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Unpacking the Political Economy of Fertilizer Subsidy Reforms

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Abstract

Global calls to repurpose agricultural support toward more sustainable and equitable food systems have intensified scrutiny of fertilizer subsidies. While political economy constraints often hinder reform, the exact manifestation of these constraints is rarely examined. To clarify the specific mechanisms at play, this paper systematically reviews peer-reviewed studies from 2000 to 2025 and identifies 38 fertilizer subsidy reform cases across 15 countries. We code political economy factors influencing outcomes at different stages of subsidy adoption and redesign. The analysis shows that ideational factors around self-sufficiency, the private sector, and the social contract, as well as the institutional structures impacting policymaking, are central to successful subsidy introduction. Electoral incentives play a role at both the policy introduction and redesign phases. Yet, political economy factors are not the only prominent drivers. In fact, technocratic considerations about underperformance or corruption became more prominent during redesign efforts but were also present in more than 80 percent of failed cases. This reaffirms that while technocratic factors, including the availability of research and evidence are necessary for subsidy design improvements, they are not sufficient on their own. By distinguishing which political economy factors matter and how they interact with broader policy process dynamics, this study provides a more actionable foundation for anticipating and managing challenges to fertilizer subsidy reforms and repurposing more broadly.

Keywords: Fertilizer, subsidies, policy reforms, political economy, repurposing

Acknowledgments

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I. Introduction

In recent years, there has been growing advocacy from various international organizations and scholars to repurpose agricultural support policies to improve financial, environmental, and health outcomes of food systems (Damania et al. 2023; FAO, UNDP, UNEP 2021; Gautam et al. 2022; La Vina 2006; Nelgen et al. 2024). Fertilizer subsidies are a major target of the repurposing agenda because they constitute a sizeable share of agricultural support interventions, ranging from a quarter of subsidy spending in low-income countries to one-tenth of such spending in high-income countries (Hill and Resnick 2025). Yet, the prospects of reforming fertilizer subsidies and agricultural support policies more broadly are often seen to hinge on political economy factors (Bellmann 2019; FAO, UNDP, UNEP 2021; OECD 2021; Vos et al. 2023).

Nevertheless, political economy encapsulates a broad range of actions, relationships, and interests. For example, it could refer to the potential losers from reform, such as farmers (Elliott 2005; Harvey 2024) or political parties (Banful 2011), who may mobilize opposition to meaningful policy changes. In other cases, it may allude to intergovernmental conflicts, such as between ministries of finance and agriculture, about whether fertilizer subsidies are the best use of resources. In still other instances, it may refer to tensions over policy sovereignty that result from international donors pressuring low-income country governments to scale back spending (Harris 2019; Mockshell and Birner 2015). By bundling all of these different scenarios under the same “political economy” umbrella, it becomes challenging to identify who, why, and how a particular actor may resist or support reform, and, in turn, what strategies are needed to overcome opposition or galvanize supporters.

Consequently, this paper aims to address two research questions. First, what are the specific political economy factors that help or hinder fertilizer subsidy reforms? Second, how does the importance of these variables shift according to the stage of the fertilizer program? To address these questions, we analyze the full universe of peer-reviewed studies on the political economy of fertilizer subsidies published between 2000-2025. In doing so, we find 38 cases of policy reforms across 15 countries where political economy factors were analyzed. Using a structured coding technique, we map these factors to a framework derived from the theoretical scholarship on the political economy of agricultural policy, complemented by insights from the policy process literature. This allows us to uncover which political economy factors are most relevant and in which settings.

Among political economy factors, we find that ideational and institutional factors are particularly influential at the introductory stage of a successful reform, appearing in

almost two-thirds of such cases. Electoral interests were present in almost 50 percent of successfully adopted subsidy reform cases overall, appearing most prominently at both the introductory and redesign stages. By contrast, economic factors – including the availability of donor resources or interests of economic elites—were less present in the cases. Among policy process variables, timing was critical in more than 80 percent of successful reform cases, particularly driven by electoral cycles and unexpected shocks. Technocratic concerns were most important during redesign cases, often triggered by pressures to reduce leakages and fix inefficiencies. Not surprisingly, research and evidence were more relevant during redesign stages than during the introduction of such subsidies. In the several cases of unsuccessful or stalled reforms, research and evidence for needed changes existed but did not seem to shift government decision making.

Our paper offers several contributions. First, we take a much more nuanced approach to political economy than is often found in the literature on fertilizer subsidies in general and to policy reforms more generally. For interdisciplinary areas such as food systems, where the usage of political economy explanations is wide ranging, it is critical to be consistent in the operationalization of the concept to avoid it becoming a vacuous explanation for non-reforms. By breaking down aspects of political economy into their constituent parts, we can gain more clarity on which are more important and when. Second, while the term is often used in a pejorative sense, and seen as something that needs to be overcome, we also find that political economy dynamics can sometimes be seized upon to propel needed reforms. Third, we recognize that the ways in which political economy factors interact with reforms requires assessing the whether a subsidy program is relatively new or whether it has been in place for some time and experienced several rounds of re-design.

To elaborate further, the next section reviews the literature on the political economy of agricultural policy reforms more generally to derive a framework by which we subsequently structured our analysis. This is followed by a detailed discussion of our methodology for identifying the universe of political economy studies on fertilizer subsidy reforms. In turn, we discuss the findings from the analysis by first looking at which factors drove or hindered the adoption of fertilizer subsidy programs versus those that impact the redesign or scaling out of such programs. We then conclude with broader implications for both the political economy scholarship and fertilizer subsidy policy discussions.

II. What drives fertilizer subsidy decisions?

Fertilizer subsidies intend to correct a market failure by making the cost of fertilizer more affordable to farmers through vouchers or a reduction in the retail price through state

support to manufacturers or distributors (Druilhe and Barreiro-Hurlé 2012). Subsidies can generate distributional consequences among different interest groups, including farmers, traders, consumers, distributors, and fertilizer suppliers, and therefore can create coalitions for change or for preserving the status quo. How do policymakers decide whose interests to favor when making decisions about whether to introduce, redesign, or terminate subsidies? Two sets of distinct but mutually reinforcing schools of literature, respectively focused on political economy and policy process, help address this question.

Political economy approaches

In some cases, the decisions are driven more by policymakers' economic calculus than anything else. In developing countries that traditionally have been highly dependent on donor resources, the presence or absence of donor conditionalities about agricultural reforms in general, and input subsidies in particular, have tended to shape whether governments had the resources and policy autonomy to introduce or scale up programs. Both the advent of structural adjustment programs by donors in the 1980s, which limited governments' policy choices, and the shift to budget support in the 2000s, which allowed for greater policy space, have been tied to the contraction and expansion of fertilizer subsidies, respectively (Jayne and Rashid 2013). In other cases, decisionmakers or their business allies may be the ones who might directly lose, or benefit, the most from reforms because of their own investments along the fertilizer value chain, including through production, distribution, and import companies and contracts (GRAIN and IATP 2022).

Economic interests tend to have strong linkages with electoral ones. Electoral ties can be a strong motivator for policymakers to ensure that the groups that matter the most to their electoral fortunes are insulated or disproportionately benefit from reforms. Indeed, one of the most common arguments for why subsidies are introduced and difficult to scale back is because they generate goodwill among the public, especially in more agrarian economies and in more democratic settings (Klomp and De Haan 2013). The targeting of subsidies can allow for awarding supporters or winning over undecided voters (Cox 2010) and may occur when political competition is more intense (Kvartiuk and Herzfeld 2021). Political parties may also be aligned with certain agricultural groups (e.g. small farmers, landowners), which shapes their preferences (Olper 2007; Swinnen 2010).

Yet, policymakers' interests may be shaped by more than just concerns about the maximization of their own or allies' economic and electoral benefits. Indeed, whether shaped by history, experience, or norms, policy orientations towards fertilizer subsidies can also reflect deep-seated ideological beliefs as well (Vos et al. 2023). One of the most well-known is food self-sufficiency whereby policymakers become committed to the idea of spurring domestic food production to reduce import dependence (Clapp 2017; Helleiner

2021), often by using subsidized inputs. In other cases, ideology permeates the appropriate design of fertilizer subsidy programs and therefore the acceptable parameters for reform. For instance, countries with a socialist history may be more biased towards heavier state intervention in agricultural subsidies (Rozelle and Swinnen 2009) and less willing to accept reform options that offer the private sector a greater role. In others, input subsidies for certain commodities, like maize in southern Africa, are seen as an integral part of the social contract that is dangerous to disrupt (Mdee et al. 2021).

