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COMPARING HOUSEHOLD FOOD SECURITY IN CITIES OF THE GLOBAL SOUTH THROUGH A GENDER LENS

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Abstract

Understanding the determinants of urban food insecurity requires sensitivity to local cultural contexts and taking into account a globally relevant framework for analysis. A gender lens is amenable to this kind of analysis because it is rooted in local configurations of households, livelihoods and consumption patterns, while also being animated by a longstanding global effort to create a world in which men and women are equal. This discussion paper is aimed at academic researchers and development practitioners concerned with urban food insecurity. It demonstrates the usefulness of a gender lens of analysis for generating new insights and questions about household food insecurity in an international context of comparative urban research. The data used in the paper is drawn from the Hungry Cities Partnership household food security baseline surveys in Maputo and Nanjing.

Keywords

food security, gender, households, food consumption, urbanization, inclusive cities

This is the ninth discussion paper in a series published by the Hungry Cities Partnership (HCP), an international research project examining food security and inclusive growth in cities in the Global South. The five-year collaborative project aims to understand how cities in the Global South will manage the food security challenges arising from rapid urbanization and the transformation of urban food systems. The Partnership is funded by the Social Sciences and Humanities Research Council of Canada (SSHRC) and the International Development Research Centre (IDRC) through the International Partnerships for Sustainable Societies (IPaSS) Program.

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Introduction

The Hungry Cities Partnership (HCP) confronts a complex but worthwhile methodological challenge in making international comparisons of urban household food security experiences across very different regions. Earlier research conducted for the African Food Security Urban Network (AFSUN) showed that the international comparison of urban food security within the geographical confines of one region, Southern Africa, was extremely complex (www.afsun.org). This discussion paper is motivated by the challenges posed by cross-cultural comparison of household food security survey results and the potential for a gender lens of analysis to expose and address the complexity. First, a gender lens can be used to foreground the importance of culture in shaping food consumption because many of the associated cultural practices are gendered. The difference between women's and men's roles in the household typically centres on who will grow, purchase, provide the money for, prepare, and serve food (Agarwal 2015). Second, a gender lens highlights the assumptions embedded in the social category of the 'household' and maintains a critical stance about what household-level findings reveal, and conceal, about the household and who is speaking for the household (Quisumbing 2013). And finally, a gender lens connects individual urban case studies to the bigger picture of global development, which seeks to move beyond household food insecurity to gender-based injustices in the development process (Hovorka 2013).

This discussion paper provides an illustration of the use of a gender lens by comparing the HCP survey findings in Maputo, Mozambique and Nanjing, China disaggregated by household type. The first section compares development indicators for China and Mozambique in terms of gender equality. The comparison demonstrates the wide gap in development status, with China among the world's largest economic powers and Mozambique among the least developed countries. The comparison also shows that Mozambique is relatively advanced on certain gender equality indicators. The paper then describes the methods employed in the data

collection and analysis and describes the differences in household types in Maputo and Nanjing. The paper compares the food security and household dietary diversity scores in each city by household type. Maputo shows much higher overall food insecurity rates corresponding to lower development status, but less of a gender gap than Nanjing. The paper then provides an intersectional analysis of the age and average number of household members by type and explores the alternative framing of gendered household headship in relation to HCP household typologies.

Comparing China and Mozambique with a Gender Lens

The paper compares household baseline survey results in the vastly different cities and countries of Nanjing, China, and Maputo, Mozambique. China has a Human Development Index of 0.727 (ranked 90/188) and a Gross National Income per capita of USD12,547 (ranked 83/188), whereas Mozambique has a Human Development Index (HDI) of 0.416 (ranked 180/188) and a Gross National Income per capita of USD1,123 (ranked 181/188) (UNDP 2017a). Mozambique is in the bottom 5% on the HDI, and has less than one-tenth of China's per capita income. But to rely solely on these aggregate national figures as a source of explanation for the differences in the food security scores in Maputo and Nanjing is to miss the opportunity to gain important insights about where problems exist in the Nanjing food system and, correspondingly, where strengths exist in Maputo.

