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The social reproduction of (and through) food: Agrarian change in Uzbekistan

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Abstract

Food systems—and the interplay between food production, marketisation and access—are constituent elements of the social reproduction of life. Using a social reproduction framework, this paper problematises the ontological, epistemological and methodological premises of food system studies in agrarian change. Based on primary data collected during multiple rounds of fieldwork in rural Uzbekistan and adopting mixed methods, it offers a triple contribution. First, it assesses the inequalities of food security and dietary diversity among different classes of farmers and agrarian wage workers. Along these lines, it argues that individualised food security indicators do not unveil the systemic determinants that explain unequal patterns of social reproduction through nutrition during processes of agrarian marketisation. To move beyond individual-based theorisations, it extends the investigation to state policies, market drivers and gender norms in relation to food knowledge, provision, affordability and availability. In so doing, it unpacks the contradictions that explain the uneven conditions of social reproduction of (and through) food. Finally, by investigating the modalities of access and availability of ultra-processed food in rural areas, it reflects on the tensions between the capitalist global food system and its interaction with the logics of state-led development to maintain the social reproduction of rural life.

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agrarian change, Central Asia, food security, food systems, social reproduction

1 | INTRODUCTION

Food is an essential factor in social reproduction because the survival of human beings is conditional on good nutrition. A long-standing debate exists on whether food marketisation is positively or negatively associated with better nutrition, thus impacting social reproduction (Turner et al., 2013; Webb & Kennedy, 2014). On the one hand, it has been argued that the marketisation of food positively affects food security through the income effect (Kuma et al., 2018; Pinstrup-Andersen, 1985). In this view, trade leads to convergence, price equalisation and cheaper food due to competition-driven efficiency (Bhagwati, 2004; Fafchamps, 1992). Another key point often raised is that malnutrition is a consequence of inefficient supply, explaining it as a problem of volume—or low productivity—of food production (FAO, 2013). However, another strand of the literature adopts a more sceptical position on marketisation. This view highlights that food commodification and marketisation lead to farmers' income volatility, land inequality, price shocks and malnutrition (Jones et al., 2014; Reardon et al., 1992). Commodification, by affecting food distribution through the market, is the ultimate determinant of uneven patterns of social reproduction visible through food (McMichael, 2003; Woodhouse, 2010). In other words, food security expresses the unequal conditions of social reproduction (McMichael, 2003).

To understand the relationships between social reproduction and the food systems, it is important to examine not only how food production is organised by marketisation but also how non-market institutions and gender norms co-shape social reproduction of (and through) food. Indeed, social reproduction is a framework able to encompass the multiple and coexistent domains where lives are sustained and reproduced (Bakker & Gill, 2019). These domains relate to social forms of reproduction that are regulated outside the home and the workplace, for example, by market and state regulation (Fraser, 2017; Laslett & Brenner, 1989), but also encompass the everyday productive and reproductive work performed in the household, such as cooking and food provision (Mezzadri et al., 2022). This paper looks at both levels of analysis. Indeed, it examines not only how the market and the state shape social reproduction through the food system, but also how food production and consumption are performed at the household level. It thus provides a comprehensive analysis of the interlocking and multifaceted mechanisms that shape food marketisation and nutritional outcomes.

In this context, there is scant research to assess to what extent the standard methodological tools are able to grasp the complexities of productive, commercial and consumption patterns behind food (re)production. This paper sheds light on the tensions between the theoretical frameworks we use to conceptualise such patterns and the methodological tools used to assess them. It does so by assessing indicators of food security and dietary diversity among four classes of farmers, and by complementing these standard measures with mixed methods, it uncovers how government regulations on food production and consumption and income, supply, time constraints and gender norms mediate such outcomes.

The food regime approach notes that different classes of farmers consume different quantities and qualities of food because of differential access to assets and markets (Friedmann & McMichael, 1989). Thus, assessing the dietary patterns and outcomes of different classes of producers provides a lens through which to understand the inequalities of social reproduction (O'Laughlin, 2007). First, this paper answers the question, 'What do different classes of farmers eat?'. Using standard measurements, I inductively assess the differences in food security and dietary diversity between *fermers*, *dekhans* and agricultural wage workers. Second, by expanding the discussion to include

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broader socio-economic factors, I will investigate how and why they eat what they eat. Indeed, scant research has been done to understand empirically how the organisation of food production and exchange at the macro and micro levels shapes social reproduction through nutrition.

The article is structured as follows: Section 2 discusses the theoretical and methodological issues around the food systems and social reproduction. Section 3 outlines the context, the source of the data and the methodology. Section 4 critically reflects on the results. Section 5 analyses the social reproduction of and through food; Section 6 concludes and presents the policy implications.

2 | FOOD AS A LENS OF SOCIAL REPRODUCTION

This section discusses the ontological, epistemological and methodological premises for developing a comprehensive analysis of the social reproduction of (and through) food. Food access and, thus, social reproduction outcomes can be seen, among other things, as a by-product of marketisation. Economic growth and food marketisation have often been associated with a shift from a plant-based to an animal-based diet and towards western models of nutrition on a global scale (Dixon, 2009; Popkin, 2003). Food marketisation has led to preferences that have often resulted in an increase in calories, higher consumption of ultra-processed fats and sugars and inadequate consumption of fresh fruit and vegetables (Hawkes, 2006). This tendency resulted in poor diets with low nutritional content. The so-called 'nutrition transition' literature has shown that in contexts where agriculture is highly commercialised, food producers and net buyers consume what is available on the market. However, very often, this is not the result of the social and nutritional values demanded by consumers. There are many examples of this: Coca-Cola is a product that reaches remote rural areas not because of its demand or recognised nutritional value (Popkin, 1998). Furthermore, in the modern 'nutricentric citizen', the social dimension of food has disappeared. Indeed, nutritional guidelines have substituted values and pleasure around food (Coveney, 2006). The idea of food *quality* has been co-opted by the 'techno-processing' discourse, which makes little or no distinction between minimally and ultra-processed food, nor in the underlining productive structure that determines unhealthy food consumption (Dixon, 2016; Scrinis, 2008). In assessing food security and nutrition, therefore, the sources of food supply and the processes by which food is accessed or prepared are often left implicit. However, the ways in which food is produced and reproduces life are not neutral, as trade openness, market power and induced preferences help to explain what is on and off the shelves. Therefore, in order to fully understand food consumption and access, it is important to clarify ontologically what food exists in a given context, namely, what food is available, what it is made of and what are the channels (or barriers) through which it is accessed (or not). Making the ontology of food explicit will help to specify the terms used in the food and nutrition domain, for example, what type of product and what ingredients make up the actual nutritional content (Dooley et al., 2018).

