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Introduction

by Elena Vallino and Donatella Saccone

Global food systems are under simultaneous pressure from various sources, including the concentration of market power along agrifood supply chains, the mounting exposure of vulnerable households to climate shocks, and the reordering of global value chains under geopolitical and environmental strains. Recent events have made this pressure even more acute through the sharp reduction in shipping through the Strait of Hormuz, the escalation of Houthi activity around the Red Sea and Bab el-Mandeb, and growing concerns over the impact of El Niño on agricultural production.

The three contributions gathered in this issue of the Newsletter contribute to the debate by examining different dimensions of these concerns and highlighting the importance of multidimensionality in defending food security. The contributions are based on ongoing research presented at the panel organized by the Turin Centre on Emerging Economies within the XXIV AISSEC Scientific Conference, held at Marche Polytechnic University, Ancona, Italy, on 8–9 June 2026.

The work by Saccone, Vallino, and Dell'Angelo opens with the question of who controls the food system. Despite growing policy concern that a shrinking number of firms increasingly set prices, terms, and bargaining power across production, processing, distribution, and retail, evidence on agrifood concentration has remained scattered across individual commodities, countries, or segments of the chain. By systematically reviewing 47 empirical studies and complementing them with original firm-level estimates covering thousands of companies across 99 countries, the research shows that different concentration trends emerge across various items, also considering items that are relevant for food security as an aggregate basket.

Balestri, Crippa, and Pieroni investigate how food insecurity unfolds within households over time under climate stress. Using household-level data from Ethiopia, Malawi, and Nigeria and a Hidden Markov Model of dietary diversity, they show that food security is a persistent, path-dependent condition rather than a snapshot indicator: early, sub-critical drought signals already erode food security well before

conventional thresholds are triggered, and the burden falls disproportionately on female-headed and rural households. The finding that vulnerability compounds along gender and geographic lines reframes food security as a distributional and dynamic problem.

Knauss and Jollivet-Courtois analyse whether the geopolitical turn of the 2020s is reshaping where inputs are sourced from, and whether this reshaping is bringing environmental objectives with it. Tracing the spatial reconfiguration of global value chains for the European Union and the United States between 2014 and 2023, their provisional results suggest that firms continue to behave more like “hedgers” than “aligners”: sourcing decisions remain associated with low environmental taxation abroad, consistent with continued environmental arbitrage. For a food system whose inputs, and whose vulnerabilities, are globally distributed, this has direct implications for whether the reorganization of trade currently underway will ease or aggravate pressures on food systems.

Agrifood Market Concentration: A Systematic Literature Review and Preliminary Empirical Evidence

by [*Donatella Saccone*](#) (*University of Pellenzo and OEET*), [*Elena Vallino*](#) (*University of Turin and OEET*), *Jampel Dell'Angelo* (*VU University Amsterdam*)

The high degree of concentration observed in agrifood supply chains has become a growing source of concern among policymakers, civil society organizations and researchers. A substantial body of work has documented how a small number of firms increasingly dominate the production, processing, distribution and retail of food, raising the prospect that such concentration distorts prices, deepens inequality, and shifts bargaining power away from producers and consumers. Ultimately, there is the concern that these dynamics may undermine food security on a global scale. Despite this increasing policy attention and a growing volume of empirical research, the evidence base remains fragmented and, until now, has not been systematically mapped. This study contributes to closing that gap in two complementary ways. First, it conducts a systematic review of the existing literature on market concentration in agrifood supply chains, with the specific aim of identifying the empirical gaps that remain in current research. Second, building directly on the gaps that emerge from the review, it provides new preliminary estimates of agrifood market concentration based on firm-level market shares, adopting a global and multi-commodity perspective that is largely absent from prior work.