The Gender Inequality Index (GII) for China and Mozambique shows that on some measures of gender equality, Mozambique is more advanced than China (UNDP 2017b). China's overall ranking is much higher, at 40th as compared to 135th for Mozambique, reflecting much lower rates of maternal mortality and adolescent pregnancy and higher gender parity in education in China. However, Mozambique has a higher percentage

of women holding seats in Parliament (40% as opposed to 24% in China) and higher labour force participation rate for women (86% for women and 83% for men) than China (64% for women and 78% for men). Arguably, the metrics dragging down the GII score for Mozambique are related to structural problems in the health and education systems and will improve with overall improvement in the HDI. In China, women's lack of representation in politics and the labour force points to a different set of policies that are needed in order to reach the Sustainable Development Goal (SDG) for gender equality. Bailey (2012) even notes a decline in women's representation in formal political institutions since the 1970s.

Based on their national economies only, China is in a much better position than Mozambique. The question remains, however, whether these aggregate national figures also explain the character of Nanjing and Maputo. The information on the two cities below, is drawn from two HCP city reports: *The Urban Food System of Nanjing, China* (Si et al 2016) and *The Urban Food System of Maputo, Mozambique* (Chikanda and Raimundo 2016). Nanjing has approximately 8.2 million people. The city's population is fairly balanced in terms of its male-female ratio, which was 1.01 in 2013. The greater Maputo region, which includes Maputo and Matola cities, has a population of about 1.3 million people with a male-female ratio of 0.93. Nanjing and Maputo are important for their respective provincial and national economies; each city has vibrant formal and informal economies. Nanjing's informal economy is much smaller than its formal economy and employs approximately 1 million people. Informal-sector employment is highly gendered with women working as street cleaners and housekeepers and men in construction. In Maputo, employment in the informal economy is much more important than the formal economy. The informal economy is particularly important for providing employment for women who experience limited opportunities in the formal sector. The dearth of statistics available at the city scale, especially regarding informal economic activities, underscore the importance of the HCP survey data.

The following sections of the report discuss the findings of the HCP household baseline survey in Nanjing and Maputo using a gendered lens of analysis. The analysis offers an entry point for international comparison of urban food security that can generate new insights into the nature of food insecurity, drivers of changing food consumption patterns, and potential ways of intervening to build sustainable and inclusive cities in rapidly urbanizing areas of the Global South. The objective is to generate discussion about the central role that a gender lens can play in the effort to conduct international comparisons that are meaningful at the household, city, national, and global scales in terms of understanding and addressing the problems.

Methodology

The HCP baseline household food security surveys were conducted in seven cities (Cape Town, Maputo, Nairobi, Bangalore, Nanjing, Mexico and Kingston) using a sampling method that included the whole of each city. The survey questionnaire included four common household food security indicators (HFIAS, HFIAP, HDDS and MAHFP); the Lived Poverty Index (LPI); questions about household composition and household livelihood activities; and questions about food sources. The Maputo survey was conducted in late 2014 and interviewed 2,071 randomly selected households in Maputo City. The Nanjing survey was conducted in early 2015 and included 1,210 randomly selected households in the Nanjing urban municipality.

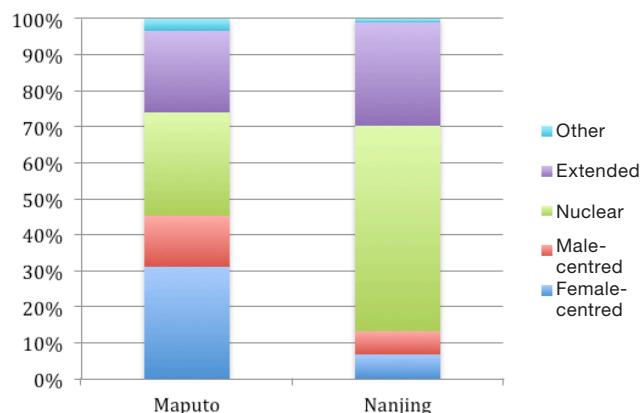
The survey categorized households into four types: "female-centred;" "male-centred;" "nuclear," and "extended" (Dodson et al 2012). This typology helps address the limitations of the "female-headed"/"male-headed" binary classification of households in much conventional research, which tends to over-simplify the diverse configurations of households and the various roles of men and women within those households (Chant and McIlwaine 2009). Female-centred households are headed by a woman without a partner and include any combination of immediate relatives (including her children,