The second point is epistemological, namely, how we come to know about food and what the conditions of local food provision are. Food anthropologists studying 'indigenous diets' in the 'New World' argue that local production and consumption arrangements have historically shaped well-balanced diets because they were adapted to the available environment, socially accepted methods of preparation and preservation and technology (Fleuret & Fleuret, 1980). Indeed, staple foods are very often non-traded internationally (Dixon, 2009). These scholars found that the introduction of commercial mono cash crops led to the loss of indigenous knowledge about food (Moore & Vaughan, 1994; Tsing, 2015). The underlying assumption is that staple food has remained isolated in space and time from any historical (or pre-colonial) influence or from external market forces. Similarly, Fafchamps (1992) describes 'Third World' food markets as 'thin and isolated' (p. 9). This perspective has contributed to highlighting the value of material and immaterial goods and practices (Barca, 2020) in the non-capitalist food systems that sustain life without entering into commodity relations. However, this approach does not fully address the ontological question of what a 'traditional' staple food actually is or the epistemological rationale through which a particular food acquires the

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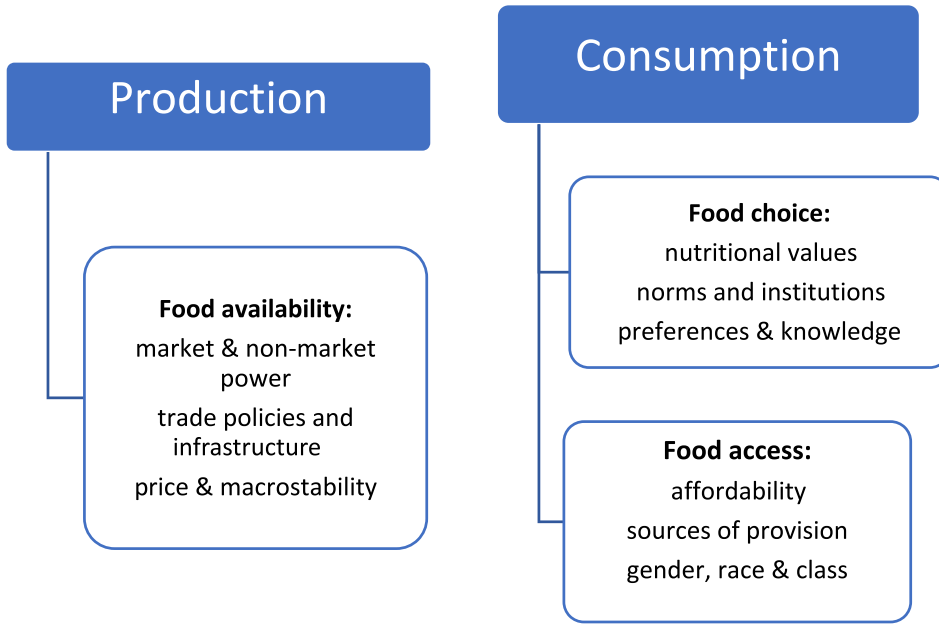

FIGURE 1 Social reproduction of (and through) food: production and consumption co-determinants. *Source*: Author.

status of a 'staple food'. What were the induced patterns of food production through which food began to be widely exchanged and consumed (or not)? Indeed, studies exploring the methodological validity of the statistics on staple food show many discrepancies in the contents of daily food diaries on food consumption (Abraham et al., 2013), which also suggests that often the conceptualisation of 'staple' food is ontologically weak. Furthermore, 'staple foods' are often standardised on the basis of what is 'main and important', which obscures the differentiation and understanding of which foods are marketed and which are non-marketed and accessed through informal and local food channels. However, the 'indigenous' and 'internationalist' perspectives on food, taken together, represent the analytical dialectic of the exogenous and endogenous forces that shape continuous and evolving forms of social reproduction of food. Indeed, local food systems and economic contingencies influence food supply and demand. However, pre-existing values and knowledge interact with new economic forces to ultimately shape the social reproduction of, and through, food. In the Soviet era, countries produced agricultural commodities according to their perceived (or assigned) comparative advantage. For example, Uzbekistan was a cotton monoculture but imported wheat from Ukraine and Kazakhstan. It is therefore necessary to contextualise food as essential for social reproduction, but within its multi-scalar and inter-temporal drivers. Affordability, market availability, social and gender norms, knowledge, preferences and power all contribute to the material value and meaning of food (Figure 1).

Standard methodologies on food consumption have reinforced a narrative that explains food provision at the level of the individual consumer operating rationally in the market. Following this approach, international organisations assert that people with low income generally consume a smaller variety of food and therefore fewer nutrients (FAO, 2013). However, given the epistemological and ontological complexities outlined above, it seems reasonable to ask whether a market-oriented diet or a more heterogeneous diet always means a better diet. In fact, diversification does not always mean better nutrition (Dixon, 2009; Fine, 1994, 2013; McMichael, 2005). Evidence shows that in many emerging economies, hunger and obesity coexist under the hegemony of market 'healthism'[1] (Dixon, 2009),

[1]The existence of a moral discourse around food is viewed as an example of 'healthism' in which health is central to all aspects of life and self-discipline is a means to achieving health (Crawford, 2006).

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while in advanced commercialised food systems, junk food coexists with premium-priced 'ethical food'. Thus, dietary changes due to income growth may not lead to improvements in nutritional outcomes (Jones et al., 2013). For example, consuming the same grain in different processed shapes and forms, such as bread, biscuits, cereals or pasta, does not mean that we are eating better, even if our economic utility improves. Food producers often stretch the market by differentiating 'within product lines' (Dixon, 2009, p. 4) to offset the saturation of the market. However, these market strategies are not beneficial from a nutritional perspective, and existing methodologies risk hiding the causal mechanisms that perpetuate the uneven conditions of social reproduction of and through food (Jarosz, 2011). Research should therefore reflect on the tendency within the existing methodological tools to aggregate or classify data in ways that fail to capture the less obvious qualitative challenges of food consumption, such as nutritional content or even preparation methods. Furthermore, little or no attempt has been made to develop standardised dietary assessment tools capable of measuring the consumption of ultra-processed food (Walls et al., 2018). Therefore, the hypothesis that eating a wider variety of food improves nutrition and thus contributes positively to social reproduction does not hold, as micronutrient dilution follows the 'deepening' of food commodification. The following sections unpack this empirically.

3 | CONTEXT, DATA AND METHODS

Since independence in 1991, the Government of Uzbekistan (GoU) has always embedded the objective of food security in its economic plans, for instance, through Resolution No. 251, 'Approving the Concept and Action Plan on Healthy Nutrition of the Population for the 2015–2020 Period'. Such political commitment has led to an improvement in food security indicators, yet nutritional patterns are heterogeneous, and wealth and diets are slowly polarising. Although 5% of the population is obese, in rural areas, 2.6% of the children are underweight. Stunting and wasting affect, respectively, 8.7% and 2% of the population (UNICEF, 2019). Nevertheless, Uzbekistan still represents a rare case study in the current neoliberal and globalised food systems because, until very recently, it has been characterised by a slow process of food marketisation based on state-planned and subsidised agri-food production, regulated prices for sensitive agri-commodities and trade protectionism (Lombardozzi & Djanibekov, 2021). This system was based on the state-managed export of cotton and a stratified mode of individualised but state-managed land access (Trevisani, 2007).

