Food System Economics Commission

WORKING PAPER

Policy bundles and the Transformation of the Food System as well as Energy (and other) Sectors: A Literature Review

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Policy Bundles and Transformation of the Food System as well as Energy (and other) Sectors: A Literature Review

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Abstract

In considering how to transform the food system, numerous actors have recognized the importance of bundling policies. Such policy bundles are needed in order to address multiple constraints, manage trade offs, improve policy coherence and make policies more acceptable to stakeholders. This note reviews literature on policy bundles and the energy (as well as a few other) sectors. It then provides an overview of literature on policy bundles and food systems; findings from other sectors (eg. energy or transport) can help inform how policy bundles might be best used to transform food systems. Key findings on policy bundles as related to food systems include the following. First, in designing policy bundles there is a need for a comprehensive reform plan with clear long term objectives, assessment of likely reform impact and stakeholder consultation. Second, communication strategies are important for the success of a policy bundle. Third, the burden of policy changes on the poor may be limited by phasing price increases and policy changes, sequencing price changes across products starting with products less often used by the poor and providing cash transfers targeted to the poor. Fourth, a truly participatory process in designing a bundle is essential; a whole of government approach is important as is inclusion of stakeholders outside of the government. Lastly, context is crucial; there is no preferred policy bundle. This note identifies areas for future research; they include the following: how policy bundles may be used to achieve multiple objectives related to the food system transformation; modeling of the impact of policy bundles on the food system and strategies for ensuring truly participatory processes in designing policy bundles.

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1. Introduction

Recent work often references the importance of policy bundles for transforming the food system (e.g. IFPRI, 2022; Parsons and Barling, 2022; OECD 2021; Barrett et al, 2021; and Fesenfeld, 2020). This note provides an overview of the existing literature on policy bundles which it defines as a coherent set of interventions designed expressly to achieve a single or multiple objectives of interest[1]. Effective bundles targeting multiple objectives maximize synergies and limit tradeoffs among those objectives. For our purposes we are most interested in policy bundles that target multiple objectives[2], however, we also consider the relatively larger body of literature that describes those bundles that aim to achieve one objective only.

Numerous stakeholders engaging in the debate on how to best transform the food system have recognized the importance of bundling policies. For instance, an expert panel report by Barrett et al (2020) recognized that technology innovation requires bundles of technological, sociocultural, policy and institutional changes; they refer to such bundles as socio-technical innovation bundles. Parsons and Barling (2021) recognize that as part of an agenda for research going forward it will be useful to study how individual policies might be combined into policy packages in order to improve the transformative potential of interventions.

Policy bundles in the food system have been suggested for various reasons, including the following:

1. to formalize a comprehensive policy package that brings together the key domains of action and policy areas for a comprehensive response to a food system problem, within which policymakers have the flexibility to select specific policy options suitable for their national/local contexts and target populations. (Hawkes, Jewell and Allen, 2013)
2. to address multiple constraints, such as a lack of technology together with sociocultural, policy and institutional constraints (Barrett et al, 2020)
3. to pursue different objectives and manage tradeoffs, such as those identified by IFAD (2021)
4. to improve policy coherence building upon synergies and addressing tradeoffs (OECD, 2021)
5. to enhance the sellability of measures by compensating losers and increasing general acceptance for the measure (Fesenfeld, 2020)

[1] Parsons and Barling (2022) note "In an effort to avoid the conceptual ambiguity in the policy studies literature, the term 'mix' is used to label a set of existing instruments in a particular context, and 'package' to refer to a purposefully-designed set of instruments." The policy bundles considered in this note are "packages" in the terminology used by Parsons and Barling.

[2] FSEC work is focused on 3 key objectives: inclusion, healthier diets and sustainability

This note is organized as follows. Section 2 describes the process used for the literature review. In section 3 findings of key articles related to the energy sector and policy bundles are presented, followed in section 4 by findings of references on policy bundles in relation to the agrifood system. Section 5 draws conclusions and highlights a few areas for future research.