Finally, the institutionalist political economy literature highlights that policymakers may lack full policy autonomy to achieve their objectives due to the decisionmaking structures in which they are embedded (Hall and Taylor 1996; Peters 2019). Externally, multilateral or regional organizations may shift, or constrict, priority-setting. Domestically, constitutional rules may be consequential, determining who can set the policy agenda and who has veto power over decisions (Rausser and Swinnen 2011; Tsebelis 2002). Similarly, political institutions and electoral rules (proportional representation, majoritarianism) impact which constituencies have more voice and influence over agricultural policy decisions (Olper and Raimondi 2010). For instance, Bates and Block (2013) find that since the third wave of democratization washed over Africa in the 1990s and 2000s, farmers have received much more policy support, including via subsidies, than during the one-party era. Relatedly, intergovernmental relations across ministries, or between national and subnational authorities via decentralization effects may determine the scope for uptake or refinement of subsidy policies. This is especially so given that local authorities have been involved in subsidy targeting in some countries (Houssou and Zeller 2011; Pan and Christiaensen 2012).

Policy process approaches

A related but distinct set of scholarship focuses more on the policy process rather than political economy per se. One older segment of this literature emphasizes the importance of evidence-informed policymaking, assuming that instead of being driven by interests and ideas, policymakers are motivated by technocratic considerations and pursue reforms when the status quo is not delivering on intended developmental outcomes (Esmark 2017; Fischer 1990; Goldman and Pabari 2021). Such decisions may be informed by media reports, peer reviewed analysis, technical documents or expert testimony about what is working or not within a current subsidy program or why a subsidy program is needed.

Others consider more dynamic factors that may shift the broader environment in which decisionmakers are making policy choices, either informed by evidence or motivated by interests. This includes paying attention to issues such as timing, tactics, and

technology. On timing, Kingdon (1995) popularized the notion that there are strategic windows of opportunity for policy uptake. These may include an economic or environmental crisis, an electoral turnover, or a high-level summit that elevates an issue on the agenda. In Africa, the 2006 Abuja Declaration on Fertilizer for the Green Revolution Summit (AU 2006) and the 2024 Abuja Fertilizer and Soil health Summit (Lal 2024) constituted clear windows of opportunity for initiating, scaling, and refining fertilizer subsidies. Other types of opportunities may be technological, including the availability of new electronic transfer platforms, micro-dosing techniques, drones, and artificial intelligence.

The policy cycles approach (Lasswell 1956) and the Kaleidoscope Model of policy change (Resnick et al. 2018) further elevate the relevance of timing by highlighting the importance of strategic moments, such as the budget process and electoral cycle, as policies move from agenda setting to implementation. Indeed, the political business cycle theory argues that politicians manipulate different economic policy levers prior to an election (Nordhaus 1975). Following this logic, expenditures on agriculture expand in the run-up to elections and decline afterwards (Klomp and De Haan 2013).

Taking advantage of policy cycles and windows of opportunity requires an array of tactics by policy entrepreneurs and their partners. Drawing on the observations of Sabatier and Jenkins-Smith (1993), one key tactic has been the use of advocacy coalitions by groups of like-minded constituents. Coalitions between political parties and certain interest groups historically have played a pivotal role in agriculture and food policies (Anderson 2016; Swinnen and Resnick 2023). In some cases, such as in Brazil and the European Union, these coalitions can be between conservative parties, small farmers' associations, and agribusiness, all with an interest in maintaining subsidies (Nagel et al. 2025; Pompeia 2024). Other types of coalitions might exist between farmers and state-owned enterprises (SOEs) in countries where fertilizer is domestically produced by SOEs and subsidies might benefit both groups. For example, in Indonesia, the subsidy program historically has involved the government providing the state-owned producer, Pupuk, with subsidies to produce and deliver fertilizer at reduced prices that farmers can afford (Firdausi et al. 2025).

Coalitions may gravitate to using certain framings and narratives, which may resonate with some decisionmakers more than others. For instance, Mockshell and Birner (2020) found that in Senegal, one coalition among domestic policy makers and civil society organizations drew on narratives about how input subsidies enhance agricultural productivity while another coalition comprised of international donors and research institutes focused more heavily on critiques of the subsidies (see also Harris 2019). Other

tactics may involve protests, strikes or riots that convince governments to take up subsidies; for instance, the protests caused by the 2007-2008 food price crisis resulted in many governments rolling out subsidies in order to mitigate the risk of widening political instability (Berazneva and Lee 2013; Pinstруп-Andersen 2016).

Figure 1: Integrative Framework on Political Economy of Subsidy Policy Reform

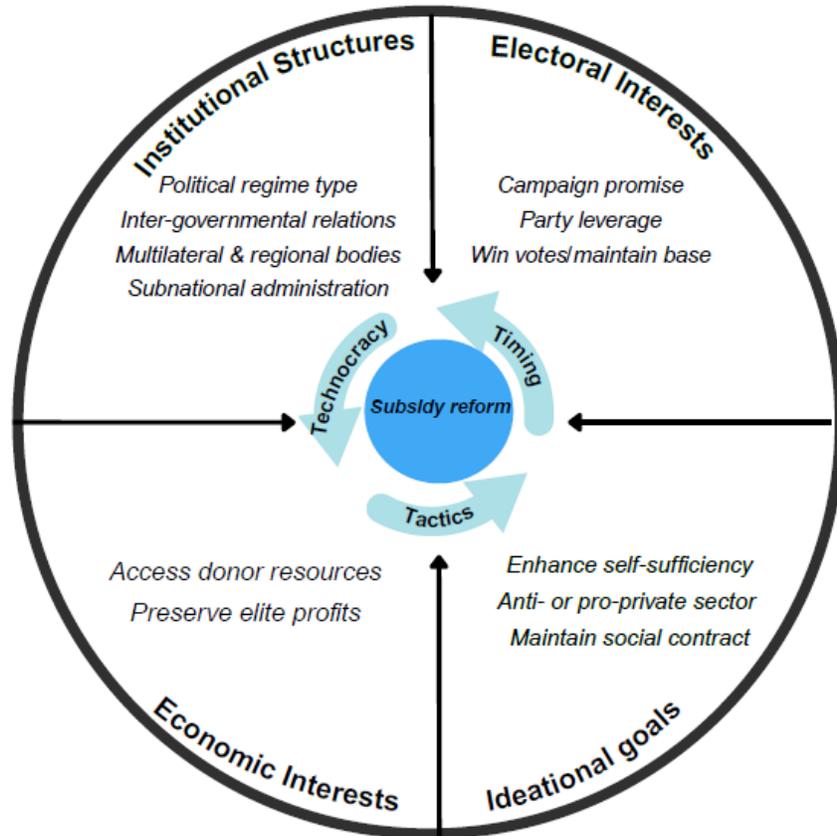


Figure 1 above brings together the key variables that span these two larger schools of thought on political economy and policy process. Undoubtedly, some of these variables can have strong interactions with each other while others have fewer correlations with each other. For instance, if winning votes is a primary factor in a country’s episode of reform or non-reform, then we would expect that the timing of the electoral cycle is also likely to be a relevant issue. Yet, while existing studies review the range of factors that may influence policy decisions related to fertilizer subsidies, they do not uncover when such factors are associated with success or failure of subsidy reforms or emphasize at which stage—introduction or redesign of subsidies—that their role is stronger.