Multiple land reforms have contributed to shape the stratification of classes of farmers of today, which is still largely explained by unequal land distribution (Lombardozzi, 2020). Ethnographic studies in the early 2000s documented that the state farms—*Kolkhoz*—first and then the collective enterprise—*Shirkat*—were phased out, and local connections and private capital endowment became the key determinants in the allocation of individual land leases to *fermers*, thereby crystallising land and wealth inequalities (Ilkhamov, 2007; Trevisani, 2007, 2008).

In terms of agrarian policies, until 2020, the GoU applied to cotton, winter wheat and high-value crops (HVCs), namely, fruits and vegetables (F&V), different systems of heterodox taxation, regulations and support. The state did not withdraw from the agricultural sector as a producer nor from the food market as a regulator or buyer. Cotton and winter wheat were subject to the state procurement system, preferential land access (which is state-owned) and subsidies (Pomfret & Anderson, 1997). That enabled the GoU to accumulate revenue from cotton exports thanks to planned production, a regulated provision of inputs and stable farm-gate prices (Lombardozzi, 2020). Cotton farming was the least profitable crop for *fermers* because it did not allow, at least formally, to plant other crops after the cotton was harvested in the fall. Wheat producers, instead, once they fulfilled the state quota, could sell the surplus privately or use it as in-kind wages for farm workers. Finally, HVCs producers were subject to the most intensive forms of free-market mechanisms for inputs and outputs destined for the local market, but were also subject to state-regulated mechanisms for export (Lombardozzi, 2021). Such class composition determined high rates of wealth accumulation (for a detailed class analysis of Uzbek farmers, see Lombardozzi, 2020, in this journal). *Dekhans*, the third group, are defined as smallholder farmers who (a) own a plot much smaller than a *fermer* (on average 0.3 ha); (b) do

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not manage the cultivation of cotton and winter wheat but often sell F&V in the local markets; and (c) are not employed as wage workers by the *fermers*. Lastly, agricultural wage workers are *dekhans* who also sell their labour to the *fermers*, either occasionally or permanently, to earn an income as their means of production are insufficient to reproduce themselves (Table 1).

In 2020, state regulations have been gradually phased out, and cotton and wheat have been liberalised. The outcomes of such reforms can only be assessed in the long term. However, the empirical insights gathered here provide important lessons to reflect on how state-led agrarian production can shape social reproduction *of* and *through* food. Indeed, this exercise offers a rare opportunity to assess and reflect on the advantages and disadvantages of slow, state-led food systems, as opposed to the highly liberalised food markets seen in many other contexts in the Global South where market-oriented reforms in the food sector have been implemented over the 1980s and 1990s. The Uzbek case allows us to understand how social reproduction works in a 'heterodox' food market through its distinctive patterns of food demand and supply and labour relations. The paper will discuss how such settings shaped the terms of social reproduction through (and of) food in and outside the household.

Data were gathered during multiple rounds of fieldwork conducted between August and December 2015, in 2018 and in 2022. A survey of 120 farmers was conducted in 2015 in Samarkand, a region at the forefront of agricultural marketisation. Four categories of producers were identified: two types of *fermers* who produce either cotton with winter wheat or HVCs with winter wheat, *dekhans* and wage workers (Table 1). Furthermore, the survey results have been triangulated with qualitative data, which included direct observations on farm sites and bazaars to investigate the dynamics of food production, availability and consumption, as well as semi-structured and unstructured stakeholder interviews with policymakers, local administrators and farmers. This paper does not look at the role of remittances in detail; however, they also played a crucial role in sustaining the rural population.

Food insecurity was assessed through the Food and Nutrition Technical Assistance (FANTA), which supports the understanding of physical and economic access to food through the assessment of hunger. This method has some limitations. First, it only captures food quantity and sufficiency, not quality. Second, it is a snapshot of the last few months of the so-called 'harsh season', which means that it does not capture consumption in milder seasons or trend dynamics. Finally, it is based on the subjective judgement of the respondent. In fact, there is an undeniable risk of bias in the answers, which may be influenced by shame or pride due to the inability to consume more, healthier or more expensive food (or vice versa) (Jones et al., 2013). For these reasons, FANTA results need to be triangulated with additional data to grasp their causal mechanisms. Based on the positive picture shown in Figure 5a–c, I have added two more questions (Figure 5d,e) from Stevano (2014) to complement the FANTA questionnaire and to expand the understanding of the informal dynamics of reciprocity and favours in food provision.

Dietary diversity was assessed through the individual dietary diversity score (IDDS). Individual dietary diversity index (IDDI) gathers information about the amount of food groups (and in this exercise also subgroups) consumed by

TABLE 1 Categorisation of *fermers*, *dekhans* and agricultural wage workers.

	***Fermers*: Cotton/wheat**	***Fermers*: HVCs/wheat**	***Dekhans***	**Agricultural wage workers**
State procurement/ market	Cotton and wheat (quota) + market	Wheat (quota) + market	Only market	Only market
Labour relation	Family/wage labour	Family/wage labour	Family/non-farm labour	Family/hired by *fermers*
Land tenure	Long-term lease	Long-term lease	Lifetime inheritable	Lifetime inheritable
Average hectares	59	32	0.27	0.21

Abbreviation: HVCs, high-value crops.
Source: Author's survey.

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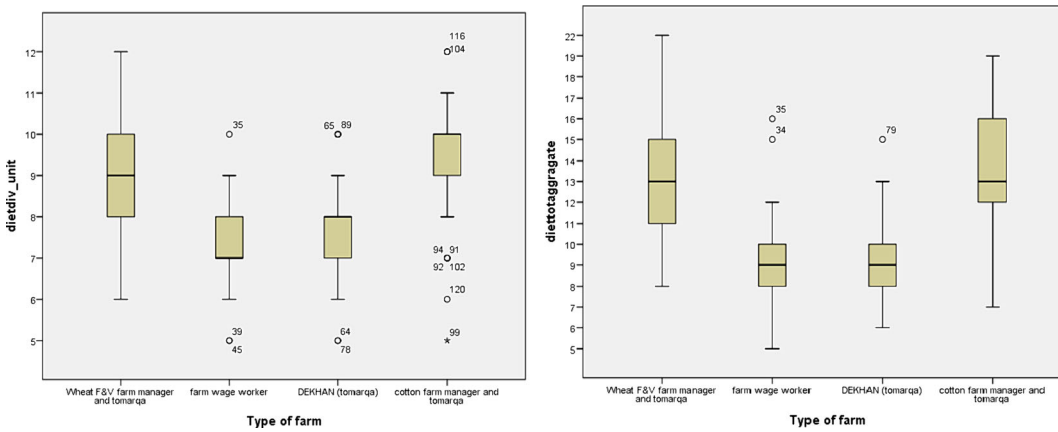

FIGURE 2 Box plot on dietary diversity by food group (left) and food type (right). F&V, fruits and vegetables. *Source*: Author's survey data.

individuals in the last 24 h. The content of the 15 food groups has been designed based on FAO guidelines to reflect nutrient and calorie similarities and adapted to grasp the diet spectrum of the local diet. I have merged tubers and white tubers for a more accurate reflection of their availability (yams, sweet potato and cassava are neither present in Uzbekistan nor are imported). I have disaggregated the standard food groups designed by FAO to grasp information about the food types. This exercise provided further insight into the consumption patterns of different types of farmers. While the FANTA indicators did not capture significant contrasts within the same food groups, the IDDI shows a more heterogeneous picture.