siblings, parents and grandparents). Male-centred households are headed by a man without a partner and including any combination of immediate relatives (including his children, siblings, parents and grandparents). Nuclear households include a head and a spouse or partner, with or without children, but without other relatives in the household. Finally, extended households have a head, a spouse or partner, immediate relatives and a combination of other members (relatives and non-relatives).

Distribution of Household Types in Maputo and Nanjing

A gender lens of analysis sheds light on the complexity of the household unit, which in the HCP survey is the main social unit for assessment and analysis of food security. Figure 1 shows that there are very different distributions of household types in Maputo and Nanjing. In Maputo, the most common household type was female-centred (31%), followed by nuclear (29%), extended (22%), male-centred (14%), and other (4%). In Nanjing, by contrast, well over half of the households were nuclear (57%), followed by extended (29%), female-centred (7%), male-centred (6%), and other (1%). These differences reflect the very different cultural contexts (of what is an appropriate and desirable living arrangement), economies (how household economies are linked to the broader economy and thereby shape household formations), societies (the legal framework for marriage, property, social forms shaped by state policies), and built environments (permanent or temporary dwellings and affordability for low-income single women). The difference between Nanjing and Maputo in terms of the distribution of household types is a microcosm of the differences among all the HCP case study cities. The fundamental differences in the nature of households – the social units whose food security scores are being measured – can be mainstreamed in the comparative analysis of HCP data through the application of a gender lens of analysis.

FIGURE 1: Distribution of Household Types in Maputo and Nanjing



The following sections use the four household categorizations from the survey to demonstrate how an analysis of different household types can shed light on the role of gender difference in shaping households and their food security status. The paper then highlights the distinction between household headship and household type.

Household Food Security Scores by Household Type

Overall, households in Nanjing are far more food secure than those in Maputo. The mean HFIAS for a city or a subgroup of households is an expression of the overall level of food insecurity (lowest = 0 and highest = 27). A higher HFIAS indicates a greater frequency of occurrence of events in the household characteristic of food insecurity in a four week recall period (Coates et al 2007). The HFIAP measures the severity of some of these experiences and gives greater weight to extreme events such as not having any food in the house for 24 hours than milder events such as eating a limited variety of foods (Coates et al 2007). Thus a “severely food insecure” household has experienced these severe events more frequently in a four-week recall period. The percentage of severely, moderately, and mildly food insecure households in a city or subgroup reflects the prevalence of different levels of food insecurity in that city or subgroup.

Table 1 shows the vast difference in the level of food insecurity in Nanjing and Maputo. The mean HFIAS in Nanjing was 0.61 and the mean score in Maputo was more than ten times higher at 6.48 (Table 1). Female-centred households have the highest level of food insecurity in both cities. In Nanjing, the mean HFIAS among female-centred households (1.75) was nearly quadruple that of nuclear households (0.46). In Maputo, female-centred households had a mean score of 7.29, which was not proportionally as high relative to nuclear households (5.97). However, female-centred households in Maputo had a much higher HFIAS than their counterparts in Nanjing.