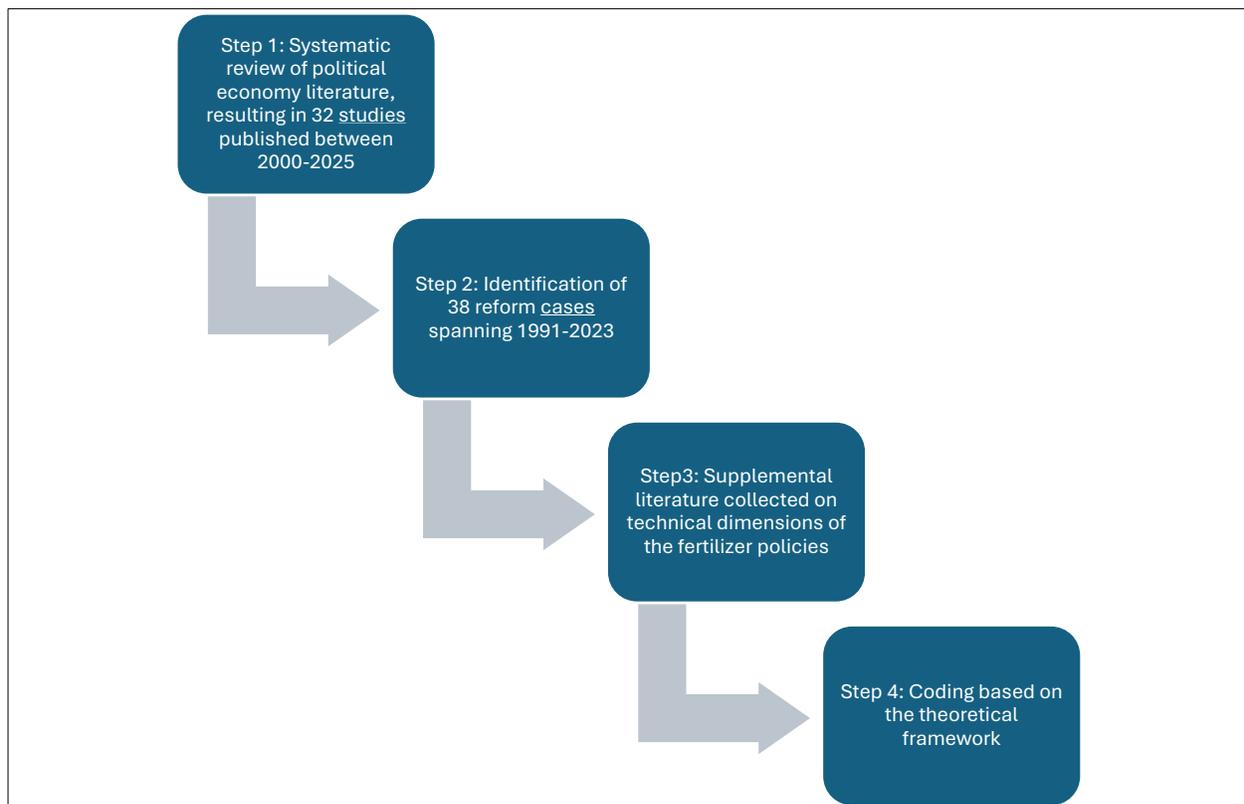
III. Methodology

Literature selection

To test the relevance of the variables highlighted in Figure 1, we employed a multi-step approach that resulted in 38 cases of attempted subsidy policy reforms (see Figure 2). A “reform” is defined here to be a change in the status quo of a country’s fertilizer policy. This change may include the introduction of a subsidy policy, the redesign of an existing one, or the termination of the subsidy.

In the first step, a systematic review of the political economy literature was conducted. To enhance the depth and contextual richness of each case, the second step involved a review of literature drawn from a broad array of disciplinary sources, including development studies, agricultural economics, and public administration. The review encompassed sources published in English, French, and Spanish. The inclusion criterion for reform cases was the existence of at least one peer-reviewed publication that substantively examined the political economy dimensions or enabling environment surrounding the reform process. More details on each step are provided below.

Figure 2: Stepwise Approach to Fertilizer Subsidy Sample



Political economy literature

The primary literature search was conducted using the academic search engine Semantic Scholar, chosen for its extensive coverage of peer-reviewed publications and its artificial intelligence capabilities that enhance the search process by incorporating synonymous and related terms. Only papers published in the last 25 years (2000 to 2025) were considered. Relevant political economy literature was identified through a two-stage process. First, search results were systematically screened across English, French, and Spanish sources using predefined keywords, and eligible papers were selected for inclusion. Second, a reference snowballing technique was employed to identify additional pertinent literature by reviewing the bibliographies of initially included papers. Thirty-two peer-reviewed political economy papers were eventually included in the review. Some of these papers discussed more than one country case or multiple reform episodes from the same country, which is why there are fewer political economy papers than the reform cases included in the study.

Inclusion criteria required that studies provide original and analytically substantive insights into the political economy or enabling environment surrounding fertilizer subsidy reforms. Abstracts were initially screened for relevance, followed by a full-text review to assess the depth and originality of the political economy analysis. Papers that were primarily descriptive, lacked analytical focus, or addressed only technical or administrative dimensions without engaging political economy concerns were excluded. Review articles and non-original sources were recorded but not included in the core analysis. Duplicate entries and clearly irrelevant studies were excluded during the initial screening phase. Figure 3 outlines the overall search strategy and details the number of publications screened, reviewed, and included at each stage of the process.

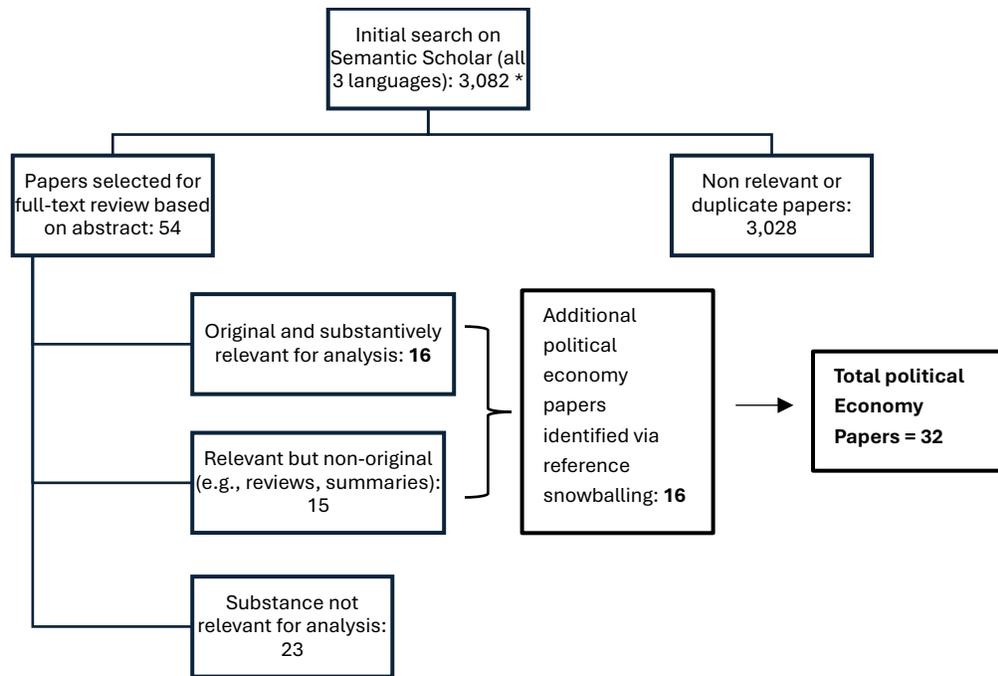
To ensure the comprehensiveness and robustness of our literature search, we complemented our primary use of Semantic Scholar with additional platforms. Specifically, we employed other search engines and repositories such as JSTOR and Web of Science, both of which are widely regarded for their extensive coverage of peer-reviewed academic literature across disciplines. We also incorporated AI-enabled search tools, including OpenAI and SciSpace, to capture newer or less conventional sources that might not be indexed in traditional databases. Using these multiple platforms served as a robustness check to ensure we included the most comprehensive set of cases, allowing us to validate that our search strategy was not biased by reliance on a single repository.¹

¹ This supplementary process yielded 1,013 results from JSTOR, 12 from Web of Science, 24 from OpenAI, and 100 from SciSpace, yet all papers deemed relevant through these

Case selection

From the available body of political economy research, 38 reform cases were identified. A case was included if (a) a study existed that analyzed political economy factors shaping government decisions to support or oppose the reform, and (b) the reform represented a substantive change in subsidy policy, such as the introduction or removal of a fertilizer subsidy, or a major redesign involving shifts in distribution modalities (e.g., e-vouchers or direct benefit transfers) or changes in private sector participation in production, importation, or distribution. Cases were excluded if they involved only incremental adjustments, such as altering eligible crops or modifying subsidy rates, since these were considered minor modifications to existing regimes.