There are both practical and substantive reasons for choosing these two tools. First, these methods allow for reproducibility and time efficiency (Shetty, 2009). Also, the IDDI is considered by nutritionists and policymakers as a proxy for diet quality, as it can explain the characteristics of food consumption (Ruel et al., 2013) and can help to understand the characteristics of the food supply. In addition, by further disaggregating the information, it was possible to capture the more detailed diet composition of individual respondents. However, as mentioned above, these methods also have limitations. Both of these instruments, which measure snapshots, are unable to provide information on the dynamics of daily food consumption variation or frequency. If conducted at the household level, they ignore the asymmetry within the household. In addition, IDDI does not identify a clear set of food groups that can be considered a satisfactory threshold, nor does it quantify the food gaps. However, they do provide a standardised starting point for understanding how diets are shaped beyond individual preferences and choices. The next section discusses the results.

4 | RESULTS: PROBLEMATISING THE STANDARD METHODOLOGIES OF DIETARY DIVERSITY

The two box plots in Figure 2 show the variance of the food groups (5–12) and food types (5–22) consumed by the four types of farmers. In both cases, although there are some outliers,[2] F&V/wheat *fermers* record the best dietary diversity (between 10 and 11 food groups—see vertical axis), followed by cotton/wheat *fermers* (between 9 and 10), then wage workers and *dekhans* (between 7 and 8). There is also a higher variance among *fermers*, meaning that the

[2]Outliers are plotted as dots outside the whiskers of the box plots. Sometimes, interviewees go to a wedding the day before the interviews, so they eat more than usual.

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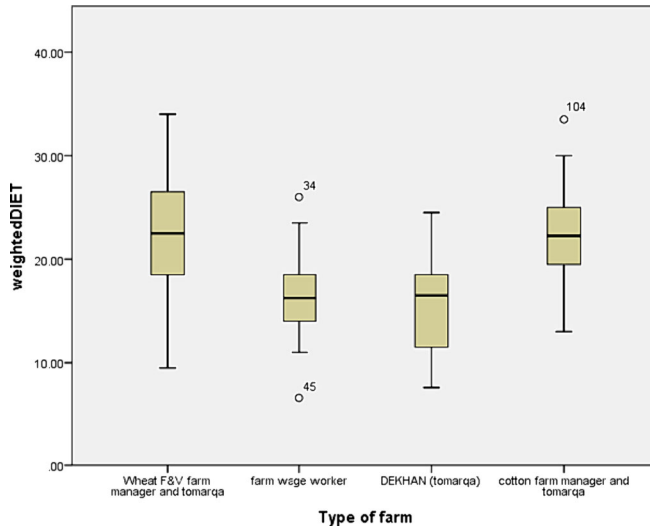

FIGURE 3 The World Food Programme weighted dietary diversity index. F&V, fruits and vegetables. *Source*: Author's survey data.

differentiation of dietary patterns within this group is relatively greater, proving that there are inequalities even within the wealthier classes. Thus, the diets of farmers appear to be diversified, relying mainly on a few cereals and tubers, meat and fruit. However, the methods used make it difficult to give a clear answer about the adequacy of such diets, and it is impossible to disentangle the triggering mechanisms that explain these results.

In order to assess the 'real' quality of food consumed, it is necessary to go beyond the taxonomy of IDDS and uncover the details of such food groups. First of all, one of the limitations of the IDDI is that it does not have a threshold that defines what a good or bad diet is. The International Food Policy Research Institute (IFPRI) proposes to use the following thresholds: above 6: high = good dietary diversity; between 4.5 and 6 = medium dietary diversity; and below 4.5 = not adequate. Following these criteria, only 5 respondents out of 120 scored 5. Another limitation is that IDDI gives equal weight to each food group. The food consumption score developed by the World Food Programme (WFP, 2008) assigns a weight based on an estimate of nutrient density.[3] Animal protein sources such as meat, eggs, dairy products and fish are given a weight of 4, pulses 3, cereals and starches 2, F&V 1 and oil and sugar 0.5. This criterion tends to favour foods such as fish and meat over carbohydrates. Figure 3 shows that when this weighting system is taken into account, the differences in farmers' diets are confirmed, but they are more homogenous on average.

However, using the threshold that considers a score under 21 as a poor diet, between 21 and 35 as borderline and 35 as acceptable, 64% scored poor, 36% scored borderline and none scored above 35. Thus, although the diet is homogenous and concentrated around a few types of food, no one reported a low dietary intake. Lastly, the same analysis was carried out using principal component analysis (PCA). The data on dietary diversity were decomposed to identify the food groups with the highest load. Cereals, pulses, oils and animal protein products registered the highest loadings, suggesting the presence of substitution effects within the same food groups, that is, the replacement of more expensive items with less expensive alternatives, which will be discussed in the next section (Figure 4).

So far, various calculations have produced puzzling results, suggesting that existing methods frame and aggregate the available data in potentially misleading ways and fail to capture essential qualitative factors of food systems that determine the social production and reproduction of (and through) food. These indicators also suggest that even

[3]Nutrient density accounts for caloric density, macronutrient and micronutrient content and the actual quantities typically eaten (WFP, 2008).

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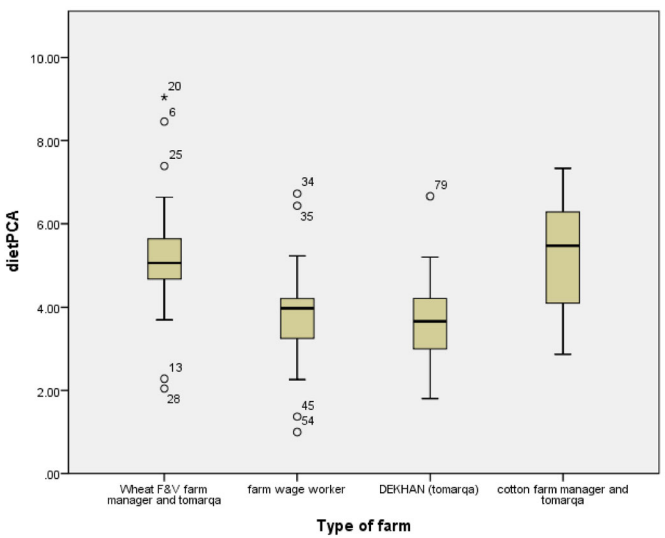

Component Matrix[a]

Cereal	.635
Oil.fat	.568
Pulse.nuts	.513
dairy	.504
tubers	.467
meat	.464
dark.green Veg.	.398
sweets	.363
vegetables	.357
fish	-.341
organic meat	-.338
vitC.fruits	.209
vitA.fruits	.029
Eggs	.008

Principal Component analysis.
a. 1 component extracted.