The literature review draws on the Scopus database, covering articles, books and book chapters published between 2000 and 2026, restricting the subject areas to Economics, Econometrics and Finance; Agricultural and Biological Sciences; Business, Management and Accounting; Social Sciences; Environmental Sciences. The inclusion criterion required an empirical analysis – descriptive or econometric – that went beyond purely theoretical or conceptual discussion of market concentration. The final sample comprised 47 coded studies. Each study was coded along four dimensions: the analytical approach (descriptive or econometric); the geographical scope (global, regional, national or subnational); the supply chain coverage (entire chain, or a specific segment when only partial coverage was provided); and the commodity coverage (agrifood in general, or one or more single commodities). We highlighted that publications on agrifood market concentration have grown in recent years, with a marked acceleration from 2017 onward and a peak in 2024–2025, suggesting the topic has moved decisively up the research agenda. Within the coded sample, empirical approaches are almost evenly split between econometric (51%) and descriptive (49%) studies. Geographically, national-level analyses dominate (roughly half of the sample), while global-scope studies remain comparatively rare, accounting for only about one in five studies. Three structural conceptual gaps emerge. First, the vast majority of studies (81%) examine only a single segment of the supply chain – upstream, midstream or downstream – while analyses spanning the

entire chain remain rare. Second, most studies (54%) focus on a single commodity, most often cereals and grains, with relatively few studies linking multiple commodities within a unified framework. Third, as noted, global-scope analysis is uncommon and, where it exists, tends to be descriptive rather than econometric. In fact, only four of the 47 studies reviewed combine a global perspective with coverage of all major commodity groups, and even these are largely descriptive in nature. These three gaps motivate the second part of the study, in which we conduct an original empirical analysis designed to provide a comprehensive picture of concentration across major commodity groups from a global perspective.

The empirical analysis relies on the Euromonitor Passport database, which records the sales of major companies by product and by country worldwide between 2016 and 2024. The level of concentration is measured through the Herfindahl-Hirschman Index (HHI), a widely used indicator of market concentration computed as the sum of the squared market shares of firms operating in a given market. Conventionally, an HHI below 1,500 points signals an unconcentrated market, values between 1,500 and 2,500 indicate moderate concentration, and values above 2,500 indicate high concentration. Based on data availability, the authors compiled a basket of twelve food items chosen for their relevance to food security: bottled water, tea, coffee, edible oils, drinking milk products, cheese, bread, breakfast cereals, processed fruits and vegetables, processed meat, tofu, and rice, pasta and noodles. The resulting dataset covers 5,421 companies, with sales expressed in millions of US dollars at constant prices, attributed to each company's Global Brand Owner – that is, its ultimate parent following any brand acquisitions within a given year. Private labels and artisanal bakery products were excluded. The HHI was then computed both for the basket as a whole and for each individual item, in every country and for every year between 2016 and 2024.

The preliminary empirical findings show that at the world level, concentration for the aggregate food security basket is low. Companies active in at least one basket item were identified in 99 countries, and in 38 of these all twelve items are present. A handful of countries – Bangladesh, Ivory Coast, El Salvador and Laos – display moderate concentration (HHI between 1,500 and 2,500), while most others show low concentration. Among the 5,421 companies identified, the largest firms operate across many countries: in 2024, eight companies – Nestlé, Kraft, Lactalis, Grupo Bimbo, Coca-Cola, JDE Peet's, Wilmar International and PepsiCo – generated more than 10 billion US dollars each in sales linked to food security-relevant items. Nestlé alone commands close to 42 billion US dollars in such sales – more than the entire food security-relevant sales attributed to companies operating in Italy or Spain. Nestlé is also the only company present across all twelve items and all 99 countries, followed by Unilever and Associated British Foods; more broadly, 946 companies operate in more than one country and 116 in at least ten. The picture changes considerably when individual items are examined separately. Several products display much higher concentration than the aggregate basket suggests. Breakfast cereals show medium to high concentration

almost everywhere, with 72 of 99 countries above the high-concentration threshold in 2024. Bottled water and baked goods likewise show a high concentration in a large majority of the countries covered, with the Global South systematically more concentrated than Europe, and with several countries – including Argentina, Croatia, Lebanon, Serbia and Vietnam for baked goods – shifting from low to high concentration between 2016 and 2024. Coffee's world-level HHI rose from 1,150 in 2016 to 1,457 in 2024, a change plausibly linked to shifts in Nestlé's market share. By contrast, pasta and noodles remain comparatively unconcentrated at the world level, and several countries in this category moved from high to low concentration over the period. A recurring finding is that concentration does not always coincide with internationalization: for rice, pasta and noodles, the single largest firm by market share operates only within China, whereas Barilla, active in a far larger number of countries, holds a smaller share of total revenue for the same item.