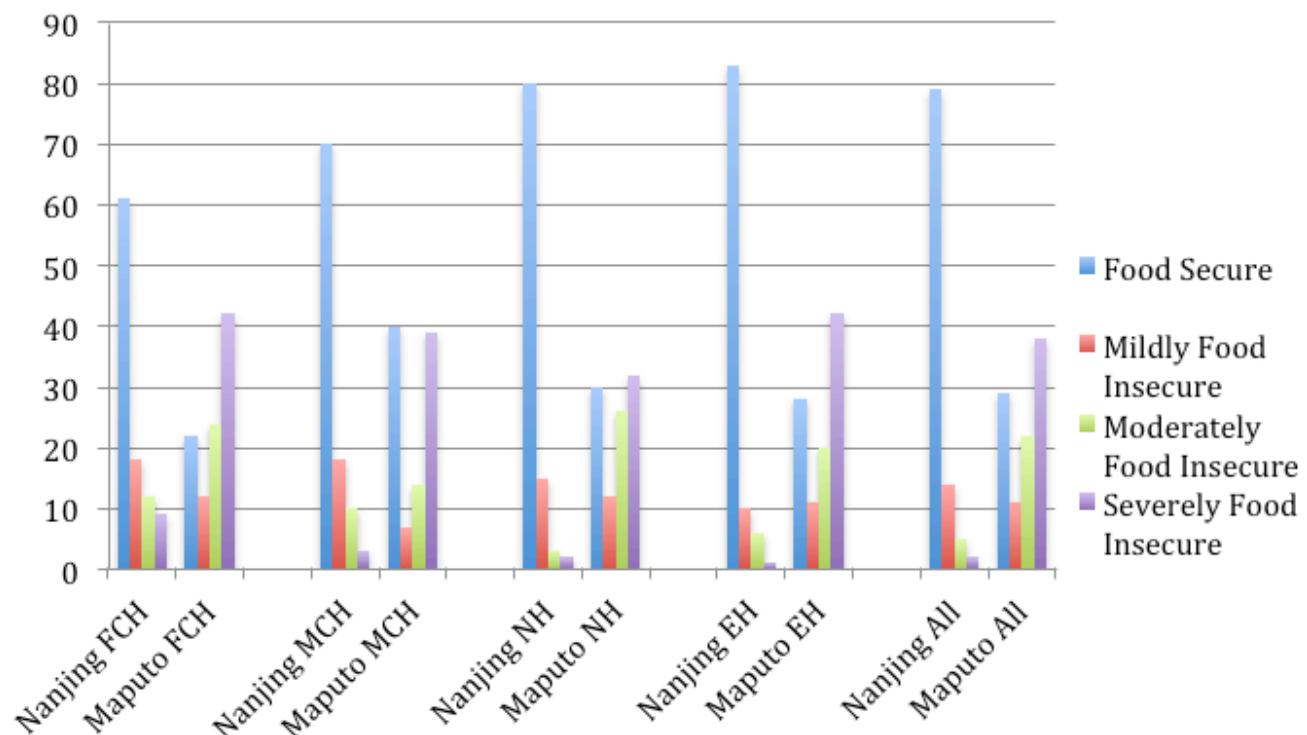
TABLE 1: Household Food Insecurity Access Scale Scores in Maputo and Nanjing by Household Type

Household Type	Maputo	Nanjing
Female-centred	7.29	1.75
Male-centred	6.11	0.75
Nuclear	5.97	0.46
Extended	6.25	0.56
All	6.48	0.61

The HFIAP scores show a much more severe food insecurity problem in Maputo than Nanjing. In Maputo, 38% of households were severely food insecure (compared to 2% in Nanjing), 22% were moderately food insecure (5% in Nanjing), 11% were mildly food insecure (14% in Nanjing), and 29% were food secure (79% in Nanjing). Even though severe food insecurity was rare in Nanjing, 9% of female-centred households were severely food insecure, which suggests a higher risk of severe food insecurity among this group of households (Figure 2). Female-centred households in Nanjing were also much less likely to be food secure relative to other households in Nanjing.