FIGURE 4 Dietary diversity index through principal component analysis (PCA). F&V, fruits and vegetables. *Source*: Author's survey data.

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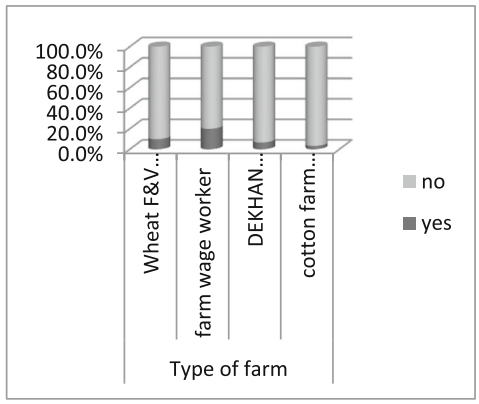
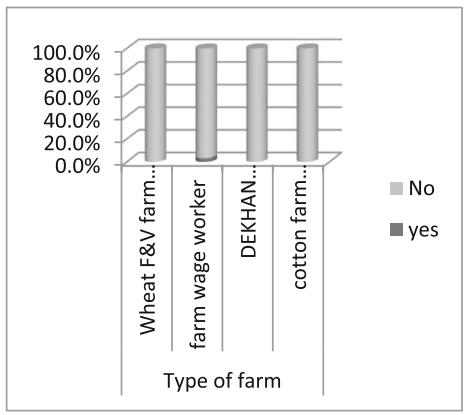
(a) In the past four weeks/30 days, were you or any household member not able to eat the kinds of foods you would have preferred?



(b) In the past four weeks/30 days (1 months), did it happen that you or any household member had to eat fewer meals in a day because there was not enough food?



(c) In the past four weeks/30 days, did you or any household member had to eat a smaller meal than needed because there was not enough food?

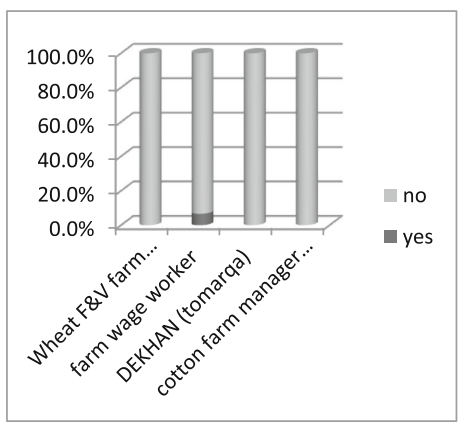


FIGURE 5 The Food and Nutrition Technical Assistance. F&V, fruits and vegetables. *Source*: Author's survey data.

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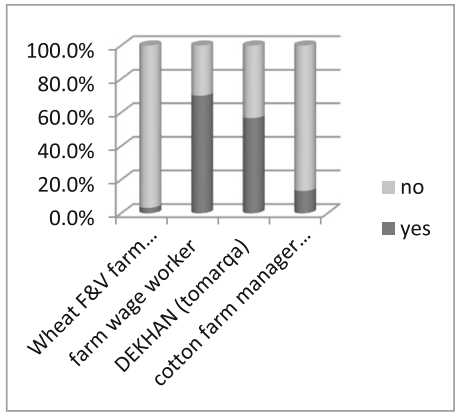
(d) In the past four weeks/30 days, did it happen that you or any household member had to get food on credit from a shop or trader?



(e) In the past four weeks/30 days, did it happen that you or any household member had to borrow food from relatives or neighbour?

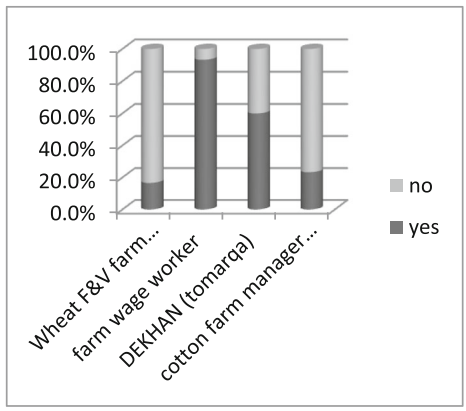


FIGURE 5 (Continued)

when the food market is thin, nutrition may be satisfactory and that the marketisation of food systems may not guarantee better or more equal social reproduction outcomes for both food producers and consumers. A complex picture emerged, highlighting the importance of analysing not only which classes of farmers have the most or least diversified diets but also the causalities that explain such outcomes.

5 | TOWARDS A MORE COMPLEX ANALYSIS OF SOCIAL REPRODUCTION OF (AND THROUGH) FOOD

In this section, I explore the broader elements related to social norms and distributional dynamics that explain what kind of food is produced and exchanged and why, and what the mechanisms are that dictate the uneven social reproduction of and through food.

The FANTA results in Figure 5 show that, although *dekhans* and wage workers did not face severe food insecurity, they widely admit to often relying on community networks, informal credit from local shops or borrowing and

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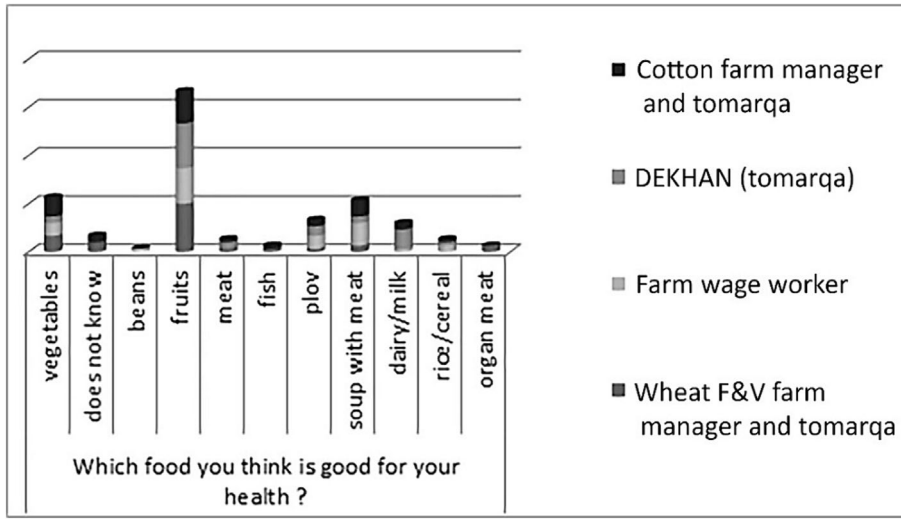

FIGURE 6 Perception of healthy food (in absolute numbers). F&V, fruits and vegetables. *Source*: Author's survey data.

bartering in the village to access food regularly. This is possible because practices of sharing, reciprocity and redistribution within the community are still alive and necessary (Kandiyoti, 2003), giving food a social value beyond its commodity price-value. The *mahalla*, the local administrative organisation, often sets up systems of mutual aid such as social finance and other mechanisms of social security and can even act as a guarantor for a farmer to obtain a loan from an agricultural bank. This proves that informal mechanisms of cooperation and exchange are essential for social reproduction and often replace 'institutionalised' forms of formal market exchange while also having a positive impact on nutrition.

