -0.04 | 0.99 | 182 |
| | (0.03) | | |
| Meals given before break | 0.03 | 0.94 | 182 |
| | (0.03) | | |
| *Semester 2* | | | |
| Meals match the number of students | 0.00 | 1.00 | 225 |
| | ( .) | | |
| Excellence rating of SF program | 0.07 | 0.57 | 223 |
| | (0.07) | | |
| Enrollment | 0.10* | 0.70 | 223 |
| | (0.06) | | |
| Attentiveness | 0.08 | 0.76 | 223 |
| | (0.06) | | |
| Dropouts | 0.11* | 0.66 | 223 |
| | (0.06) | | |
| Sealed meals | 0.01 | 0.99 | 225 |
| | (0.01) | | |
| Good condition | -0.01 | 1.00 | 225 |
| | (0.01) | | |
| Meals given before break | -0.03* | 1.00 | 225 |
| | (0.02) | | |

| Outcome | Healthy meal (SE) | Date bar mean | N |
|---|---|---|---|
| **Panel B. Child outcomes** | | | |
| **Dietary diversity** | | | |
| Child Individual Dietary Diversity Score (0-9) | 0.25** | 5.00 | 2778 |
| | (0.10) | | |
| Starchy staples | 0.01 | 0.93 | 2778 |
| | (0.01) | | |
| Dark green leafy vegetables | -0.01 | 0.40 | 2778 |
| | (0.03) | | |
| Other vitamin-A-rich fruits and vegetables | 0.08*** | 0.56 | 2778 |
| | (0.03) | | |
| Other fruits and vegetables | 0.04** | 0.87 | 2778 |
| | (0.02) | | |
| Organ meat | 0.01 | 0.09 | 2778 |
| | (0.02) | | |
| Meat and fish | 0.03 | 0.60 | 2778 |
| | (0.03) | | |
| Eggs | 0.03 | 0.49 | 2778 |
| | (0.03) | | |
| Legumes and nuts | -0.01 | 0.35 | 2778 |
| | (0.02) | | |
| Milk and milk products | 0.06** | 0.69 | 2778 |
| | (0.02) | | |
| **Nutritional behaviors** | | | |
| Ate before school | 0.01 | 0.56 | 2778 |
| | (0.03) | | |
| Brought food to school | -0.06** | 0.29 | 2778 |
| | (0.02) | | |
| Brought money to school | -0.03 | 0.89 | 2778 |
| | (0.02) | | |
| Value of money brought to school | -0.03** | 0.39 | 2778 |
| | (0.01) | | |
| Bought food from canteen | -0.01 | 0.75 | 2778 |
| | (0.03) | | |
| **Attendance** | | | |
| Student-level absence days (2022-2023) | -1.09** | 7.10 | 27479 |
| | (0.54) | | |
| **Attention span and cognitive ability** | | | |
| Stroop Interference Score | -0.10 | 5.25 | 2778 |
| | (0.20) | | |
| Raven's Progressive Matrices Score (0-15) | 0.07 | 3.60 | 2778 |
| | (0.19) | | |
| Digit Span - Forward and Backward Score (0-30) | 0.20 | 12.78 | 2778 |
| | (0.48) | | |