2. Method for reviewing literature on policy bundles

The literature review involved the following steps. First, references on bundles or packages of policies were identified by consultation with experts; such literature did not necessarily use the term policy bundles or packages of policies, so experts were asked to suggest references that consider sets of policies implemented together in order to achieve one or more goals. Second, sources were then identified through a search in Google Scholar and Web of Science using the following terms: "policy bundle(s)", "policy package", "policy mix", "policy portfolio", "policy menu", "bundles of actions" and "bundles of interventions" both independently and in combination with the following keywords: "food system", "agriculture", "agricultural economics", "agricultural sector", "diets", "food value chains", "food supply chains" and "food environments". Third, a word search was also performed on UNFSS documents; words searched were: policy bundles, policy packages and policy mix, but no results were found other than usage of those words a few times without elaboration. The literature review resulted in about 25 references that we reviewed here; they cover bundles specific to the food system, diets, nutrition and the energy sector. An initial draft was reviewed by experts and then revised; revisions included adding some references to the review.

3. Policy bundles in the energy and select other sectors

Our review of policy bundles found that most literature related to the energy sector (as well as transport and climate change) rather than the agrifood system. Although that literature is specific to the energy sector, many of the findings and lessons learned would seem applicable to the food system[3]. A summary of each reference follows.

Clements et al (2013) reviewed country case studies of reform of energy subsidies (the policy packages implemented may be considered policy bundles) in countries from various regions of the world spanning the 1980s to 2012. The policy bundles included price increases on different types of

[3] Advocates for a food system transition often make their case drawing analogies from the energy transition, the emergence of renewables as competitive energy sources, in particular. Key elements of this positive narrative include the importance of clear long-term goals and pathways (IPCC's) around which policy makers and investors can align; a push on alternative technologies, facilitated by subsidies and new financing mechanisms such as feed-in tariffs; and global and national commitments leading to a sense that change is inevitable. Other developments, not least the increase in global emissions, suggest however that the energy transition is not yet on safe grounds. Arguably, key differences between the energy and food systems – and the policies needed to transform those sectors - may also limit the usefulness of their comparison. Regardless, this note considers what lessons might be drawn from the literature on the energy transition in order to make progress on transforming the food system (Ruggeri Laderchi, 2022, in progress).

energy products, subsidy removal and compensation schemes for the low-income populations who are negatively affected. The goals were partly economic as well as environmental and they included the objective of mitigating the impact on vulnerable populations. They found numerous factors leading to success in reforming energy subsidies.

Factors for success included:

1. A comprehensive reform plan with clear long-term objectives, assessment of the likely reform impact and consultation with stakeholders.
2. A communications strategy and transparency.
3. Phased price increases and sequencing them across energy products. Sequencing can limit the immediate burden on the poor. Price increases can start with products consumed less often by the poor – e.g. gasoline and jet kerosene. Targeted cash transfers to the poor may help alleviate the burden.
4. Improved efficiency of State-Owned Enterprises (SOEs), including through governance (reporting information on costs and operations as well as setting performance targets and incentives based on such information), demand management (pricing according to hours of peak usage) and improved regional trade (to expand supply and household access).
5. Well targeted measures that mitigate the impact on the poor.
6. Depoliticization of energy pricing; for example, creating pricing mechanisms that are predictable and independent of political decisions, such as through independent regulators.

More recent literature reiterates some of the findings of Clements et al (2013) as well as stresses additional points. It is summarized here.