In Maputo, female-centred, male-centred and extended households had similar rates of severe food insecurity (respectively, 42%, 39% and 42%), whereas nuclear households had a lower rate at 32% (Figure 2). In Maputo, being a female-centred household does not appear to increase the chances of being severely food insecure relative to other types of household or to the same extent that it does in Nanjing. However, female-centred households in Maputo are also least likely to be food secure (22%), compared to 40% of male-centred households,

FIGURE 2: Household Food Insecurity Access Prevalence in Maputo and Nanjing by Household Type



30% of nuclear households, and 28% of extended households (Figure 2). Thus, the worse HFIAS score for female-centred households in Maputo (Table 1) indicates lower levels of food security and higher levels of mild and moderate insecurity. In Nanjing, in contrast, the worse HFIAS score for female-centred households indicates higher rates of severe food insecurity relative to other household types. These findings suggest a wider food security gap between female-centred households and other household types in Nanjing than in Maputo.

Household Dietary Diversity by Household Type

The HDDS provides insights into the adequacy of the food that households are consuming and is commonly combined with the HFIAS and HFIAP indicators to provide a balanced picture of food security in a population (Headey and Ecker 2013). The HDDS is based on the responses to a question about what foods were consumed in the household in the 24 hours before the survey based on 12 food groups. A score of 0 indicates that a household consumed nothing in the previous 24 hours and a score of 12 that a household consumed food from all 12 food groups. Higher HDDS scores are associated with better nutrition and greater access to food and a higher mean HDDS for a city or group of households indicates higher food and nutrition security in that group (Swindale and Bilinsky 2006).

Table 2 shows that households in Nanjing had a higher mean HDDS (7.83) than households in Maputo (4.14). In Maputo, male-centred households had the lowest HDDS but the range in mean scores among female-centred, nuclear, and extended households was only 0.25, suggesting that the dietary diversity of these households is very similar. The lower score for male-centred households reflects the nutritional disadvantage that single men (and other members of their households) face because they have a lack of knowledge about nutrition and cooking and they often lack the time to cook for themselves. In Nanjing, the single

person headed household types (female-centred and male-centred) have similarly low scores (6.81 and 6.55 respectively) relative to the couple-headed household types (nuclear and extended at 7.85 and 8.42 respectively). Male-centred households have the lowest HDDS in Nanjing, as in Maputo, suggesting that here too unpartnered men are at a nutritional disadvantage.

TABLE 2: Household Dietary Diversity Score in Maputo and Nanjing by Household Type

Household Type	Maputo	Nanjing
Female-centred	4.16	6.81
Male-centred	3.47	6.55
Nuclear	4.39	7.85
Extended	4.25	8.42
All	4.14	7.83

Household Food Security Scores by Age, Gender, and Household Size

Gender-based analysis emphasizes the importance of seeing how gender differences intersect with other forms of difference (Chant 2013). Figures 3 and 4 show the percentage of individual household members for each type in three age categories (aged 19 and under, aged 20–59, and age 60 and older). Figure 3 shows considerable consistency between household types in Maputo, although extended households do have the highest percentage of older and younger members. The consistency in Maputo is more remarkable when set against the variability in Nanjing, where female-centred and male-centred households have similarly high percentages of members who are aged 60 and older (Figure 4). In Nanjing, it appears that older people make up over 40% of the membership of female-centred and male-centred households.

Tables 3 and 4 show internal diversity in household size by household type in each city and a much wider gap between the cities. In Maputo, extended households are the largest (6.12), followed by nuclear (4.69), female-centred (4.67), and male-centred

(3.85). In Nanjing, extended households are the largest (4.77), followed by nuclear (2.66), male-centred (1.74), and female-centred (1.56). The pattern of internal difference is notable for the fact that nuclear and female-centred households in Maputo are practically the same size, whereas in Nanjing female-centred and male-centred households are most similar. Table 4 shows that more than a third of female-centred households in Nanjing (36.7%) are occupied by a single person living alone, whereas in Maputo this situation is extremely rare (3.3%). Male-centred households in Maputo are more likely than female-centred households to be occupied by a single person (11.7%), whereas the rate in Nanjing is lower than for female-centred households (30.2%).