Figure 3: Literature Search and Screening Flow for Political Economy Studies



* Initial search included 2540 English, 474 Spanish, and 68 French papers.

Supplemental subsidy policy literature

A second round of literature review was undertaken to supplement the initial set of identified reform cases with additional contextual and policy-specific information. This

sources had already been captured within the initial multi-stage literature review, confirming the completeness of the original search strategy rather than expanding the final corpus.

review drew upon a broad range of disciplinary sources, including agricultural economics, development studies, and public policy analysis focusing primarily on impact assessments. The primary data extracted from these sources focused on the design features of the reform, the stated policy objectives, and available evidence on policy performance over time relative to those objectives. This process yielded an additional 43 relevant sources, comprising both peer-reviewed journal articles and grey literature.

Coding

Once the full set of reform cases were identified, each study was coded. Relevant excerpts were manually extracted from each of the political economy studies to identify factors influencing each reform episode discussed in the studies. Subsequently, the political economy characteristics were coded in NVivo using the theoretical framework described in Section II. Detailed definitions of codes under each category and coding guidelines are provided in Appendix I.

IV. Descriptive Findings

Overview of reform cases

The approach highlighted above resulted in 38 fertilizer subsidy reform cases with policy reform timelines from 1991 to 2023. Geographically, Table 1 shows that the sample includes 24 cases from Africa (9 countries), 13 from Asia (5 countries), and 1 from Latin America (Mexico).

Table 1: Summary of Reform Cases and Corresponding Political Economy Studies

| Successful reforms | | | |
|---------------------------|---|-------------------|--|
| Country (year) | Name of policy | Trajectory | PE studies |
| Ghana (2008) | Ghana Fertilizer Subsidy Program | Introduction | (Banful 2011; Resnick and Mather 2016) |
| Indonesia (2002) | Reinstatement of fertilizer subsidies | Introduction | (Arifin 2014) |
| Kenya (2007) | National Accelerated Agricultural Input Access Program (NAAIAP) | Introduction | (Kirimi et al. 2023; Njagi et al. 2024) |
| Mexico (2019) | Fertilizantes para el Bienestar Programme | Introduction | (DeTura and Jiménez 2021; Fox and García Jiménez 2025) |
| Nepal (2009) | Fertilizer Subsidy policy | Introduction | (Kyle et al. 2017; Shrestha 2010) |
| Nigeria (1999) | Federal Market Stabilization Program | Introduction | (Liverpool-Tasie et al. 2010; Salman 2015) |
| Rwanda (2007) | Crop Intensification Program | Introduction | (Chemouni 2014) |
| Senegal (2008) | Grande Offensive Agricole pour la Nourriture et l'Abondance (GOANA) | Introduction | (Ricome et al. 2018; Resnick 2014) |
| Sri Lanka (1994) | Reintroduction of fertilizer subsidy | Introduction | (Atapattu 2022) |
| Tanzania (2003) | Untargeted fertilizer subsidies program | Introduction | (Mather and Ndyetabula 2016) |
| Zambia (2002) | Fertilizer Support Program | Introduction | (Mason et al. 2013; Resnick and Mason 2016) |
| Burundi (2013) | Privatization reform in fertilizer value chain | Redesign | (Chemouni 2014) |
| India (2003) | New Pricing Scheme in Urea sector | Redesign | (Birner et al. 2011; Mankunnummal 2022) |
| India (2010) | Nutrient Based Subsidy | Redesign | (Birner et al. 2011; Mankunnummal 2022) |
| India (2016) | DBT in fertilizers reform | Redesign | (Mankunnummal 2022) |
| Kenya (2008) | National Fertilizer Support Program/ National Fertilizer Price Stabilization Plan (NFPSP) | Redesign | (Kirimi et al. 2023; Njagi et al. 2024) |
| Kenya (2018) | National Value Chain Support Program | Redesign | (Kirimi et al. 2023; Njagi et al. 2024) |

| Successful reforms | | | |
|---------------------------|---|-------------------|--|
| Country (year) | Name of policy | Trajectory | PE studies |
| Kenya (2022) | National Fertilizer Subsidy Program | Redesign | (Njagi et al. 2024) |
| Malawi (2000) | Targeted Input Program | Redesign | (Chinsinga 2012; Gockel and Gugerty 2009) |
| Malawi (2005) | Farm Input Subsidy Program (FISP) | Redesign | (Chinsinga 2012; 2014) |
| Malawi (2015) | FISP reforms | Redesign | (Nkhoma et al. 2019; Walls et al. 2023) |
| Nigeria (2012) | Growth Enhancement Support Scheme | Redesign | (Balana and Fasoranti 2022) |
| Rwanda (2013) | Privatization reform | Redesign | (Chemouni 2014) |
| Sri Lanka (2005) | Kethata Aruna | Redesign | (Atapattu 2022) |
| Sri Lanka (2016) | Direct Cash Transfer Program | Redesign | (Atapattu 2022) |
| Sri Lanka (2018) | Replacing fertilizer cash grant with old subsidies scheme | Redesign | (Atapattu 2022; Kishore et al. 2021) |
| Sri Lanka (2020) | Free fertilizers for paddy farmers | Redesign | (Atapattu 2022) |
| Tanzania (2008) | National Agricultural Input Voucher Scheme | Redesign | (Mather and Ndyetabula 2016; Pan and Christiaensen 2012) |
| Zambia (2009) | Farmer Input Support Program | Redesign | (Mason et al. 2013; Resnick and Mason 2016) |
| China (2016) | Agricultural Subsidy Reform | Phasing Out | Wu et al. 2024 |
| Kenya (2018) | Termination of NFPSP | Phasing Out | (Ricker-Gilbert et al. 2024) |
| Nigeria (1996) | Privatization reform ending subsidies | Phasing Out | (Aberman et al. 2010; Balana and Fasoranti 2022) |
| Failed Reforms | | | |
| Country (year) | Name of policy | Trajectory | PE studies |
| India (1991) | Increase the farmgate price of urea | Redesign attempt | (Birner et al. 2011) |
| Indonesia (2003) | Reform efforts | Redesign attempt | (Arifin 2014) |

| Successful reforms | | | |
|---------------------------|---|-------------------|--------------------------------------|
| Country (year) | Name of policy | Trajectory | PE studies |
| Malawi (2008) | Attempts to increase farmer contributions within FISP | Redesign attempt | (Chinsinga 2012; Nkhoma et al. 2019) |
| Nigeria (2006) | National Fertilizer Policy for Nigeria | Redesign attempt | (Aberman et al. 2010) |
| Rwanda (2022) | Reform attempts | Redesign attempt | (Spielman et al. 2025) |
| Zambia (2013) | Stalled FISP e-voucher reform (from 2013-2020) | Redesign attempt | (Resnick and Mason 2016) |

Note: “Failed” efforts also include those that were still pending at the time of writing.

As noted earlier, a “reform” refers to a shift in the status quo of the extant fertilizer policy. A key characteristic of the reform episode is the ‘status of the reform process’, which categorizes each case as either *adopted* or *not adopted* (failed or pending). A reform is classified as ‘adopted’ if it passed through the legislative process and was implemented at the national level—regardless of any subsequent implementation challenges. By contrast, reforms are failed if: (i) the reform proposal failed to pass the legislative process; (ii) the reform remains under consideration; or (iii) the reform was adopted on paper but never implemented.² Based on this criterion, the sample includes 32 cases of adopted reform and 6 cases of failed reforms. This difference in sample size is attributed to the greater number of political economy papers that focused on the policy processes and factors leading to adoption of fertilizer subsidy reforms and is a notable bias in our analysis (i.e. reform failures receive less attention).

The reform cases were also categorized based on the trajectory of policy change and the design features of the fertilizer subsidy programs. Based on trajectory, the analysis includes 11 cases where fertilizer subsidies were introduced for the first time or reintroduced after a prolonged period of dormancy. For example, Zambia launched its Fertilizer Support Program in 2002 following nearly a decade of minimal state involvement in fertilizer markets. Ghana’s 2008 subsidy program marked the government’s return to input subsidization after liberalization in the early 1990s, triggered by a convergence of domestic crop failures and international price volatility. Similarly, Nepal reintroduced fertilizer subsidies in 2009 after more than a decade of liberalized policy, citing escalating global prices and declining access for smallholders.