| Outcome | Healthy meal (SE) | Date bar mean | N |
|---|---|---|---|
| **Learning** | | | |
| *Early Grade Reading Assessment* | | | |
| Letter identification | -1.17 | 55.77 | 2777 |
| | (1.80) | | |
| Non-word reading | -0.59 | 26.36 | 2778 |
| | (0.98) | | |
| Listening comprehension (0-5) | -0.06 | 3.85 | 2778 |
| | (0.09) | | |
| Oral reading fluency | -3.48 | 54.51 | 2747 |
| | (2.17) | | |
| Reading comprehension (0-6) | -0.22* | 3.82 | 2778 |
| | (0.13) | | |
| *Early Grade Math Assessment* | | | |
| Number identification | -1.77 | 34.52 | 2757 |
| | (1.15) | | |
| Number discrimination | 0.03 | 9.00 | 2778 |
| | (0.10) | | |
| Missing numbers | -0.15 | 7.17 | 2778 |
| | (0.18) | | |
| Addition - 1 | 0.00 | 1.16 | 2778 |
| | (0.02) | | |
| Addition - 2 | -0.04 | 2.81 | 2744 |
| | (0.12) | | |
| Subtraction - 1 | -1.85* | 15.67 | 2778 |
| | (1.09) | | |
| Subtraction - 2 | -0.13 | 2.25 | 2696 |
| | (0.14) | | |
| Word problems | 0.02 | 4.59 | 2778 |
| | (0.11) | | |
| **Physical activity** | | | |
| Student Physical Activity Index (ICW) | 0.09*** | 0.00 | 2778 |
| | (0.03) | | |
| Hours spent on physical activity | 0.07 | 1.46 | 2778 |
| | (0.06) | | |
| Easy to focus on learning | 0.12** | 3.27 | 2778 |
| | (0.06) | | |
| Less tired to be physically active | 0.14** | 3.05 | 2778 |
| | (0.06) | | |
| Very active during PE classes | 0.04 | 2.57 | 2778 |
| | (0.08) | | |
| Number of days being physically active | 0.07 | 1.65 | 2778 |
| | (0.08) | | |
| Number of evenings being physically active | 0.04 | 1.82 | 2778 |
| | (0.07) | | |
| Times being physically active on weekends | 0.04 | 1.89 | 2778 |
| | (0.06) | | |

| Outcome | Healthy meal (SE) | Date bar mean | N |
|---|---|---|---|
| **Student cooperation** | | | |
| Student Cooperation Perception Index (ICW) | 0.03 | 0.00 | 2777 |
| | (0.03) | | |
| Share meal given in school with anyone | -0.03 | 0.27 | 2778 |
| | (0.03) | | |
| Voluntarily gave school meal to anyone else | -0.04 | 0.30 | 2778 |
| | (0.03) | | |
| Took student meal by force | -0.01 | 0.07 | 2778 |
| | (0.01) | | |
| Ate meal in classroom with other students | -0.02 | 0.88 | 2778 |
| | (0.03) | | |
| Are proud of the food parents prepared for school | 0.06* | 0.65 | 2722 |
| | (0.04) | | |
| Feel embarrassed on days when they don't bring money for the cafeteria to school | 0.02 | 0.19 | 2778 |
| | (0.05) | | |
| Hard to talk to other children | 0.00 | 0.69 | 2778 |
| | (0.03) | | |
| Enjoy going to school | 0.03 | 0.75 | 2775 |
| | (0.03) | | |

# Annex 6: Regression output from worker and worker's household follow-up surveys

**Table 11 Result tables workers outcomes**

| Outcome | Job offer (SE) | No job offer mean | N |
|---|---|---|---|
| **Panel A. Income and welfare** | | | |
| **Employment** | | | |
| Engaged in employment | 0.54*** | 0.15 | 539 |
| | (0.04) | | |
| Number of days worked | -0.67 | 5.00 | 52 |
| | (0.43) | | |
| Engaged in job search | 0.01 | 0.54 | 450 |
| | (0.08) | | |
| Job satisfaction | 0.66 | 7.93 | 337 |
| | (0.42) | | |
| Likelihood will work in paid employment in 12 months from now | 0.03 | 0.31 | 410 |
| | (0.05) | | |
| Would like to work in paid employment 12 months from now | 0.07* | 0.71 | 410 |
| | (0.04) | | |
| **Income** | | | |
| Individual income | 123.27*** | 52.35 | 850 |
| | (9.39) | | |
| Household income | 115.88*** | 339.63 | 1159 |
| | (16.89) | | |
| **Resilience** | | | |
| Reduced Coping Strategies Index (0-56) | -1.19 | 16.85 | 1164 |
| | (0.87) | | |
| Food Insecurity Experience Scale (0-8) | -0.22 | 4.37 | 1066 |
| | (0.20) | | |
| **Expenditures** | | | |
| Food expenditures per capita | -1.85 | 37.03 | 721 |
| | (2.13) | | |
| Non-food expenditures per capita | 3.78** | 43.61 | 1277 |
| | (1.73) | | |
| **Finances** | | | |
| Financial participation index | 0.09** | 0.35 | 1277 |
| | (0.04) | | |
| Household used any savings mechanism | 0.05* | 0.23 | 1164 |
| | (0.03) | | |
| Household applied for loans | 0.01 | 0.09 | 1164 |
| | (0.02) | | |
| Household sent transfers outside of household | 0.01 | 0.03 | 1164 |
| | (0.01) | | |
| Value of savings | 1.80** | 3.73 | 1164 |
| | (0.82) | | |
| Value of loans | 18.45 | 39.34 | 1164 |
| | (17.30) | | |
| Value of transfers outside of household | 0.14 | 3.47 | 1164 |
| | (0.80) | | |
| **Panel B. Nutrition** | | | |
| **Food consumption** | | | |
| Food Consumption Score (0-112) | 0.23 | 52.36 | 1164 |
| | (1.29) | | |