FIGURE 3: Age Distribution by Household Type in Maputo

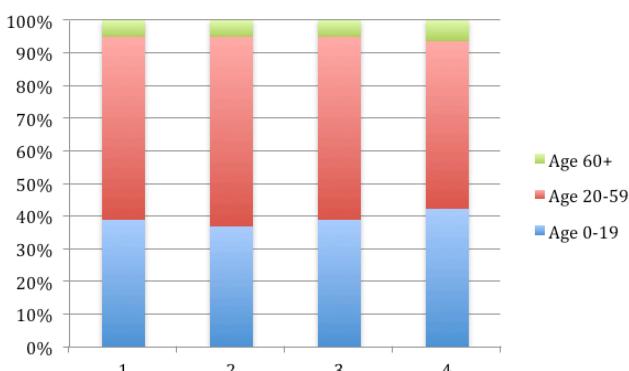


FIGURE 4: Age Distribution by Household Type in Nanjing

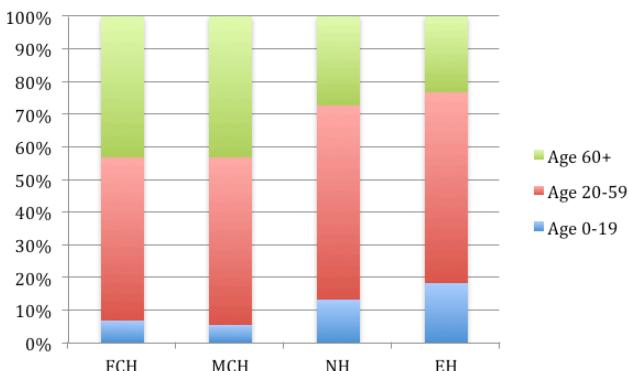


TABLE 3: Average Number of Household Members in Maputo and Nanjing by Household Type

Household Type	Maputo	Nanjing
Female-centred	4.67	1.56
Male-centred	3.85	1.74
Nuclear	4.69	2.66
Extended	6.12	4.77
All	4.82	3.13

TABLE 4: Percentage of Households with One Member in Maputo and Nanjing by Household Type

Household Type	Maputo	Nanjing
Female-centred	3.3%	36.7%
Male-centred	11.7%	30.2%

The data presented in this section shows that comparing food security status in female-centred households in Maputo and Nanjing is not a matter of comparing apples with apples. Female-centred households in Nanjing are far more likely to be occupied by an older person living alone – an observation that suggests a gender gap in the social protection given to senior citizens in China. This corresponds with Chant's (2013) call to examine the gender effects of poverty among aging populations in cities across the Global South. Male-centred households in Nanjing also include many older men living alone and the lower HDDS among this group could be linked to the challenges that older men face in achieving a nutritionally balanced diet. Male-centred households also had the lowest HDDS in Maputo, and they were by far the most likely to be living alone. These observations suggest a problem with men's knowledge of food, cooking, and nutrition and a reduced ability to provide themselves with an appropriate diet.

Gender, Headship, and Food Security Status

The conventional method of linking household circumstances with gender inequality has been to focus on the gender identity of the household head (Varley 2013, Chant and McIlwaine 2009). The Hungry Cities survey has provided relatively more detailed information about the contributing factors of household food insecurity by using the four households types presented in this analysis. The concept of a “household head” is fraught with implications of hierarchical and patriarchal power structures that do not always reflect the social reality. There is also an implication that “male-headed” and “female-headed” are analogous to the differences between men and women, whereas the connections are far more complex. The complexity of understanding household headship, and the real issue of the link between gender and poverty, is heightened in cross-cultural comparative research.

Figures 5 and 6 illustrate the different meanings of headship in Maputo and Nanjing. Figure 5 shows that in Maputo, 68% of household heads are male and 32% are female. Household heads are much less likely to be female in Nanjing: only 14% are female and 86% are male. However, comparing the female-headed households in the two cities, another important difference emerges (Figure 6). In Maputo, the vast majority of female-headed households (82%) are also female-centred, compared to only 36% of those in Nanjing. In Nanjing, an equal proportion of female-headed households are actually nuclear households and more than 20% are extended households.