² This includes the 2006 National Fertilizer Policy in Nigeria, which was adopted to promote a well-functioning, privatized fertilizer sector; however, no subsequent changes were made to the pre-existing fertilizer subsidy program.

The majority of cases, however, (24 of 38) involved the reform or redesign of existing fertilizer subsidy programs. These reforms typically sought to address inefficiencies, leakages, or evolving policy priorities through significant changes in implementation modalities (such as shifting from direct distribution to voucher-based or cash transfer mechanisms) or by redefining the respective roles of the public and private sectors in the procurement, importation, and distribution of fertilizers. Only three cases in the sample—Nigeria (1997), China (2016), and Kenya (2018)—involved the phasing out of fertilizer subsidies. In Nigeria, the federal government fully liberalized the fertilizer sector between 1997 and 1999, eliminating subsidies and reducing import tariffs (Liverpool-Tasie et al. 2010). In China, subsidies to fertilizer manufacturers were gradually withdrawn between 2015 and 2018 as part of broader reforms aimed at improving market efficiency and environmental sustainability. Similarly, in 2018, Kenya ended the NCPB-managed fertilizer subsidy program due to farmer access challenges, private sector crowding out, and widespread leakage and fraud (Ricker-Gilbert et al. 2024).

On the design front, reforms were first classified by subsidy structure, specifically, whether subsidies were universal (8 cases) or targeted to specific beneficiaries (27 cases).³ Among the targeted cases, further distinctions were made based on the targeting mechanism: 17 reforms employed landholding or income-based targeting, while 10 used geographic or crop-based criteria. Distribution mechanisms also varied. In 11 cases, fertilizers were distributed directly by the government through state-owned enterprises and public depots. In contrast, 16 cases utilized voucher-based systems—either physical or electronic—which farmers could redeem at designated public or private input centers. The distribution mechanisms in the remaining cases varied widely, ranging from direct cash transfers to farmers for the purchase of fertilizers (e.g., Sri Lanka, 2016) to subsidies provided to fertilizer companies, which then sold fertilizers to farmers at prices below market rates (e.g., India and China).

Trends in Policy Objectives

Before delving into the political economy findings, we further examine the main objectives that governments have intended to achieve via those reforms that were categorized as “successful.” This was done by reviewing the objectives identified in the supplemental documents obtained in Step 3 of our search approach (see Figure 2). Such

³ The remaining three cases do not fall neatly into the categories of universal or targeted subsidies. In China (2016), the reform involved phasing out manufacturing subsidies. In Nigeria (1997), reforms centered on privatization through the removal of fertilizer subsidies following a period of frequent policy shifts. In Indonesia, reform efforts initiated in 2003 lacked a clear direction regarding whether subsidies should be universal or targeted.

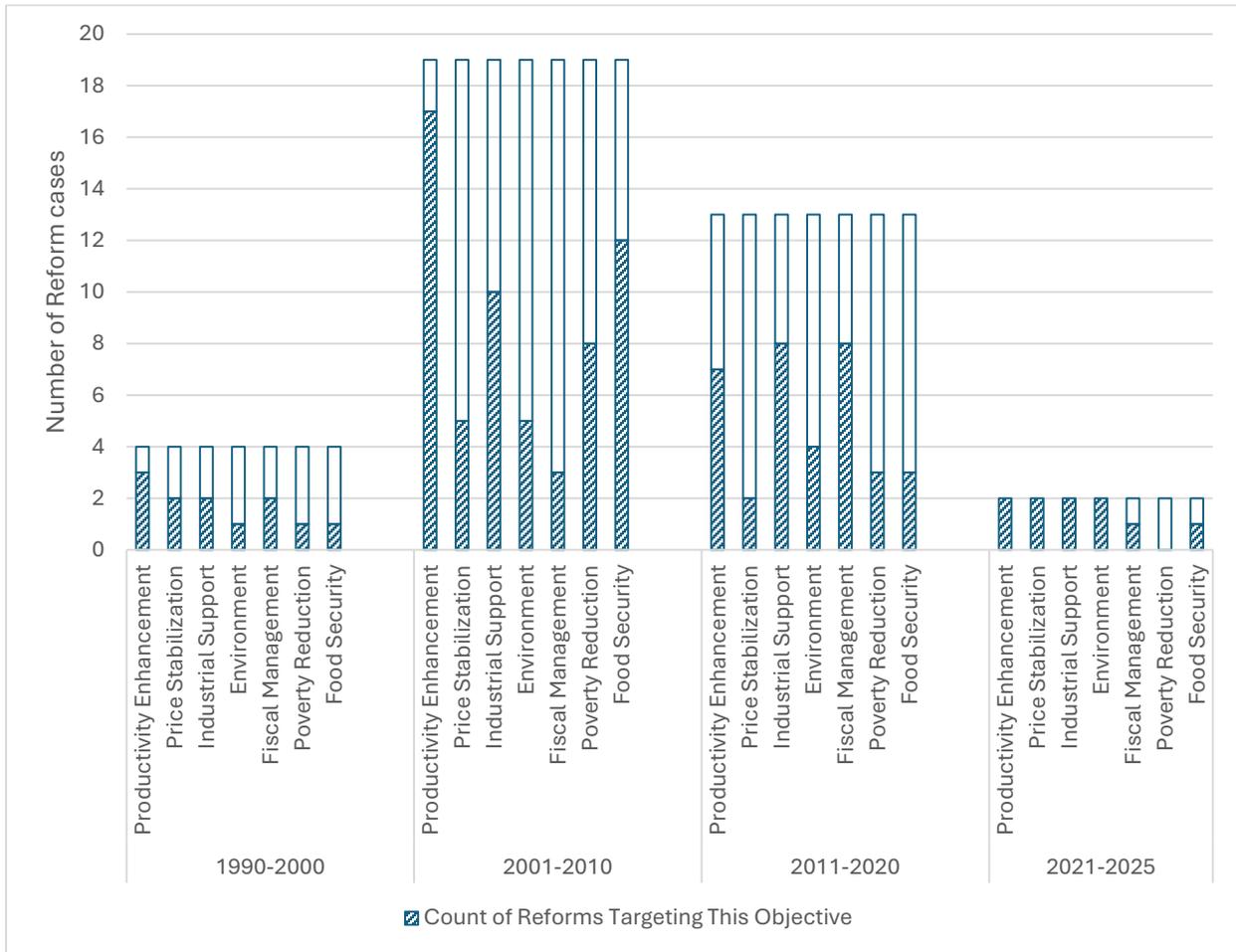
documents often included both the original policy documents, including those from ministries of agriculture, and impact assessments of the subsidy programs by researchers.

Among our cases, productivity enhancement was the most frequently cited objective by governments (76 percent of cases), typically pursued through expanding beneficiary coverage or increasing fertilizer application rates. Industrial support through promotion of private sector involvement in fertilizer production, import or distribution was a goal in 53 percent of cases. Other common objectives included fiscal sustainability (37 percent) and fertilizer price stabilization (29 percent). Social goals such as food security (47 percent), and poverty reduction (32 percent) also featured prominently. Environmental concerns were explicitly cited in only 26 percent of reforms, primarily with reference to improving soil health. The evolution of policy objectives over time often reflects responses to major global shocks or shifts in national priorities (see Figure 4).

The period 2001–2010 marked a significant rise in the prominence of food security as an explicit policy objective in fertilizer subsidy reforms, driven by a combination of structural and shock-induced factors. Widespread low agricultural productivity, combined with external shocks—most notably droughts in the early 2000s and the 2007–2008 global food and fuel price crisis—heightened national concerns around food availability and affordability, prompting governments to reintroduce or scale up subsidy programs as rapid-response tools. In Ghana, the 2008 subsidy program responded directly to flood-induced crop failures and international price volatility (Resnick and Mather 2016), while in Malawi, the severe 2001/02 hunger crisis catalyzed a national consensus around the need for subsidy-based maize production to preserve political legitimacy (Chinsinga 2014).

Similarly, the objective of reducing the fiscal burden of fertilizer subsidies gained prominence during the 2011–2020 period. This shift was driven by rising subsidy expenditures, increasing public debt, and reductions in international aid, prompting countries to pursue more fiscally sustainable policy designs (Jayne et al. 2016; 2018).