Howlett and del Rio (2015) developed a taxonomy to classify policy bundles along specific characteristics based on the number of goals, number of policies, number of levels of government and sectors involved in the design. This led to a distinction of eight types, classified as either instrument or policy mixes. In this study, the authors indicated that over- and under-designing of policy bundles should be avoided, and complementarities and synergies in the instruments could be exploited. A successful policy bundle contained aspects of existing portfolios as well as some innovations. Additionally, the design and success of policy bundles needed to be evaluated carefully and was context-specific. This taxonomy is meant to serve as a basis for assessing the formulation process of the bundle, the role of stakeholders, and the success of the bundle. Further, the study provides an outlook on the relevance of complementarity, coherence, and emerging conflicts in the design process.

Zhou & Brown (2017) looked at the impact of different policy bundles on adoption of smart meters in the energy sector of 5 European countries. They found that policy packages with a focus on financial regulations and social acceptance are more successful. Additionally, regulations that were clear and well enforced accelerated adoption of the smart meter technology.

Lin, Liou & Chou (2020) surveyed experts on the effectiveness of different policy bundles in the energy transition of Taiwan. They considered whether Taiwanese policies related to the energy transition were sufficient to meet both the national goals and SDG 7. In addition to considering

Taiwan's Electricity Act, the authors expanded the analysis to all supporting policy packages. Furthermore, they compared the Taiwanese experience with that of Japan. The reforms were still in an early stage. However, the majority of policy bundles were ineffective and needed to be accompanied by other policies outside the energy sector to push the energy and industry transition.

Schaffrin, Sewerin, and Seubert (2014) examined the innovativeness of bundles considering policy mixes of energy production in Austria, Germany, and the UK between 1998 and 2010. The results showed that policies in all three countries contain a mixture of new and innovative policy bundles in terms of objectives and instruments, combined with already implemented but revised ones.

Howlett and Rayner (2007) considered principles for designing policy bundles. The authors emphasized the relevance of procedural policy instruments, such as information and network management, as well as self-regulation and incentive-based instruments. The policy bundle should be context-specific and reflect features of the respective policy sector. In their study in 2013, Howlett and Rayner discussed different evaluation criteria for policy bundles. Besides consistency (ability of numerous policy instruments to support rather than undermine each other), coherence (ability of multiple policy objectives to co-exist), and congruence (ability of multiple objectives and instruments to collaborate in mutually supportive way), they emphasized that evaluations must consider both the policy formulation process and how the bundle was developed and modified. Furthermore, context-specific design of policy and governance as well as the freedom of the policy makers to conceive the policy bundle are crucial.

Vajjarapu, Verma & Allirani (2020) considered the effectiveness of public urban transport policy bundles in India. They modeled the impact of hypothetical adaptation of policy bundles for improving the Indian transportation sectors until 2030 and 2050. The bundle addressing all causes of flooding showed the best outcome. However, the two other bundles implemented additional information services, which were beneficial, too. The policy bundles needed to be context specific, depending on the impact of flooding on different city areas and transportation requirements.

Capros et al (2011) analyzed the policy package Climate Change Action and Renewables (EU 20-20-20), designed by the European Commission to achieve GHG emission reduction goals, using the PRIMES and GAINS model. They developed several scenarios based on different policy instruments. Results showed that a deliberated combination of instruments can improve fairness among the member states. However, flexible implementation schemes among member states can increase costs because of a limited scope of redistributing targets.

Referring to the example of CO2 mitigation and promotion of renewables, del Río (2014) assessed the success of policy bundles based on criteria, such as: effectiveness, cost-effectiveness, dynamic efficiency, equity, environmental and economic effects and sociopolitical acceptability. He reported that the success of evaluations depended on the specific policy mix. The interactions depended on the type of instruments and their specific design. Often vertical and horizontal coordination played only a limited role in the design process.

Bergquist, Mildenberger & Stoker (2020) considered what policy bundles gained political support for climate action in the United States. They focused on the design and acceptance of policy bundles, using the example of climate policies combined with social and economic policies. The support for

climate policies increased with the inclusion of social and economic aspects, because such bundles directly addressed potential trade-offs.