The differences are not surprising considering the different external factors that shape households in each context. In Nanjing, the research team specified when asking who was the household head that they were recording headship as defined by the state through the household registration system. Maputo does not have a parallel system and respondents defined the head of their household based on how they perceived the control and distribution of resources and domestic authority structures.

FIGURE 5: Gender of Household Heads in Maputo and Nanjing

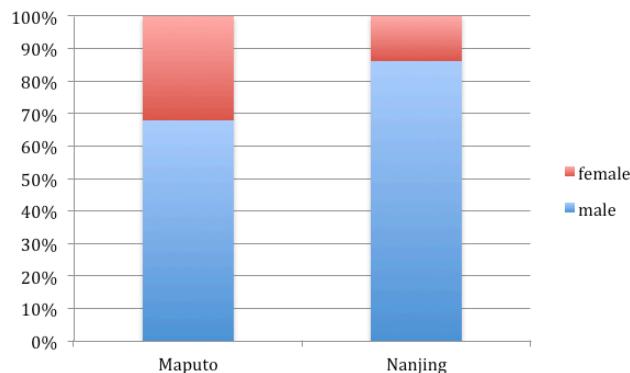


FIGURE 6: Household Type Occupied by Female Household Heads in Maputo and Nanjing

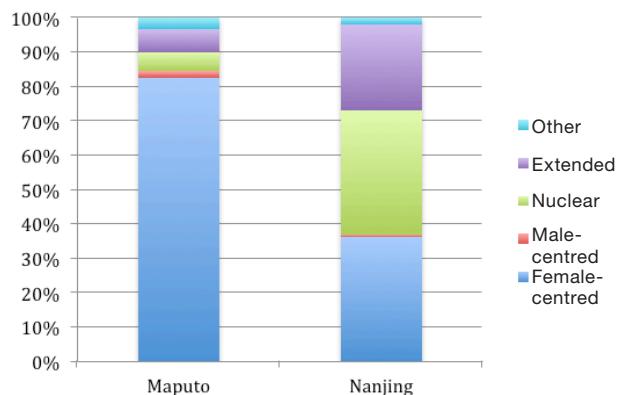


Table 5 shows the differences in food security indicators using the categories of female-headed rather than female-centred. Female-headed households in Maputo fared worse on most indicators than female-centred households, most notably with 46% severely food insecure as compared to 42%. In Nanjing, female-headed households were far better off than female-centred households, with 77% food secure as compared to 61%. The results from Nanjing show that the gender of the household head is less informative about the causal factors of vulnerability to food insecurity than the conditions associated with being a female-centred household in Nanjing (not having a partner, being older, and living alone).

TABLE 5: Household Food Security Indicators for “Female-centred” and “Female-Headed” Households in Maputo and Nanjing

Food Security Indicator	Maputo		Nanjing	
	Female-centred	Female-headed	Female-centred	Female-headed
HFIAS (Mean)	7.29	7.65	1.75	1.05
HDDS (Mean)	4.16	4.00	6.81	7.85
Food secure (%)	22	23	61	77
Mildly food insecure (%)	12	10	18	12
Moderately food insecure (%)	24	21	12	8
Severely food insecure (%)	42	46	9	3

Conclusion

The analysis presented in this discussion paper provides a way of interpreting the survey results that opens up new avenues for comparative urban food security research that go beyond the overwhelming difference in terms of aggregate food security scores. Households in Nanjing are far more food secure than households in Maputo, and this is not surprising considering the vast differences in GDP per capita and other economic development indicators in China relative to Mozambique. The gender lens reveals a sharper inequality in Nanjing between female-centred households and other households, suggesting that female-centred households in Maputo are at less of a disadvantage relative to other household types in their city. In addition to exposing gendered markers of vulnerability, the comparison of Maputo and Nanjing points to the significance of contextual issues for interpreting survey findings. Researchers seeking to understand the problem of household food insecurity in their own city, and to intervene to promote inclusive economic growth, can benefit by looking at the variations in how different societies are organized and how this shapes food security outcomes.