| Outcome | Job offer (SE) | No job offer mean | N |
|---|---|---|---|
| **Panel C. Gender outcomes** | | | |
| **Psychosocial outcomes** | | | |
| Satisfaction with Life Scale score | 0.86* | 20.81 | 1055 |
| | (0.47) | | |
| Perceived Stress Scale score | 0.12 | 19.59 | 1087 |
| | (0.44) | | |
| Patient Healh Questionnaire (PHQ-9) score | 0.44 | 6.93 | 1013 |
| | (0.34) | | |
| Short Grit score | 0.01 | 3.65 | 1146 |
| | (0.04) | | |
| **Agency in decision-making** | | | |
| Women's agency (ICW - Index) | 0.01 | 0.01 | 1146 |
| | (0.04) | | |
| Women's perceptions of norms about women's agency (ICW - Index) | 0.02 | 0.00 | 1146 |
| | (0.03) | | |
| Men's agency (ICW - Index) | -0.01 | -0.00 | 751 |
| | (0.05) | | |
| Men's perceptions of norms about women's agency (ICW - Index) | 0.01 | -0.02 | 751 |
| | (0.04) | | |
| **Gender norms** | | | |
| *Women's agreement* | | | |
| When jobs are scarce men have more right to job | 0.02 | 0.69 | 1146 |
| | (0.03) | | |
| A working mother can have a warm and secure relationship with children | -0.02 | 0.67 | 1146 |
| | (0.03) | | |
| Being housewife is just as fulfilling as working for pay | 0.01 | 0.55 | 1146 |
| | (0.03) | | |
| Both husband and wife should contribute to household income | -0.01 | 0.92 | 1146 |
| | (0.02) | | |
| University education is more important for a boy than girl | 0.01 | 0.12 | 1146 |
| | (0.02) | | |
| A women has to have children in order to be fulfilled | 0.01 | 0.34 | 1146 |
| | (0.03) | | |
| If woman earns more than husband, it's certain to cause problems | -0.03 | 0.37 | 1146 |
| | (0.03) | | |