Taken together, these results suggest that a low world-level HHI for the aggregate food-security basket can mask substantially higher concentration in individual items and in individual countries, likely because the behaviour of different products offsets one another at an aggregate level. This points to a clear methodological and policy lesson: monitoring efforts should prioritize single food items over aggregate baskets, should track how concentration evolves over time and investigates the drivers of any shifts, and should pay particular attention to countries in the Global South, where concentration tends to be both higher and less visible in existing research. Looking ahead, the authors identify two priorities for future work. The first is to exploit the cross-country and cross-regional comparative dimension of the dataset more fully, to understand how concentration patterns differ across distinct regulatory and economic environments and focusing on large multinational companies. The second is to examine the causal relationship between agrifood market concentration and food security outcomes – including price volatility, undernourishment, micronutrient deficiencies, and overweight and obesity – using country-level panel data from 2000 onward and identification strategies capable of disentangling the direct and indirect channels through which concentration may affect food security in its many dimensions. Such work, the authors argue, would provide a more solid empirical foundation for local, national and international policy interventions in an area where, so far, evidence has lagged well behind concern.

When Drought Hits, Women Pay More: Evidence on Food Security Dynamics in Sub-Saharan Africa

by [Sara Balestri](#), [Andrea Crippa](#), [Luca Pieroni](#) (University of Perugia)

Food insecurity in Sub-Saharan Africa is a persistent and multidimensional condition. It encompasses not only insufficient access to food, but also limited dietary quality, high vulnerability to shocks, and constrained capacity to recover from them — dimensions that interact with one another and evolve over time in ways that snapshot indicators rarely capture. Despite this complexity, most empirical work in the field relies on observable proxies — such as dietary diversity scores, caloric intake, and food expenditures — that each illuminate one facet of the underlying condition while leaving the rest in shadow. The result is a measurement gap with real consequences: two households may look identical on any given indicator yet differ profoundly in their exposure to risk, their coping capacity, and their trajectory over time.

This paper takes that gap seriously. Using over 42,000 household-wave observations from Ethiopia, Malawi, and Nigeria — drawn from the World Bank's Living Standards Measurement Study (LSMS) across four survey waves between 2009 and 2019 — we model food security not as a static outcome but as a latent dynamic process, in which households move between more and less secure states in response to climate stress and structural disadvantage. The methodological framework is a Hidden Markov Model, which infers unobservable latent regimes from an observed signal — in our case, the Household Dietary Diversity Score — treated as an imperfect measure of an underlying condition that is never directly observed. The model identifies two latent states: a low dietary diversity regime, in which households are concentrated around moderate food insecurity with a non-negligible risk of severe deprivation, and a high dietary diversity regime, in which households are almost certainly food secure.

A first important result concerns the dynamics of transitions between these two states. Food security is characterised by strong path dependence: households already in the high-diversity state remain there with a probability of 92%, while those in the low-diversity state have only a 65.6% chance of moving upward in any given period. The asymmetry is substantively important — once a more secure condition is reached, it is considerably easier to maintain than to regain — and it suggests that preventing deterioration, rather than simply responding to crises after the fact, should be a central objective of policy.

Against this backdrop, we examine the role of early climate stress. Our key climate variable is an early drought warning indicator based on the Standardised Precipitation Evapotranspiration Index (SPEI), set at a threshold that captures water deficits before conditions reach conventional drought severity. The focus on early-stage stress is deliberate: we find that even mild water deficits significantly reduce the probability of belonging to the food-secure state by 9.8 percentage points on average, a result that holds across alternative SPEI accumulation windows, alternative drought definitions, and different

specifications of the outcome variable. The message is direct: the adverse effects of climate stress on household food security begin well before a drought is formally declared, which means that support programmes calibrated on conventional severity thresholds are, by construction, too late.