Figure 4: Evolution of Policy Objectives over Time



Source: Objectives are coded from supplemental policy documents for all cases of successful policy reform efforts.

The review of evaluations and assessments of the selected reform cases provides valuable insights into how these reforms performed relative to their stated policy objectives. As noted earlier, policy assessment literature was used to determine success or failure against objectives explicitly identified by governments. Among reforms aimed at increasing agricultural productivity, 52 percent reported gains in crop yields, while 53 percent of those targeting support to the fertilizer industry achieved this goal. For example, in Burundi, reforms introduced in 2014 to promote private sector participation proved effective by engaging seven private importers, improving delivery timeliness, and reducing corruption through a donor-supervised basket fund; advance deposits from farmers also enabled importers to forecast demand in a newly privatized system (Chemouni 2014). By contrast, only 36 percent of reforms that pursued price stabilization were successful. An example where it failed is Nigeria’s Federal Market Stabilization Program launched in 1999.

The nominal price of a 50 kg bag of fertilizer rose from N1,500 in 1999 to N1,800 in 2000, with considerable price variation within states, largely due to policy inconsistency and implementation failure (Akin-Olagunju and Omonona 2013; Salman 2015). A summary of these findings is presented in Table 2 below. Notably, 72 percent of the successfully adopted reform cases were also successful at meeting at least one of their implementation objectives.

Table 2: Implementation outcomes

| Policy objectives* | Success | Failure | Insufficient Evidence | Total** |
|---------------------------|----------------|----------------|------------------------------|----------------|
| Productivity Enhancement | 14 | 10 | 3 | 27 |
| Price Stabilization | 4 | 2 | 5 | 11 |
| Industrial Support | 9 | 3 | 5 | 17 |
| Environment | 2 | 2 | 3 | 7 |
| Fiscal management | 5 | 1 | 5 | 11 |
| Poverty Reduction | 3 | 4 | 5 | 12 |
| Food Security | 5 | 2 | 9 | 16 |

*Only for reforms that were categorized as successful

** Total is the number of cases when the policy objective was an explicit goal of the policy

While Table 2 focuses on seven core policy objectives, the literature was also reviewed for additional goals such as improving diets and nutrition, promoting exports, encouraging crop diversification, and enhancing equity among beneficiaries. These objectives, however, did not feature prominently in the design or implementation of fertilizer subsidy programs.

V. Political Economy Factors Influencing Policy Adoption

A central question guiding this study is what political economy factors enable or constrain the adoption of fertilizer subsidy reforms and how do these factors interact with the trajectory of the reform process? Although multiple forces often operate simultaneously and their relative weight is difficult to disentangle, the analysis draws on the framework discussed earlier to organize political economy factors into four broad categories.

Figure 5 presents a heatmap showing how the importance of political economy factors varies by the trajectory and adoption status of reform cases and compares with the policy process variables. The political economy variables include four components. The first are economic factors, including donor resource availability and elite economic gains. The second reflects electoral factors, such as a party or politician's campaign promises, efforts at exerting party leverage, and seeking to either gain votes and/or maintain ones

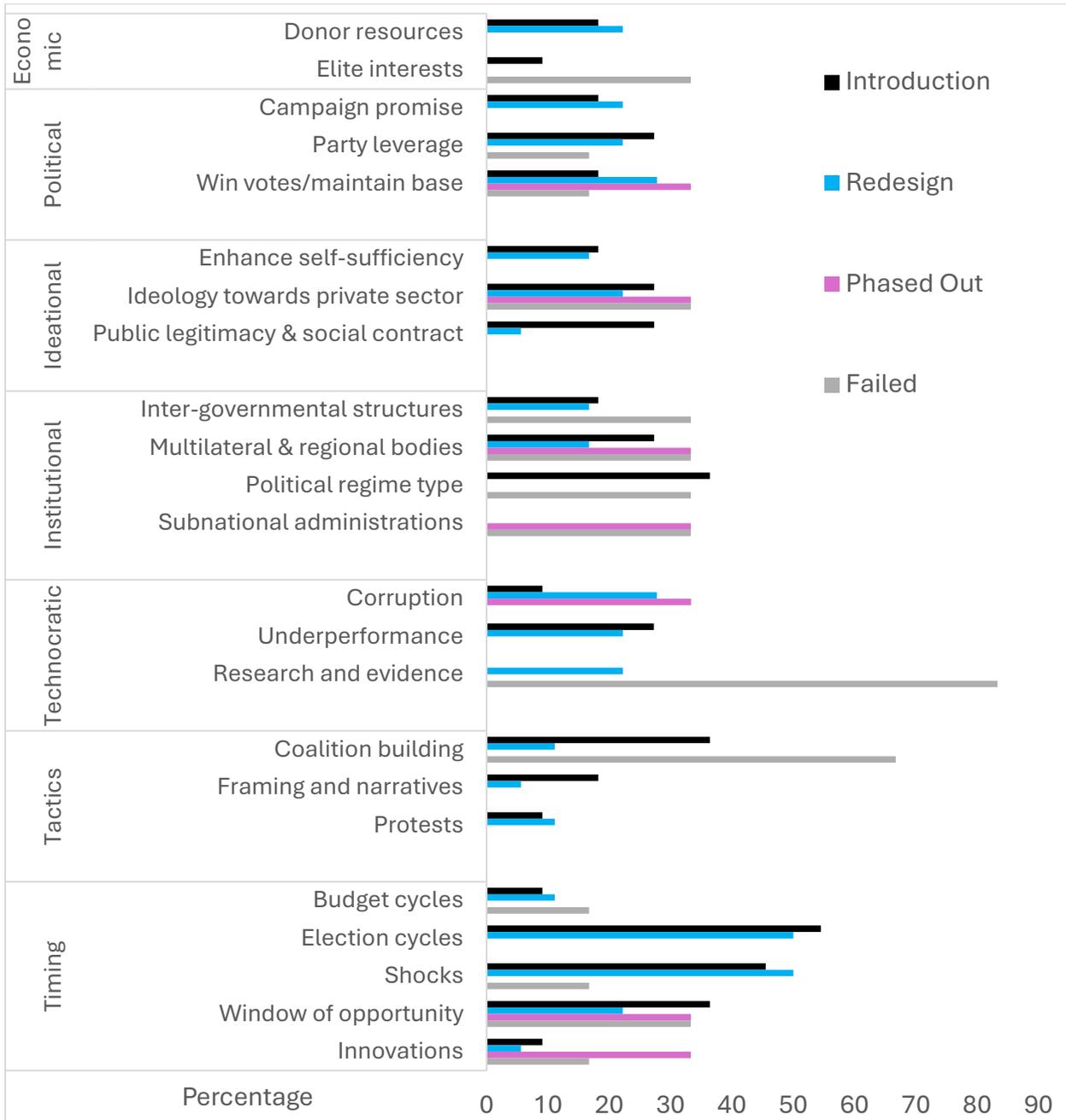
electoral base. The third captures ideational factors, including prevailing views on private sector engagement, efforts to enhance self-sufficiency, and upholding the social contract. Finally, the fourth highlights institutional factors, such as inter-governmental structures, engagement with multilateral and regional bodies, political regime type, and the role of subnational administrations. These are shown next to policy process variables, including those relevant to technocratic concerns, such as corruption in subsidy programs and underperformance, and technocratic approaches, such as mobilizing or commissioning evidence and research. Tactics encompass efforts at coalition building, strategic use of framing and narratives, and protest activities. Timing refers to whether a specific temporal event, whether the electoral cycle, budget cycle, shock occurs or whether there is a window of opportunity to seize upon or new innovation that can be scaled for subsidy reforms.

The lighter colors in Figure 5 indicate that the respective category of variables was less prominent while the darker shaded cells highlight variables that appeared more often in the Nvivo analysis. Figure 6 disaggregates the main categories into their constituent parts to show the percent of times that a variable appeared in the political economy studies according to the trajectory of reform.