4. Policy bundles and the food system

More recently, the idea of policy bundles has entered the discourse related to the food system with many articles and reports with findings similar to those that emerged from the energy transition; such findings are summarized in the concluding section of this paper. A description of each of the references follows.

Barrett et al (2020) considered the importance of socio-technological innovation bundles: combinations of policies that have helped to ensure or prevent the effectiveness of food system related technologies. For instance, the Asian Green Revolution was not successful due to the development of high-yielding variety technologies alone. Its success (in increasing agricultural productivity) resulted from it being part of a socio-technological innovation bundle. In other words it combined HYV technology with an enabling environment that included the proper policies (eg. investments in irrigation and other public infrastructure, pricing policies and input supply as well as procurement arrangements). Such technologies could be applied in sub-Saharan Africa, however they have failed because that continent lacks the necessary enabling environment. An example of a more recent technology that has not been adopted is that of golden rice (a variety rich in vitamin A); golden rice has not been successfully adopted and the authors attribute this to a lack of the necessary enabling environment.

Rather than choosing one socio-technical innovation bundle over another, Barrett et al (2020) emphasize the importance of process for addressing issues specific to the context in question. The process involves four steps: truly participatory dialogue where all stakeholders have a voice; coordination among actors in terms of objectives and actions needed; definition of key performance measures and finally the establishment and regular usage of open monitoring and enforcement systems.

In its recently released Food Policy Report, IFPRI (2022) recognizes ensuring everyone consumes healthy diets is one of the great challenges of our time. In order to achieve these two goals (healthy diets and access by all to healthy diets), policy packages will need to be implemented. Such packages must be “multipronged, coherent, and mutually reinforcing.” They advocate that such policy packages should include policies that may be classified as consumer education, fiscal policies and policies to change the food environment. Examples of policies to educate consumers include public awareness campaigns (using both mass media and social media), counseling on nutrition, breastfeeding promotion and updating food based dietary guidelines. Fiscal policies include taxes on ultra-processed foods and incentives to retailers’ subsidization of nutritious food. Policies to change the food environment might include food labels, certification of foods, regulations on marketing unhealthy foods to children.

The State of Food Security and Nutrition in the World 2021 (FAO et al, 2021) affirms the importance of a territorial and an ecosystem approach in designing coherent policy bundles. It emphasizes the

value of coherence using examples from Mexico, Kenya, Colombia, the Great Green Wall project in the Sahel zone, and the Milan Urban Food Policy Pact of 211 cities worldwide.

Temme et al (2020) performed a meta-analysis of literature on what policies are most effective in changing food consumption patterns (a single objective). They concluded that the best way to change food consumption patterns was through a mix of policies that includes financial disincentives, information measures and nudges (such as reducing portion size or changing the retail environment).

Fesenfeld et al (2020) surveyed eligible voters in China, the US and Germany regarding various policies related to food consumption. Their study found that the politically unpopular tax on fish and meat becomes more acceptable to respondents in the U.S. and Germany when bundled with one or more of the policies that have little opposition (public information campaigns, discounts for vegetarian foods and/ or more stringent animal farming standards).

Paraje et al (2021) evaluated a policy package adopted by Chile in 2016; it was aimed at reducing obesity as well as non-communicable diseases. Policies to restrict advertising and marketing to children, regulations on foods that could be served in schools as well as front of package labels were among the policies in the package. The policy package has been effective in reducing consumption of the targeted foods. Firms have opposed such policies stating that they would have negative impacts on wages and employment. The study found no negative impact on wages and employment rates.

Thow, et al (2018) examined the roles of different groups (e.g. coalitions on economic growth, food security, agricultural production and health) in the process of policy-making and designing policy bundles to address food security and nutrition in South Africa. They indicated that competing agendas, different framing, and different approaches led to policy incoherence. In the policy process the economic growth coalition had the most influence. The health coalition had especially limited influence and faced challenges in translating their agenda into policy action. A whole-of-government approach could help to balance out competing agendas and unequal positions of power in order to have truly participatory negotiations when designing policy bundles.