Perhaps the most striking finding, however, concerns the role of gender. Female-headed households — roughly 24.5% of the full sample — consistently report lower dietary diversity scores across all survey waves and all three countries. This is not an occasional pattern: it reflects a structural and persistent gap in access to the resources, markets, and safety nets that sustain dietary quality over time. In the HMM framework, female-headed households are 5.9 percentage points less likely to reach the high food security state compared to male-headed households, all else equal, with the penalty rising above 7.8 percentage points in the most affected regions. More importantly, the disadvantage compounds when climate stress and gender interact. Female-headed households start from a lower baseline and are disproportionately affected by early drought exposure, facing a substantially larger reduction in their probability of remaining food secure when a drought warning arrives. This compounded vulnerability is consistent with the structural constraints that female household heads typically face — more limited access to land, credit, agricultural inputs, and formal social protection — which narrow the space for adaptation precisely when conditions deteriorate.

Alongside gender, urban residence is associated with a 20.6 percentage point higher probability of belonging to the food-secure state, the largest single effect in the analysis. This reflects not only greater income diversification and market access in urban areas, but also the depth of the disadvantage facing rural households, who rely more heavily on rainfed agriculture, are more directly exposed to climate variability, and have fewer buffers against the kinds of cumulative shocks that erode food security over time.

Taken together, these findings point to three policy priorities. Early-warning systems need to be connected to adaptive safety nets well before drought reaches conventional severity, since the erosion of food security begins at early stages of water stress. Interventions also need to be geographically targeted and gender-sensitive: subnational variation in both drought and gender effects is substantial, and uniform national responses will systematically miss the most exposed households; female-headed households in particular require dedicated support — through targeted transfers, improved access to agricultural inputs and technologies, or strengthened social protection — especially in regions where the compounded disadvantage is largest. Finally, the magnitude of the rural–urban gap points to a longer-term structural agenda: improving market access, rural infrastructure, and income diversification opportunities would have significant and durable effects on food security, independently of climate policy.

The broader implication runs through all three priorities. Food insecurity in the region is not a uniform or static condition: it is a dynamic process, differentiated across households and territories, shaped by the

interaction of structural disadvantage and climate stress, and resistant to recovery once entrenched. Policies that treat it otherwise — as a temporary shortfall to be addressed after the fact, or as a condition distributed uniformly across the population — will fall short of what the evidence demands.

The lowest environmental bidder, a key factor in offshoring? Environmental arbitrage in the spatial reconfiguration of global value chains in the era of geoeconomics

by Steven Knauss and Pascal Jollivet-Courtois (Technological University of Compiègne - Sorbonne University Alliance, France)

After decades of frustratingly slow progress in tackling the environmental crisis at the planetary level, the 2010s finally witnessed some significant advances in the fight against climate change, both technologically -- with accelerations in the deployment of key renewable technologies such as batteries, solar and wind power -- and socially, with the fight against climate change catapulting to a place of prominence on the societal and political agenda, as symbolized by key moments such as the 2015 Paris Accords and the 2019 adoption of the European Green Deal.

Just a few years on, however, and the situation looks quite different. Despite the warnings of the scientific community becoming, if anything, more alarming than ever, the ecological transition must now compete for its place at the top of the political agenda with politically pressing items ranging from affordability and competitiveness to the AI race and renewed geopolitical competition.

This latter development -- geopolitical competition -- represents the most significant rupture with the climate of the 2010s; not only does it heighten the importance of the other issues, it also profoundly disrupts the institutional stability upon which the limited environmental progress of the 2010s was constructed.

Historically, moments of acute geopolitical competition have tended to produce rapid institutional change, as previously autonomous domains of social life become increasingly subordinated to the exigencies of full-spectrum great-power competition. One such example is what Robert Blackwill and Jennifer Harris term geoeconomics, or the subordination of economic incentives such as revenue, profit, and loss to geopolitical considerations.