5.1 | Knowledge, gender norms and preferences

To extend the ontological and epistemological discussion outlined in Section 2, the paper now asks: What does quality food mean in this context? To answer this question, it is necessary to understand local *knowledge*, *gender norms* and *preferences*. Indeed, to develop a comprehensive framework on the social reproduction of (and through) food, it is necessary to explore whether knowledge about nutritional values conforms to scientifically validated standards or it is rather constructed by local beliefs or explained by class (i.e., affordability). To explore these points, one of the questions asked in the survey was, 'Which food do you think is good for your health?'. Figure 6 shows that the most frequently mentioned food was fruit, followed by vegetables. However, when the response was broken down by groups, farm-wage workers and *dekhans* often considered *plov* and meat soup to be the healthiest foods.

Three reasons could explain such a response. The first one is related to the nutritional value attributed to traditional dishes. For example, *plov* is associated with 'abundance' in many ways: first, because it is organically composed of many food sources such as rice, vegetables, pulses (chickpeas), oils, fats and meat. The second one is related to the socio-cultural value of these meals, which are present in important life rituals and ceremonies as are relatively more expensive than other meals. The third one is related precisely to knowledge and perceptions. Interviews with World Health Organization (WHO, 2009) nutrition experts revealed that there is a misconception among rural populations that certain foods, such as raw vegetables and dairy products, have negative 'cold' attributes. Instead, meat soup has a positive connotation because it is associated with the ability to access hot meals through gas, wood or electricity appliances, especially in winter. Meat-based meals are also seen as a source of strength, especially for

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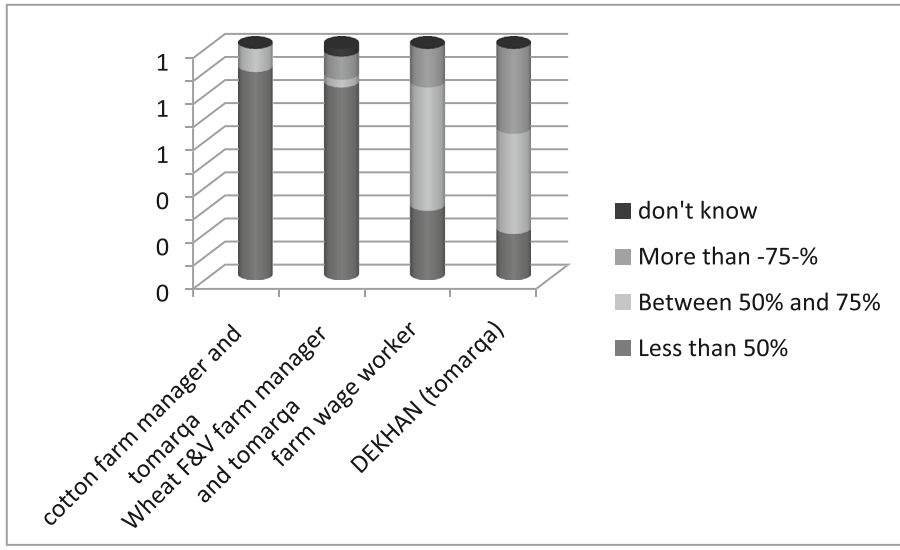

FIGURE 7 Over the past month, what was the proportion of your total expenditure that you spent on all types of food? F&V, fruits and vegetables. *Source*: Author's survey data.

men, who often receive larger portions of animal protein and have better levels of nutrition (Lombardozzi, 2021). Empirical evidence shows that men often control household decisions on how money is spent, including on food. This point is also linked to the issue of parents' knowledge of what constitutes a quality diet. A WHO (2009) study reported that in rural areas, important food groups such as vegetables and meat are introduced into children's diets at a relatively late stage. These perceptions of food affect nutrition from an early age, and the unequal distribution of food within the household, determined by gender norms, may reinforce these inequalities.

Unequal gender relations are evident in both the spheres of food consumption and production. According to fieldwork data, women are responsible for reproductive work suas as care, cooking and cleaning, as well as for cultivating the household plot, while men are mostly involved in the commercial fields (Lombardozzi, 2021). Men are also almost exclusively leaseholders of land. Thus, income is only one determinant of healthy diets, and gender norms, intra-household power dynamics and material discrimination in the sphere of work play a key role in explaining uneven patterns of social reproduction of and through food.

5.2 | Sources of provision and affordability

Building on the data outlined so far, I now elaborate on the underlying yet unexplored links between sources of food and affordability. As argued earlier, in low-income contexts, identifying the sources of food is a crucial piece of information for understanding the market and non-market determinants of nutritional outcomes that are not captured by mainstream measurements. The next two questions are not part of the standard food security questionnaire, but I included them in the survey to assess the dimensions of marketisation of consumption as opposed to self-subsistence (von Braun & Kennedy, 1986). Figure 7 shows the results of the question, 'Over the past month, what was the proportion of your total expenditure that you spent on all types of food?'. Lipton (2009) suggested a natural break between the poor and the extreme poor: The extreme poor would spend more than 75%–80% of their income on food.

The results shown in Figure 7 seem to confirm Engel's Law, which states that as income rises, the proportion of income spent on food falls. Cotton and wheat *fermers* are identified as the wealthiest categories, spending less than

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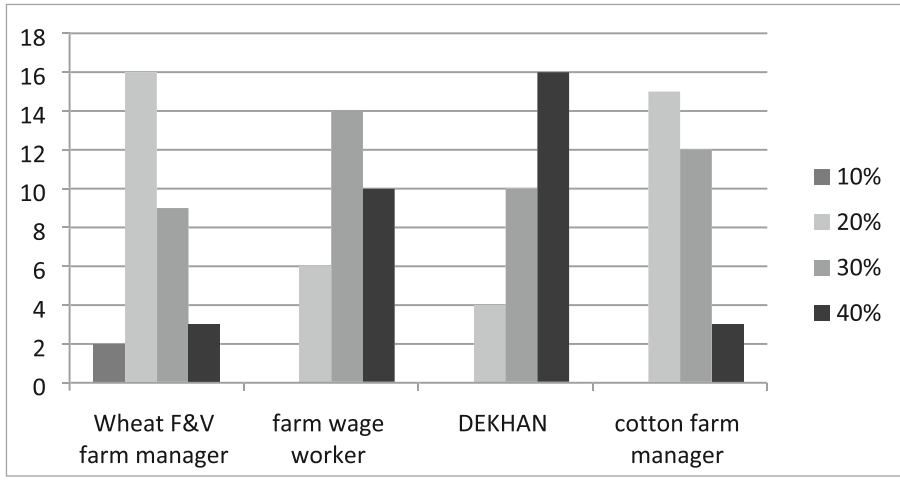

FIGURE 8 What percentage of food are you obliged to buy because you do not produce it? F&V, fruits and vegetables. *Source*: Author's survey data.