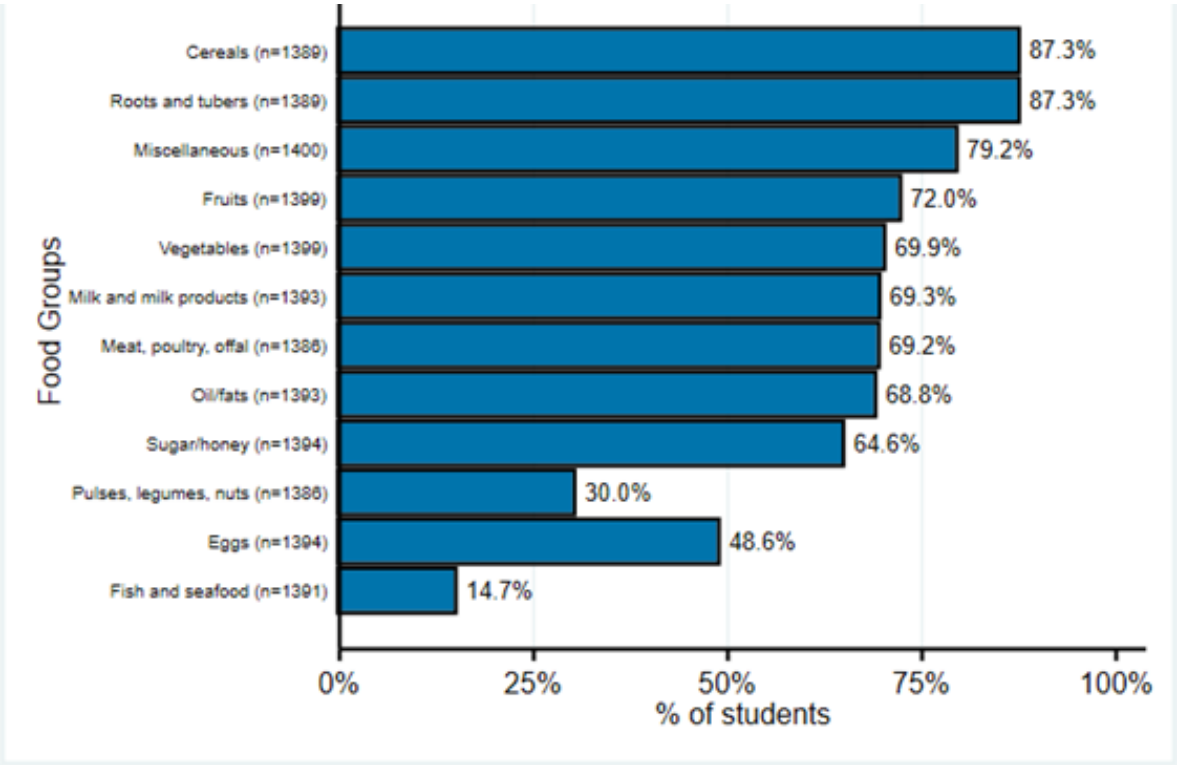
| Outcome | Healthy meal (SE) | Date bar mean | N |
|---|---|---|---|
| **Student cooperation** | | | |
| Student Cooperation Perception Index (ICW) | 0.03 | 0.00 | 2777 |
| | (0.03) | | |
| Share meal given in school with anyone | -0.03 | 0.27 | 2778 |
| | (0.03) | | |
| Voluntarily gave school meal to anyone else | -0.04 | 0.30 | 2778 |
| | (0.03) | | |
| Took student meal by force | -0.01 | 0.07 | 2778 |
| | (0.01) | | |
| Ate meal in classroom with other students | -0.02 | 0.88 | 2778 |
| | (0.03) | | |
| Are proud of the food parents prepared for school | 0.06* | 0.65 | 2722 |
| | (0.04) | | |
| Feel embarrassed on days when they don't bring money for the cafeteria to school | 0.02 | 0.19 | 2778 |
| | (0.05) | | |
| Hard to talk to other children | 0.00 | 0.69 | 2778 |
| | (0.03) | | |
| Enjoy going to school | 0.03 | 0.75 | 2775 |
| | (0.03) | | |

# Annex 7: Child baseline analysis

## Dietary diversity

242. At baseline, the average number of food groups that children consumed was 4.5: 87 percent of children consumed starchy staples, 28 percent consumed dark green leafy vegetables, 43 percent consumed other vitamin-A rich fruits and vegetables, 84 percent consumed other fruits and vegetables, 8 percent consumed organ meat, 49 percent consumed meat and fish, 48 percent consumed eggs, 30 percent consumed legumes and nuts, and 69 percent consumed milk and milk products (Figure 31).

**Figure 31: Child food groups at baseline**




## Nutritional behaviour

243. At baseline (with a completion rate of 30 percent), findings revealed that a third of children did not eat before school, and more than half did not bring food to school on the last school day. Whereas 87.9 percent of children report bringing money to school on a given day and 32.6 percent report buying food from the school canteen.