Figure 5: Share of Relevant Variables for Stage of Subsidy Reform

| Variables | Successful reforms | | | | Failed reforms (N=6) |
|---------------|----------------------------------|-----------------|-------------------|--------------|----------------------|
| | Introduction of Subsidies (N=11) | Redesign (N=18) | Phasing Out (N=3) | Total (N=32) | |
| Economic | 18.2 | 22.2 | 0 | 18.8 | 33.3 |
| Electoral | 45.5 | 50 | 33.3 | 46.9 | 33.3 |
| Ideational | 63.6 | 33.3 | 33.3 | 43.8 | 33.3 |
| Institutional | 63.6 | 27.8 | 66.7 | 43.8 | 83.3 |
| Technocratic | 36.4 | 66.7 | 33.3 | 53.1 | 83.3 |
| Tactics | 36.4 | 22.2 | 0.0 | 25.0 | 50.0 |
| Timing | 90.9 | 83.3 | 33.3 | 81.3 | 66.7 |

Figure 6: Disaggregated Analysis of Variable Presence in Reform Trajectory
 (% of times present in case)



Economic Interests

Economic interests, encompassing both the availability of donor resources and the rent-seeking behavior of domestic elites, played a role in shaping the reform trajectories of fertilizer subsidy programs in 19 percent of the adopted reforms (Figure 5). Foremost among these were donor financing that frequently came with conditionalities regarding design, seeking to make the programs more efficient and sustainable in the long run. In several cases, donors provided not only fiscal space but also a rationale for program reform. For instance, the World Bank's Agricultural Development Policy Operation (AgDPO) played a critical role in resourcing Ghana's 2008 Ghana Fertilizer Subsidy Program (GFSP), ensuring its viability in the immediate aftermath of high international fertilizer prices (Resnick and Mather 2016). In Burundi, the 2013 fertilizer subsidy reform was largely donor-driven, with actors such as the IFDC and the Netherlands embassy spearheading discussions from 2011 and rallying support among donors following the Food Security Forum in Bujumbura. The absence of donor resources was also an important driver of some reform cases. For instance, in Rwanda, the sudden reduction of international aid in 2012 because of the involvement of Rwanda in the Democratic Republic of Congo further accelerated privatization reforms (Chemouni 2014).

Electoral Interests

Electoral interests influenced roughly 47 percent of the successfully adopted fertilizer subsidy reform cases, operating through three main channels: campaign promises, party leverage, and efforts to win votes or maintain core electoral bases. First, fertilizer subsidies frequently appeared as campaign promises, allowing politicians to signal responsiveness to agrarian constituencies. In Malawi, for instance, the 2004 reintroduction of the fertilizer subsidy was a prominent feature of President Mutharika's campaign, reflecting a strategic effort to address chronic hunger and garner electoral support (Chinsinga 2012). Similarly, in Sri Lanka, the 1994 reinstatement of fertilizer subsidies formed a key pledge of the SLFP-dominated People's Alliance, which campaigned on the slogan "open economy with a human face." By emphasizing the social and economic hardships caused by prior subsidy withdrawals, the coalition framed the policy as a corrective measure aligned with rural interests (Atapattu 2022). In Kenya, the 2022 election campaign explicitly promised an input subsidy program for farmers, and following its electoral victory, the new government fulfilled this promise by substantially scaling up the National Fertilizer Subsidy Program (NFSP), prioritizing its visibility and reach over the existing National Value Chain Support Program (NVSP) (Ricker-Gilbert et al. 2024).

Second, subsidy decisions provided significant party leverage, both for consolidating internal political standing and managing inter-party competition. In Zambia,

for example, President Rupiah Banda’s adoption of the 2009 Farmer Input Support Program (FISP) was closely tied to political objectives. Banda had narrowly won the emergency election following President Mwanawasa’s death in 2008, and in his first full agricultural year, he rebranded the existing Fertilizer Support Program to FISP to signal responsiveness to rural constituencies and strengthen his standing within the Movement for Multi-Party Democracy (MMD)(Resnick and Mason 2016). Similarly, in Sri Lanka, attempts to replace fertilizer subsidies with a cash grant scheme in 2018 sparked politically motivated opposition and widespread protests. Farmers framed the cash grant as diminishing their choice, and opposition groups mobilized against the reform, illustrating how subsidy policies are entangled with political contestation and elite strategies to manage support among key rural constituencies (Atapattu 2022).⁴

Third, fertilizer subsidies were widely used to win votes or maintain the support of key constituencies, often through selective distribution or targeted program design. In Ghana, the 2008 fertilizer subsidy program was strongly supported by the Peasant Farmers Association of Ghana (PFLAG), a group representing nearly 38,000 rural smallholders—an electorally critical constituency that constituted the majority of voters. By aligning subsidy provision with the demands of this influential group, political elites effectively translated policy into a mechanism for electoral advantage (Resnick and Mather 2016). In Malawi, the 2005 Agricultural Input Subsidy Program’s vague targeting criteria and selective inclusion of crops reflected deliberate design choices that allowed political elites to privilege loyal constituencies while excluding others. As Chinsinga (2012) observes, this ambiguity provided “room for flexibility” in implementation, transforming the subsidy into a primarily political tool.

Ideational factors

Ideational factors emerged as particularly influential, shaping the adoption of fertilizer subsidy reforms in 44 percent of the successful cases examined overall and 64 percent for those cases where subsidies were being introduced. Self-sufficiency goals played an important role in motivating governments to adopt or sustain subsidy programs, especially in contexts of food insecurity or rising import dependence. In Sri Lanka, for example, the 2005 Kethata Aruna fertilizer subsidy program was explicitly framed around

⁴ The Fertilizer Cash Grant (FCG) of 2018 was a conditional subsidy tied to specific crops and plots, with eligibility determined through local registration and verification procedures. It could only be claimed once per season for a designated piece of land and was closely monitored by agricultural officers. Recipients were required to use the grant for fertilizer on the indicated cultivation, underscoring its limited flexibility compared to general cash transfers.

ensuring rice self-sufficiency. ‘Mahinda Chinthana’⁵ emphasized increasing rice productivity to reduce food import costs, lower production expenses for farmers, and channel these benefits to consumers through affordable rice prices (Herath et al. 2015). Similarly, Senegal’s 2008 GOANA initiative was launched with the explicit ambition of achieving national food self-sufficiency by 2015, including a dramatic planned increase in domestic rice production from 200,000 to 500,000 tons (Evans 2009). These cases illustrate how subsidies were often justified not only as economic tools but as essential instruments for achieving national developmental and food security objectives.

Governments’ ideology toward private sector participation constituted another important ideational factor. In 8 out of 32 (25 percent) successfully adopted cases, beliefs about the appropriate balance between state intervention and market mechanisms shaped both the design and rollout of reforms. Ideological orientations toward the private sector played out differently in the cases. In several cases, such as Nigeria’s Agriculture Transformation Agenda (ATA), Rwanda’s gradual move toward privatization, or Kenya’s Agricultural Sector Transformation and Growth Strategy (ASTGS), reforms were often framed within broader agricultural transformation agendas where the state repositioned itself as an enabler of private-sector-led growth while still maintaining some oversight or control (Balana and Fazoranti 2022; Chemouni 2014; Kirimi et al. 2023).

By contrast, in Nepal, the 2009 fertilizer subsidy policy strongly reflected ideological resistance to privatization, with the Maoist- and Communist-led government reasserting control over fertilizer imports and distribution. This decision was driven by distrust with the private sector after liberalization of the fertilizer market in the 2000s escalated prices, hurting small farmers (Kyle et al. 2017). In India, reforms in 2010 were quite fraught between two dominant belief systems: “One view (the market-oriented paradigm) holds that state intervention is no longer needed to guarantee food security and that market forces, including international trade, will guarantee food security. The opposing view (the welfare-state-oriented paradigm) argues that market failures are inherent in agriculture and that state intervention remains essential to guarantee food security” (Birner et al. 2011: xix).