TABLE 2 Dietary diversity among farmers.

Percentage	*Fermers*: Cotton/wheat	*Fermers*: F&V/wheat	Agricultural wage workers	*Dekhans*
Cereals	100	100	93	83
Tubers	100	100	97	100
Meat	93	100	77	83
Dairy and milk	60	80	67	33
Fish	10	6	3	3
Pulses	59	60	27	40
Fruits	72	70	43	77
Dark green vegetables	23	30	10	3
Vegetables	97	70	40	35

Abbreviation: F&V, fruits and vegetables.
Source: Author's survey data.

50% of their total expenditure on food, while *dekhans* and farm workers spend over 50% in most of the cases, peaking at over 75% in some cases. These findings complement the 2006 YRPS (Uzbekistan Regional Panel Survey), which found that urban households spend on average 33% of their budget on food, while rural households allocate about 53% of their resources to food (WHO, 2009). This survey shows a greater differentiation in rural food consumption. What is less obvious, however, is that while *fermers* are more commercialised in their production, they are less dependent on the food market for their food consumption. Specifically, the survey included a question about the percentage of food that the respondent has to buy because it is not self-produced (Figure 8), and the majority of *dekhans* scored the highest rate of 40%, while *fermers* show a very low dependence on the market for food provision. With more land and hired labour available, *fermers* have access to a greater variety and quantity of food crops to meet their needs, not all of which are sold on the market but rather used for self-subsistence.

These findings refute the linearity of the nutrition transition thesis, which suggests a direct relationship between the commercialisation of production, resulting from, and the commercialisation of consumption. Rather, the case of

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Uzbekistan confirms that social reproduction outcomes are mediated by food policies, which co-shape context-specific patterns of production, consumption and exchange.

Table 2 shows the percentage of farmers (by type) who have access to specific food groups. This allows further discussion of the specifics of food provision. *Dekhans* have a higher consumption of labour-intensive crops, namely, fresh F&V, than wage workers. In fact, it has been observed that those who engage in seasonal or permanent agrarian-wage jobs, due to time constraints, tend to grow fewer and fewer types of food crops, especially labour-intensive F&V, on their domestic plots. Thus, dispossession from the land and from the means of production forces workers to sell their labour time, which also makes them time-poor to cultivate their small plots.

Cereals, tubers and roots make up the largest proportion of the diet for all groups. This is because wheat was a state-subsidised and semi-commodified crop, so its price and supply were guaranteed by the state, making it quite stable and affordable. The survey also shows that more than 90% of farm-*wage workers* received their wages in wheat or land. Thus, wage workers are less dependent on the food market for their cereal needs because they are employed by *fermers*. In addition, by being paid in wheat or land, wage workers face the same barrier of using money as a 'means of payment' as *dekhans*, contributing to a 'demonetisation' of food production and a decommodification of exchange (Kandiyoti, 2003; Lombardozzi, 2020). These non-wage relationships with their employers maintain them in a state of subalternity, as they provide land in lieu of wages under quasi-sharecropping conditions and place their social reproduction through food outside the circuits of the food market.

Although tubers are very sensitive to market price mechanisms, they are widely available and appear to be affordable for all groups. However, some food consumption patterns are influenced by farmers' material conditions. Heterogeneous results between classes of farmers are observable on dairy products and animal-source proteins. *Fermers* consume more of these products, and this depends mainly on whether the farm has a cow or not. However, even if they own one or more animals, poor *dekhans* often confirm that they do not consume the product but rather prefer to sell it. This suggests that where the market returns for a particular crop are considered high or in case there are no alternative sources of income, the exchange value of food exceeds its use value and competes with personal food consumption.

Fish, which is more expensive than meat, is almost exclusively consumed by wealthy *fermers* as it is only available in the market. Imported fruits such as bananas or pineapples, which are only available in the market, cost three times more than local fruits. Such kinds of 'luxurious' foods were mentioned by the rich respondents during the interview to underline their privileged status. In contrast, among poor respondents such as the *dekhans* who were not employed as wage workers in the *fermers*, very basic ingredients such as flour and oil were often included in the list of expensive foods. In fact, unlike wage workers, *dekhans* are forced to buy the main ingredients of their diet, for example wheat flour for bread and noodles, from the market because of the lack of wages and land.

Empirical evidence shows that substitution effects, driven by affordability issues, occur *within* the same food groups and even within food types. A striking example is, indeed, wheat flour. Wheat is available on the market in two forms: the imported, more expensive Kazakh durum and the Uzbek soft wheat, recognisable because it is yellow and considered to be of inferior baking quality. While the former is consumed by the wealthy, the latter is consumed by the poorest strata of the population and/or by wheat producers and farm-wage workers. Another example is within the 'oils and fats' food group. Sunflower oil is a condiment consumed only by a small percentage of the F&V–wheat *fermers* and not at all by the other groups, who still widely consume the more affordable and less healthy cottonseed oil. Another example is that in many *dekhans*, rice-based meals are being replaced by other carbohydrate sources, such as potatoes or old bread. Indeed, the price of rice, although partially controlled by the government, is extremely sensitive to inflation and is considered an expensive type of food by very poor *dekhans*. Such affordability-led practices of 'substitution' within the same food groups are common and show an emerging polarisation of consumption. Some struggle to access staple foods, while others engage in more conspicuous consumption. Therefore, food is a magnifying lens through which to examine class-based struggles for social reproduction. Such dynamics cannot be captured by the standardised categories used in available methodologies and without looking at how state policies affect the social reproduction of and through food prices and availability.