# Annex 8: Discrete choice experiment (preferences for women's wage employment contracts)

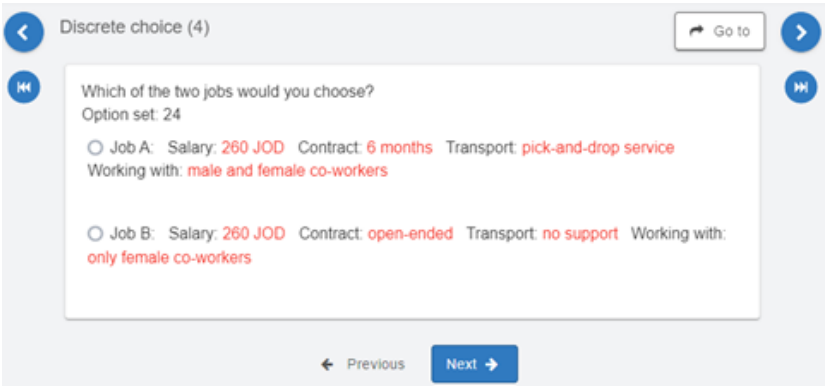
244. In this experiment, women and the men in their households were presented with hypothetical job profiles and asked to state their preferred option for employment. Each profile consists of several attributes which describe the job in question (for example, salary, contract type, etc.) and each attribute took one of several possible levels (e.g., salary could take the levels: 260 JOD, 286 JOD or 312 JOD). Job profiles were combined to form choice sets of two profiles in each set, from which participants were asked to select their preferred profile.
245. The DCE design in this impact evaluation includes four attributes (salary, contract, transportation support, and workplace gender composition): each with two to three levels explained further in Table 13. The choices of attributes and levels were selected based on the evidence priorities of the WFP Jordan country office, and internal and external consultations: considering existing literature on women's participation in the labour force in Jordan.

**Table 12 Job attributes and levels included in the experiment**

| Attributes | Attribute levels |
|---|---|
| Monthly salary | Minimum wage (260 JOD)<br>10 percent increase over current minimum wage (286 JOD)<br>20 percent increase over current minimum wage (312 JOD) |
| Contract type | 6 months initially<br>12 months initially<br>Open-ended |
| Transport support | Pick-and-drop transport service<br>No support |
| Workplace gender composition | Only women co-workers<br>Men and women co-workers |

246. Using a full factorial design incorporating all possible combinations of attributes and levels would have resulted in 32 × 22 = 36 alternatives (job profiles): with a total number of choice sets equal to 36 × 35/2 = 630 choice sets. As this would have resulted in an excessively long survey, an efficient design which maximises the statistical efficiency of designs by minimising the predicted standard errors of the parameter estimates was used instead. An efficient fractional factorial design generated 30 choice sets by a statistical software algorithm. To minimise the potential cognitive burden to the participants, the choice sets were grouped into three blocks, with each block having ten choice sets per survey respondent (see Figure 32 below for a choice set example).

**Figure 32: Example of a choice set in women's survey**

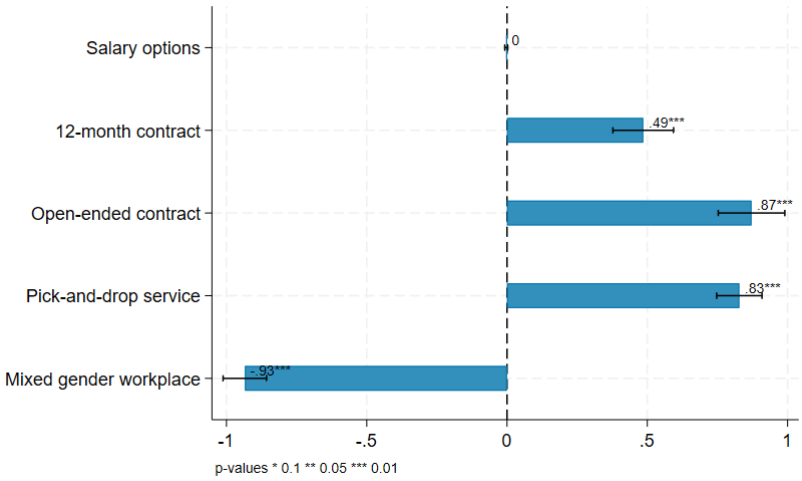



247. Estimates, based on responses, are provided separately for men and women. For women, working conditions considered important are longer contracts, the availability of transport, and a single-gender workplace. Salary is the least important consideration of the characteristics covered. For men, the gender composition of the workplace really matters, and no other job characteristics can compensate for a mixed-gender workplace in their view.