Several questions emerge from this analysis that can be most appropriately addressed through reading of the secondary literature related to each case study city to understand contextual factors that shape gender relations within and beyond the households. These questions can also be addressed through complementary qualitative research targeted at vulnerable groups. Other questions point

more directly to the policy implications that emerge from comparative research through a gender lens. We conclude by posing some of the key questions that emerge from the preliminary analysis. This list is meant to inspire discussions, debates, and future research within the broad framework of urban food security as a major global development challenge for the 21st Century.

- What are the limitations of basing research on the household scale of analysis in terms of understanding gender differences in individual food security and how can the effects of these limitations be mitigated?
- What is the role of China’s household registration system in shaping the gender roles within households and household access to resources in Nanjing?
- What policies and programmes can address the nutritional deficits among male-centred households? What are the different needs of people in male-centred households in Nanjing and Maputo?
- What are the specific factors causing vulnerability among older people in Nanjing, particularly those living alone, and how can this vulnerability be reduced?
- What lessons can planners and policy makers in Maputo draw from Nanjing’s success in achieving high levels of urban food security? To what extent are these transferable?

References

1. Agarwal, B. (2015). "Food Security, Productivity, and Gender Inequality" In R. Herring (ed.), *Oxford Handbook of Food, Politics, and Society* (Oxford: Oxford University Press), pp. 273–300.
2. Bailey, P. (2012). *Women and Gender in Twentieth-Century China* (New York: Palgrave).
3. Chant, S. (2013). "Cities through a 'Gender Lens': A Golden 'Urban Age' for Women in the Global South?" *Environment & Urbanization* 25: 9–29.
4. Chant, S. and McIlwaine, C. (2009). *Geographies of Development in the 21st Century* (Cheltenham, UK: Edward Elgar).
5. Chikanda, A. and Raimundo, I. (2016). *The Urban Food System of Maputo, Mozambique*. Hungry Cities Partnership Report No. 2.
6. Coates, J., Swindale, A. and Bilinsky, P. (2007). *Household Food Insecurity Access Scale (HFIAS) for Measurement of Household Food Access: Indicator Guide (Version 3)*. Washington, DC: Academy for Educational Development.
7. Dodson, B., Chiweza, A. and Riley, L. (2012). *Gender and Food Insecurity in Southern African Cities*. Cape Town: African Food Security Urban Network.
8. Headey, D. and Ecker, O. (2013). "Rethinking the Measurement of Food Security: From First Principles to Best Practice" *Food Security* 5: 327–343.
9. Hovorka, A. (2013). "The Case for a Feminist Foodscapes Framework: Lessons from Research in Urban Botswana" *Development* 56: 123–128.
10. Quisumbing, A. (2013). "Generating Evidence on Individuals' Experience of Food Insecurity and Vulnerability" *Global Food Security* 2: 50–55.
11. Si, Z., Crush, J., Scott, S. and Zhong, T. (2016). *The Urban Food System of Nanjing*, Hungry Cities Partnership Report No. 1.
12. Swindale, A. and Bilinsky, P. (2006). *Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide (Version 2)*. Washington, DC: Academy for Educational Development.
13. UNDP (2017a). *Table 1: Human Development Index and its Components*. Available at: <http://hdr.undp.org/en/composite/HDI>.
14. UNDP (2017b). *Table 5: Gender Inequality Index*. Available at: <http://hdr.undp.org/en/composite/GII>.
15. Varley, A. (2013). "Feminist Perspectives on Urban Poverty" In L. Peake and M. Rieker (eds.), *Interrogating Feminist Understandings of the Urban* (Florence, KY.: Routledge), pp. 125–141.