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5.3 | Food availability, marketisation and the role of the state

In low-income contexts, one issue that cannot be ignored when assessing the determinants of social reproduction of and through food is *availability*. Based on interviews and participant observations in local bazaars, many farmers simply do not know that some vegetables exist or how to grow them. Some vegetables are only available in urban supermarkets at very high prices. This is related to the concept of 'thin markets' and the fact that the low level of marketisation does not drive the demand for wage labour and thus does not stimulate the purchasing power of the rural population to demand more and *new* commercial foods. Such 'thin markets' make certain types of F&V unavailable in winter, and the lack of storage capacity exacerbates the risk of 'seasonality of consumption' (WHO, 2009). However, to compensate for the unavailability of F&V in the cold season, domestic methods of food preservation such as fruit juices (*compot*) and pickled vegetables (*marinotvka*), which are rich in probiotics, are widespread. Such coping strategies contribute positively to the stability of the population's nutritional intake, offsetting the challenges of market supply and seasonality. Indeed, rural women's work is mostly performed at home, which reinforces the persistence of such forms of food preparation (Lombardozzi, 2021). These practices and the relatively protected agrarian food market help to maintain homogenous patterns of food consumption. The role of state policies is extremely relevant in understanding the relationship between food marketisation and social reproduction of (and through) food. Indeed, commercialised food is available on the market across seasons, regardless of its natural seasonal cycle. As mentioned above, fresh food is often ultra-processed and loses much of its nutritional value in order to guarantee its constant presence on the market (Dixon, 2009; Monteiro et al., 2010). Thus, food quality might enter into competition with its commercialisation. At the same time, higher consumption of the same food group might depend on its degree of commercialisation.

Empirical evidence in this case study suggests that state control over food production and through trade protectionism has slowed down the marketisation of food in rural areas (Lombardozzi, 2020), which in turn has reduced the availability of a wide variety of food products. However, this slow marketisation has also slowed down the access to ultra-processed food. This means that the Uzbek state policy has determined a different scenario from the 'diet westernisation' story observed in many developing countries that have endorsed market-oriented agrarian reforms (Hawkes, 2006; Popkin, 2003). In Uzbekistan, until 2016, foreign direct investments (FDIs) in the food and beverage industry were highly regulated and taxed by the state through tariffs, which reinforced forms of food sovereignty and autarky at the local and national levels. In addition, imported cold and fizzy drinks are not perceived as healthy drinks during meals, which are usually accompanied by hot tea (WHO, 2009). Second, as discussed above, gender segregation and underdeveloped formal labour markets have reinforced household food production and preparation practices within the household.

In addition, food availability is affected by its distribution. Physical distance from the market is an additional barrier. In rural Uzbekistan, food is mainly sold in *bazaars*. While in urban areas *bazaars* are open every day and offer a variety of vendors and products, in remote areas, *bazaars* may be open even for as few as 2 days a week and for only a few hours (usually from 7:00 AM to 2:00 PM in winter). Survey data show that farmers can be as far as 50 km from the main commercial centre. As a result, this reduces the availability, variety and freshness of some foods, and the lack of transportation exacerbates the problem. Therefore, the small range of foods available due to thin markets and low levels of production differentiation in remote areas means that some types of food do not reach the tables of even the richest farmers. Thus, in this case study, the lack of 'diversified' diets is not only a matter of *affordability* but also the result of infrastructure deficiencies that perpetuate the conditions of self-subsistence production for social reproduction. Affordability and availability of food are dialectically linked. On the one hand, this case suggests that food supply does not create its own demand and that demand is necessary for certain types of food to be 'on the market'. On the other hand, because certain types of food are not widely available, their price, which reflects their scarcity, makes them affordable to only a few, thereby inhibiting the creation of their own demand. If demand is not pushed through the commodification of the social relations of production, which will increase forms of wage labour and thus create a mass of net buyers, food markets will neither intensify nor diversify. Nevertheless, such a

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scenario will not guarantee an improvement in the quality of the food once it is commercialised. In this sense, the Uzbek case shows an insightful trade-off: The stability and affordability of basic food needs are guaranteed outside the market. However, the slow pace of marketisation creates pockets of scarcity around certain food types that are not essential for social reproduction. The intensification of the marketisation implemented in recent years will certainly alter this fragile balance.

6 | CONCLUSIONS

This article has extended the discussion of food security and dietary diversity to investigate the social reproduction of (and through) food among four classes of Uzbek farmers. It has explored market and non-market dimensions related to knowledge, provision, affordability and availability to unpack the complex factors that explain the ontology, epistemology and methodology that underpin diets. Social reproduction cannot be explained without considering the interlocking mechanisms of production, distribution and exchange, here represented by food.

At a *methodological* level, this analysis shows that FANTA and IDDS only partially support an understanding of the interplay between food production, distribution and access for social reproduction. They do not address causal mechanisms beyond individual consumption, which are instead shaped by context-specific institutional, gender and social factors. For example, they are not able to unveil whether dietary diversity varies within the same food groups. Further, they also fail to show whether dietary diversity is improving due to food commercialisation and/or at the expense of micronutrient dilution. Third, the indicators suggest a monotonous diet without revealing whether such monotony corresponds to a poor diet. Fourth, they do not unveil the links between informality, market availability and affordability and how public policies shape food provision.

From an *ontological* point of view, the evidence confirms that it is crucial to know what is available and affordable in the market to be able to explain why farmers eat what they eat. Results show that diets are not very diversified and that cereals, tubers and roots occupy the largest share of the diet simply because they are more widely available. In fact, the low consumption of some food types is determined by the slow pace of marketisation driven by protectionist policies on trade and FDIs. As a result, in rural areas, diets are transitioning very slowly towards less nutrient-dense food, westernised diets and ultra-processed food consumption. However, due to affordability issues, substitution effects within the same food groups have been observed, as well as a frequent reliance on domestic food production and preparation to compensate for market gaps, seasonality and lack of income.

From an *epistemological* point of view, we cannot understand nutrition without assessing what is produced locally. This case study shows that although *fermers* are wealthy, they are largely independent from the market for food provision. This means that there is not always a direct relationship between the commercialisation of production and the commercialisation of consumption. The market mediates food access, but social reproduction of (and through) food is also mediated by local informal arrangements of food production and exchange, gender norms, non-wage relations and proximity. Informal transactions within the community, including credit and in-kind wages, slow down the circulation of food as a commodity and the development of food markets. Self-subsistence, reciprocity and solidarity mechanisms play an essential role in social reproduction outside of market mechanisms.

Finally, the article has shed light on the dialectic between endogenous social norms and institutions and exogenous market forces that shape the social reproduction of (and through) food. Recently, the government has initiated a series of market-oriented reforms. Liberalised production and an export-oriented food sector have been lauded by international organizations and policy experts as a way of incentivising productivity and farmers' incomes, apart from guaranteeing lower prices for consumers. However, unless supported by ad hoc state policies, the market may not guarantee the expected outcomes. For example, price deregulation of sensitive commodities such as wheat could lead to price volatility for key food staples such as bread. Similarly, inputs (i.e., fertilisers) liberalisation could affect their stable provision and prices, thus exposing both producers and consumers to potential risks of food unavailability and unaffordability.

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The social reproduction of (and through) food should therefore be assessed in a systematic way, namely, through the analysis of both production and consumption and within the context-specific policies and institutions in which it is embedded, in order to assess how it affects the different social actors involved. Macroeconomic policies, by regulating the risks associated with the marketisation of food production and consumption, can play a role in ensuring equitable patterns of social reproduction in changing agrarian spaces.

CONFLICT OF INTEREST STATEMENT

I declare that I have neither financial nor personal interests that could have inappropriately influenced the study. This work is original, and it has not been published elsewhere.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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