### Women's preferences for women's work arrangements

248. For women, providing longer contracts is a favourable characteristic influencing a job choice. An open-ended contract is particularly valued among all job characteristics examined. The provision of transport support, such as a pick-up and drop-off service, is also positively associated with job choices (Figure 33). Salary levels do not appear to be important for this sample.

**Figure 33: Women's job characteristic preference weights**

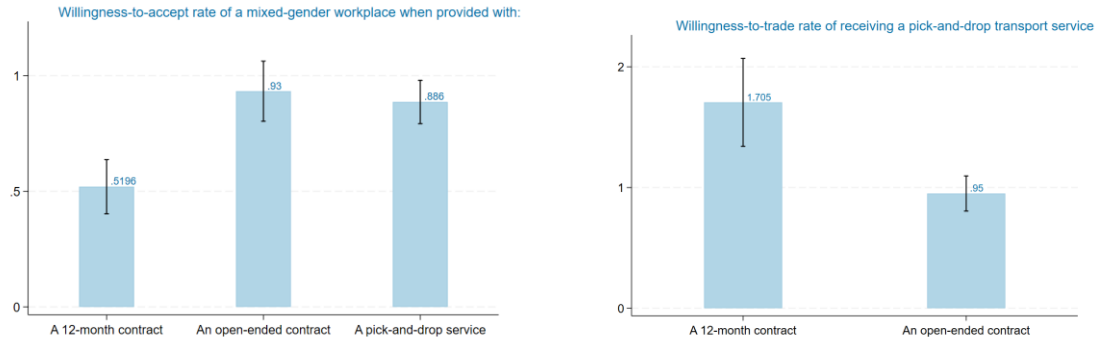



249. Conversely, a mixed-gender workplace is perceived as a negative attribute: reducing the appeal of a job offer. This is consistent with previous studies on women workers in Jordan's labour market where only half of the studied women believed it was acceptable for women to work in mixed-gender workplaces.[52] Women may consider accepting a mixed-gender workplace if it comes with an open-

[52] World Bank. (2018). Hashemite Kingdom of Jordan - Understanding How Gender Norms in Middle East and North Africa Impact Female Employment Outcomes.

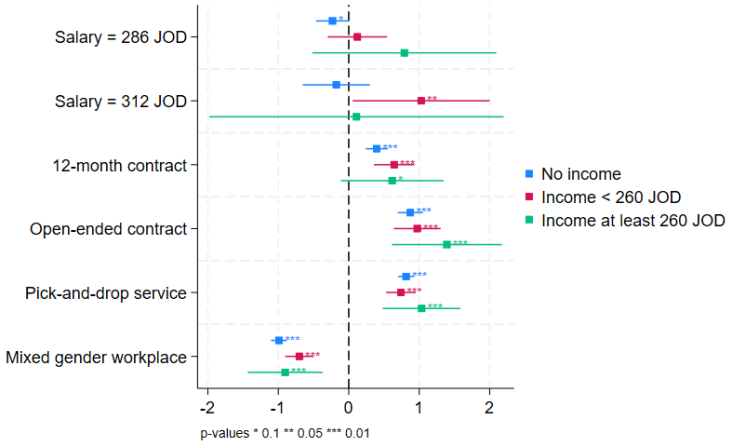
ended contract. For them, there could be a trade-off (1:1) between a mixed-gender workplace environment, and an open-ended contract offer; however, a 12-month contract would not suffice to offset the inconveniences of a mixed-gender environment (Figure 34).