Our paper is interested in the complex interaction between this geoeconomic turn, state-corporate relations, trade patterns, and environmental arbitrage. At the state level, while the environmental politics of most notably the United States and China are fully enmeshed in this new institutional dynamic, this is arguably no less true for the European Union. Yet corporate actors, while forced to pay careful attention to this shifting climate, nonetheless maintain sufficient room to manoeuvre and pursue strategies that maintain their autonomy from state policies in what Henrique Choer Moraes and Mikael Wigell call “corporate geoeconomics.” The interaction between this multi-layered mutation of the global trade regime will determine to what extent entangled environmental and security objectives may win out over profit-oriented arbitrage strategies, with important consequences for the transition itself.

To shed light on these novel dynamics, we trace the spatial reconfiguration of global value chains in the European Union and the United States between 2014 and 2023 at the sectoral level. Our aim is to see to what extent lead firms restructure their supplier networks -- or to what extent new hubs emerge that reroute the supply chains across multiple sectors -- to more closely align their global activities with state-level environmental and geoeconomic objectives. Employing Seth Schindler and Steve Rolf's concepts of aligners versus hedgers and adapting them to firm environmental strategies, we expect to see hedgers -- lead firms that seek to avoid geopolitical alignment and maintain their autonomy from state-level geoeconomics -- continue to pursue profit-oriented logic in the global organization of their supply chains, including environmental and labour arbitrage, seeking to minimize costs by sourcing intermediates from regions with less stringent environmental regulations and lower unit labour costs. Aligners, on the other hand -- lead firms seeking to align their global operations more closely with state objectives -- are expected to increasingly reorient their supply chains away from environmental arbitrage and toward geoeconomic de-risking to comply with state geoeconomic and environmental priorities.

Methodologically, we use standard input-output techniques (the Leontief inverse) to trace total intermediate products from 62 countries around the world that end up in final products of 35 different sectors ultimately sold or produced in the European Union and the United States. We then categorize, for each sector, which countries increased or decreased their provision of intermediate products for the European Union, and separately, for the United States, between 2014 and 2023. Since such increases or decreases can occur for multiple reasons, we follow the method of Xiang Gao, Geoffrey J. D. Hewings, and Cuihong Yang to net out changes due to technological change or due to the uneven growth of final demand over time to isolate changes due to spatial reallocation. Finally, we compare the country-level increases or decreases due to spatial reallocation with hedging-style indicators such as the evolution and level of the country's unit labour costs or environmentally related tax revenue, as well as with a country's geopolitical alignment.

Our results, which at this stage remain provisional, are more consistent with ongoing hedging, including continued environmental arbitrage, than they are with the geoeconomic alignment of global value chains. Particularly in the European Union, it is the low level of environmentally related taxation rather than its percentage change throughout the period studied that is most strongly associated with countries with bigger increases in intermediate product provision due to spatial reconfiguration. This indicates that while the sourcing of global value chains for the European Union and the United States remains favourable to "the lowest environmental bidder," there does appear to be a certain amount of inelasticity with respect to increases in environmental taxation. One interesting hypothesis that could be explored in the future concerning this inelasticity would be that global lead firms from the European Union and the United States may benefit from oligopsony buyer power, constraining local suppliers to absorb the costs of

increased local environmental taxation. Our study, however, is unable to confirm this hypothesis in its current state.

Of course, there are important limitations to our contribution, most importantly that we are trying to investigate a nascent phenomenon whose contours are still taking shape. If indeed a new geoeconomic order were to consolidate, we would expect a lag of several years between its first manifestations at the level of changing state-level objectives, the institutional changes that follow, and ultimately, the response in global trade patterns. To the extent that led firms consider emerging geopolitical and environmental objectives to be fleeting political phenomena unlikely to be maintained over time, they would be more likely to pursue a hedging strategy until the consolidation of the new order became more evident over time, increasing the lag even further between shifts in state-level objectives and global trade patterns. Our study should therefore be considered an initial effort to consider these issues on a cross-country and cross-sectoral scale. Whether the intermingling of geoeconomic and environmental state policies will ultimately weaken the logic of the lowest environmental bidder in the years to come remains to be seen.

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