5. Main findings and areas for future research

The key findings emerging from our review of literature on policy bundles are the following:

1. The literature on policy bundles focuses on design, the process of designing and implementing policy bundles, stakeholder involvement and assessment of success. Some modeling of the effectiveness of policy packages was undertaken in the energy sector, but not in the food system.
2. Although our key interest is policy bundles and multiple objectives, the majority of references identified by our search related to policy packages with one objective (e.g. reduce emissions from the sector or improve diets) rather than multiple objectives.
3. There is a large body of literature on policy bundles in relation to the energy transition, but not as related to food system challenges. Most references related to policy bundles in the food systems literature are focused on improving diets, rather than transforming the food system as a whole.

4. Many of the key findings from articles related to policy bundles and food are similar to those found in articles about policy bundles and the energy (or other) sector(s). Details follow.

Findings that were similar (regardless of sector considered) were:

1. In designing policy bundles there is a need for a comprehensive plan for achieving the objectives. It should include clear long-term objectives, assessment of likely reform impact and consultation with stakeholders (Clements et al (2013); Howlett and del Río (2015); del Río (2014); Howlett and Rayner (2007, 2013); Lin et al (2020) and Thow et al (2018), Parsons and Hawkes (2018)).
2. Policy bundles may be used to address the concerns of different constituencies thereby increasing political support for the proposed reforms; for instance, voters are more likely to vote in support of a package of popular policies that contains one intervention that harms their welfare than they are to vote for that intervention on its own. One way of ensuring political support for a package of policies is providing compensation to the poor when a measure threatens to reduce their welfare. Temme et al. (2020); Fesenfeld et al (2020) and Bergquist, Mildenberger & Stoker (2020)).
3. A truly participatory process in designing a bundle is essential otherwise more powerful stakeholders threaten to control the outcome; furthermore, a whole of government approach is important as is inclusion of other stakeholders (FAO et al (2021); Barrett et al (2020); Parsons and Hawkes (2018); Thow et al (2018) and Howlett and Rayner (2007))
4. Context is crucial; policy bundles must be designed to fit the relevant circumstances (Hawkes et al (2020); del Rio (2015); Vajjarapu, Verma & Allirani (2020) and Howlett and del Rio (2015))

Findings that appeared in literature specific to the food system transformation and policy bundles, but not in the literature on policy bundles and the energy (or other) sectors are as follow:

1. Negative impacts on the poor are sometimes used to justify opposition to a policy bundle. Although negative impacts do occur, it is not always true that the poor are negatively impacted (Paraje et al, 2021).
2. An enabling environment (which includes, for example, political will and strong institutions) is crucial for technology adoption (Barrett et al (2020)).

Literature on policy bundles to reform the energy (or other) sector contained some lessons that were not found in the literature on the food system (including nutrition) and policy bundles. Such findings include the following points which might also apply to the transformation of the food system.

1. Literature on the energy sector suggests that transparency and the communications strategy are important for the success of a policy bundle (Clements et al (2013); Capros et al (2011) and Zhou and Brown (2017)). An important component of communication is showing the links between different measures (i.e. making the public aware that measures are designed as bundles). A clear example of this is the need to accompany price increases with communication campaigns on the existence of compensatory measures for vulnerable groups.
2. Phased price increases or policy changes, and sequencing them across products as well as providing targeted cash transfers are important to limit the burden of policy changes on the poor (Clements et al (2013); Capros et al (2011) and del Río (2009)).

Going forward, there are numerous areas for research. Such research might include the role of policy bundles in achieving multiple (as opposed to singular) objectives related to the food system. Also useful would be the modeling of policy bundles and their impacts on the food system. Furthermore, insight is needed on effective strategies for ensuring truly participatory processes in the process of designing policy bundles.

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