**Figure 34: Marginal substitution rates of job characteristics**




250. Women are less willing to forgo an open-ended contract to receive transport support compared to a 12-month contract. For women, a pick-up and drop-off service is valued almost twice as much as a 12-month contract and is considered equally valuable as an open-ended contract.
251. Salary levels do not seem to be significant predictors of job choice; respondents in our sample prioritized other job characteristics. There seems to be no significant difference among the sub-groups: except for women with an individual income below the minimum wage at baseline. For this group, a 20 percent increase in salary would significantly increase the likelihood to accept the hypothetical job offer. It could be that women with pre-existing individual income may have specific financial goals or expectations, while women without any income at baseline might be more focused on job availability than on specific salary level (Figure 35).

**Figure 35: Women's job characteristic preference weights by individual income at baseline**




252. The discrete choice experiment has several limitations. First, salary range (only 10 to 20 percent increase from minimum wage based on programme implementation capacity) is relatively narrow, and does not vary considerably across the options. Participants may not perceive substantial differences in the offered salary levels and their job preferences may not be influenced by this attribute. Second, the presentation of each choice set where the salary attribute was consistently presented first to survey participants might have subconsciously directed their attention to attributes mentioned later in the choice sets.

253. We can forecast the probability of taking up different job offers by changing the job offer scenarios. The starting point is a job in a women-only workplace, with a salary of 260 JOD, 6-month contract and no transport support available. This is similar to the actual job offers of the community kitchens. Table 14 illustrates the overall effectiveness of changes to the job offer in terms of take-up. Extending the contract duration to a 12-month term would increase the probability of women accepting the kitchen job offer by 16 percentage points. An offer with open-ended contract or with the inclusion of a pick-up and drop-off service would similarly increase the probability by 27 and 26 percentage points compared to the base offer, respectively. Conversely, offering employment in a mixed-gender workplace would discourage women from taking the job. It is, however, worth noting that the estimated take-up rate of the current job offer among the endline survey participants is 34 percent, which is much lower than it was in in practice at the start of the intervention (72 percent).

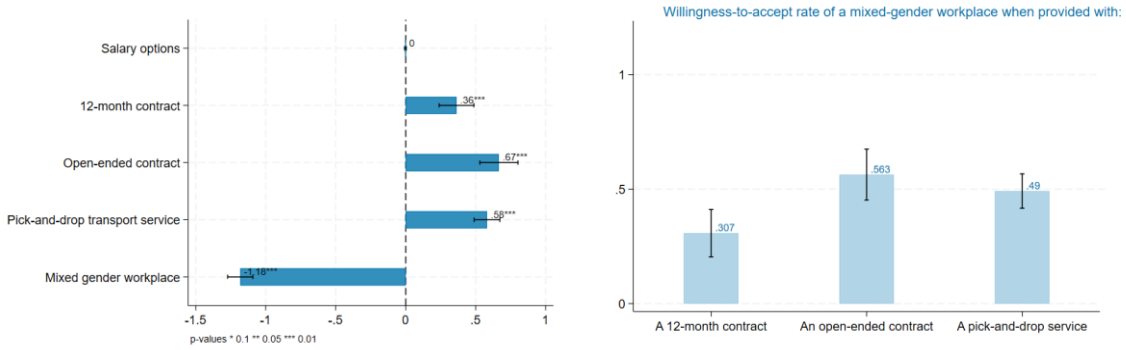
**Table 13 Changes in probabilities of job choice compared to the base job**

| **Change in job offer** | **Probability of taking up the job offer** | **Change in probability compared to the base job** |
|---|---|---|
| *Scenario 0: Current job offer (base job)* | *34%* | |
| Scenario 1: 12-month contract | 49% | 16% |
| Scenario 2: open-ended contract | 61% | 27% |
| Scenario 3: pick-and-drop service | 60% | 26% |
| Scenario 4: mixed gender workplace | 5% | -29% |

**Men's preferences for women's work arrangements**

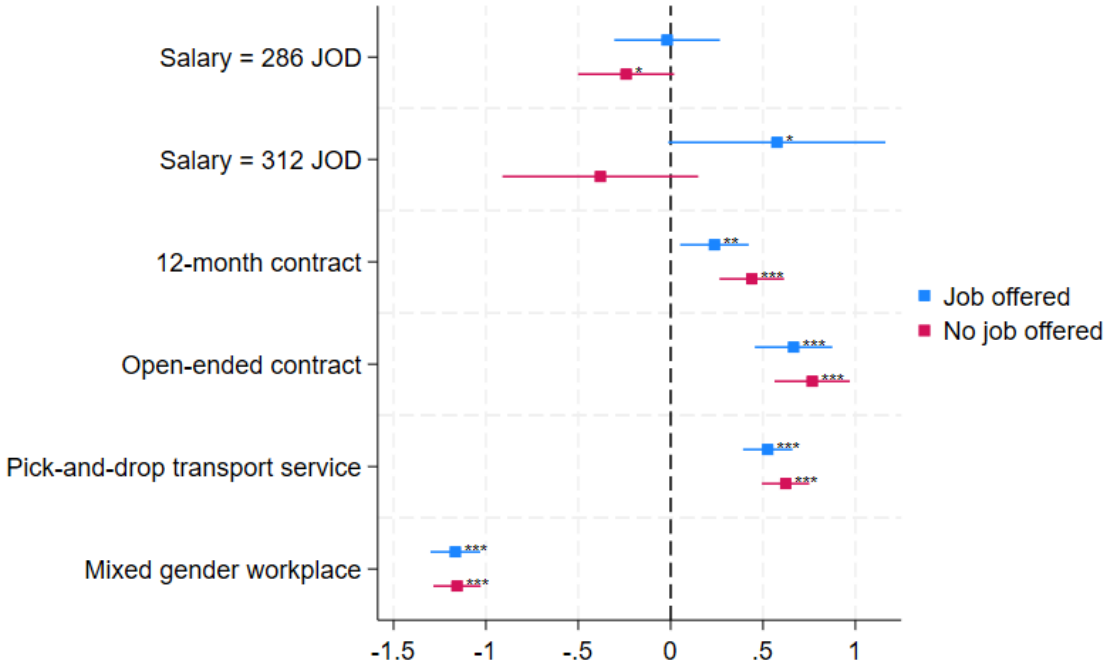
254. For men, the gender composition of the workplace plays a crucial role in determining men's preferred job choice for the women in their household. Unlike women, men are unwilling to accept a mixed-gender workplace even when an open-ended contract is offered (no trade-off is equal to 1), indicating a stronger aversion to this attribute (Figure 36).

**Figure 36: Men's job characteristic preference weights**




255. Men in households where women household received the kitchen job offer consider a 20 percent salary increase important when choosing a job offer for the woman in their household. It appears that once a woman received an offer, the men in their household exhibit a greater concern for a substantial salary increase, or may be open to the idea of their woman household member earning a better income (Figure 37).

**Figure 37: Men's job characteristic preference weights – by treatment status**



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# Acronyms

| | |
|---|---|
| BL | Baseline |
| CBO | Community-based organisations |
| CO | country office |
| DCE | Discrete choice experiment |
| DIME | Development Impact |
| EGMA | Early Grade Math Assessment |
| EGRA | Early Grade Reading Assessment |
| EL | Endline |
| EMIS | Education Management Information Systems |
| FCS | Food Consumption Score |
| FGD | Focus group discussion |
| FIES | Food Insecurity Experience Scale |
| IE | Impact evaluation |
| IRB | Institutional Review Board |
| ITT | Intention-to-treat |
| JOD | Jordanian dinar |
| KII | Key informant interviews |
| LATE | Local average treatment effect |
| M&E | Monitoring and Evaluation |
| NGO | Non-governmental organizations |
| NSFP | National School Feeding Programme |
| OEV | Office Of Evaluation |
| PEQ | Primary evaluation questions |
| PHQ-9 | Patient Health Questionnaire-9 |
| rCSI | Reduced Coping Strategy Index |
| RCT | Randomized Control Trial |

| | |
|---|---|
| SEQ | Secondary evaluation questions |
| SD | Standard deviation |
| WB | World Bank |
| WFP | World Food Programme |
| WHO | World Health Organization |

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