A third key dimension of this influence was governments’ pursuit of public legitimacy (12.5 percent cases), either by reaffirming the social contract with citizens more broadly or by protecting agrarian interests. For instance, in Rwanda, the 2007 Crop Intensification Program was relatively unpopular with farmers because it involved land use

⁵ ‘Mahinda Chinthana’ refers to the Ten Year Development Framework implemented by Sri Lankan President Mahinda Rajapaksa, which was launched in 2005. This framework aimed to guide the country’s development and economic growth over the next decade, focusing on various sectors such as agriculture, industry, and infrastructure.

consolidation and the promotion of monocropping, which were viewed as risky in the event of poor harvests. Many also resented restrictions on crop choice, feeling constrained by government mandates to grow certain crops rather than those they preferred. However, the government incorporated fertilizer subsidies and easy access to credit into the program, which enabled the state to quell dissatisfaction among the farmers (Chemouni 2014). Similarly, Zambia's 2002 Fertilizer Support Program drew on the historical expectation that rural smallholders had come to expect input market support as part of the social contract between the state and citizens, allowing the Mwanawasa administration to restore confidence and secure political support after years of inconsistent structural adjustment policies (Resnick and Mason 2016). A parallel dynamic unfolded in Indonesia, where President Megawati Soekarnoputri reinstated the fertilizer subsidy in 2002 as part of a broader agricultural development strategy that prioritized farmers and emphasized support for smallholders. The decision signaled the government's commitment to rural communities and reinforced its legitimacy by responding to farmer needs after a period of policy uncertainty (Arifin 2014).

Institutional

Institutional settings, which include the distribution of power and authority across levels of government, between ministries, and between national and multilateral agencies, were an important factor in half of the successfully adopted fertilizer subsidy reform cases. In a few cases (5 out of 32), inter-governmental structures, defined as the relationships and power dynamics among different executive ministries, shaped the trajectory of fertilizer subsidy reforms. These dynamics manifested both in conflict and in collusion. The adoption of the 2003 New Pricing Scheme (NPS) in India illustrates such conflict. The Ministry of Finance, supported by the Planning Commission, consistently pushed for restructuring subsidies to contain the fiscal deficit and redirect public spending toward agricultural investment. However, the Ministry of Chemicals and Fertilizers and the Ministry of Agriculture resisted these efforts, given their alignment with fertilizer producers and large farmers who benefited from the existing Retention Pricing Scheme. This bureaucratic divide forced compromises: while the NPS was adopted, it introduced only limited efficiency measures and avoided deeper structural reforms. By breaking the process into multiple stages and postponing the most consequential changes, the MoCF safeguarded sectoral interests, ensuring that entrenched beneficiaries remained protected (Birner et al. 2011). Nigeria's Federal Market Stabilization Program (1999) highlighted yet another dynamic relating to bureaucratic autonomy. As the return to civilian rule intensified political interference, bureaucrats were routinely instructed by political leaders to divert fertilizer to powerful elites and traditional rulers, constraining their capacity to target smallholders as originally intended (Salman 2015).

Within the broader institutional setting, multilateral and regional bodies have often acted as both gatekeepers and catalysts, influencing when, how, and to what extent governments pursued fertilizer policy change. In Malawi, for example, donor-driven pressure for fiscal austerity from the IMF led to the introduction of the Targeted Inputs Program in 2000-01, narrowing access to subsidies but ultimately contributing to the food crisis that followed (Gockel and Gugerty 2009). A similar dynamic played out in Indonesia during the Asian financial crisis of the late 1990s, when IMF oversight resulted in the removal of fertilizer subsidies in exchange for a social safety net package, only for the government to reinstate subsidies in 2003 when agricultural performance began to falter (Arifin 2014). In other cases, multilateral actors shaped reforms by offering financial and technical backing. The World Bank's support to Tanzania's NAIVS program (2007–2016) illustrates this role: by insisting on evidence-informed, private-sector-friendly design features, the Bank pushed reforms toward household-level targeting and stronger involvement of agro-dealers, embedding an exit strategy to mitigate the risk of political capture (Mather and Ndyetabula 2016).

Trade-related institutions also left a strong imprint. In India, the WTO's ruling on the removal of quantitative restrictions on urea imports provided the impetus for fertilizer policy reforms (2003 New Pricing Scheme for Urea), even if the government ultimately channeled urea imports through state agencies to maintain control (Birner et al. 2011). Similarly, China's accession to the WTO in 2001 reshaped the agricultural policy environment, requiring tariff-rate quotas and other liberalization measures, which set the stage for later reforms, including the Agricultural Subsidy Reform (ASR) that removed fertilizer manufacturing subsidies (Lopez et al. 2017).

References to a country's political regime type in the sample studies appeared only in cases where subsidies were being introduced (36 percent of the cases). In contexts where authority was highly concentrated in the executive, reforms were often pushed through rapidly, often through the President who became the main "veto player." In Zambia's Fertilizer Support Program of 2002, presidential veto power enabled swift adoption (Resnick and Mason 2016). Ghana's Fertilizer Subsidy Program (2008) was similarly driven by President Kufuor, with parliament lacking authority to block the reform, resulting in adoption within three months (Resnick and Mather 2016). In Senegal's GOANA program, President Wade's concentrated power facilitated large-scale initiatives without ministerial consultation, reinforcing executive dominance but yielding short-term, populist projects (Resnick 2014).

VI. The Impact of Policy Process Variables on Subsidy Reforms

While the previous section reviewed the political economy factors that were associated with reform episodes, other dimensions of the policy process interact with actor's interests and ideologies. In particular, we consider in this section the influence of different technocratic interests that shape policy decisions, tactics utilized to advance reform, and the temporal dynamics that influence when reforms seem possible or not.

Technocratic Interests

Technocratic considerations played a pivotal role in shaping fertilizer subsidy reforms in nearly half of the successfully adopted cases, with 17 out of 32 reforms explicitly motivated by governments' desire to improve program administration. The difference between factors driving redesign efforts compared to those driving introduction of new subsidy programs is most evident here. Technocratic factors are far more important for redesign attempts, shaping 67 percent of redesign cases compared to only 36 percent of introduction cases. Redesigns were often triggered by the failures of previous models, with governments compelled to fix inefficiencies, reduce leakages, or respond to fiscal pressures.

More specifically, underperformance of existing programs was a major technocratic driver behind redesign efforts. Governments frequently sought reforms when subsidy programs failed to achieve expected productivity gains, exhibited poor targeting, or imposed excessive fiscal burdens. In Kenya, for instance, the National Fertilizer Subsidy Program (NFSP) was briefly discontinued after being criticized for skewed geographic targeting, crowding out private markets, and incurring high public expenditure; it was replaced in 2019 with the National Value Chain Support Program, which introduced an e-voucher system to improve delivery (Njagi et al. 2024). In India, the 2003 New Pricing Scheme in the urea sector was introduced to address systemic inefficiencies in the previous Retention Price Scheme, which had discouraged firms from innovating, improving energy efficiency, or exiting unproductive units. The government sought to rationalize pricing and make the sector more responsive to economic signals, highlighting a clear technocratic motivation for reform (Mankunnummal 2022). Similar underperformance concerns drove reforms in Rwanda. The 2013 subsidy reform transitioned to a fully privatized model, partly to address the fiscal burden of large fertilizer debts and weak repayment enforcement in the prior system. The reform also aimed to strengthen agro-dealers and distributors by setting profit margins and organizing cooperatives, thereby enhancing the efficiency and sustainability of the distribution network (Chemouni 2014).

Second, anti-corruption efforts served as an important technocratic impetus for reform, as governments sought to strengthen transparency, curb rent-seeking, and reduce opportunities for elite capture. In Mexico, President Andrés Manuel López Obrador capitalized on the political opportunity presented by widespread clientelism and elite capture under the previous PRI administration, which had operated the fertilizer program as a personal and politically instrumentalized enterprise (DeTura and Jiménez 2021; Fox and García Jiménez 2025). During his 2018 campaign, Obrador pledged to dismantle this corrupt system and implement federal control over fertilizer distribution, providing smallholder farmers with free access and ensuring inclusion of organic fertilizers. In Malawi, the 2015 FISP reforms responded to widespread corruption, rent-seeking, and elite capture under the previous program, which had compromised both targeting and timely delivery of subsidized inputs. By redesigning administrative processes and addressing these operational bottlenecks, the government sought to improve program effectiveness and ensure that subsidies reached intended beneficiaries (Walls et al. 2023).

Third, the availability of research and evidence was, not surprisingly, more important in redesign cases than in other stages of successful reform uptake. Unlike introductions, which were largely politically or ideologically driven, redesigns often drew on studies, pilots, or consultations that exposed inefficiencies or tested alternatives. In Zambia, findings from stakeholder workshops in 2008 informed the decision to replace the costly Fertilizer Support Program with a more general subsidy for nationwide farmer benefit, which ultimately became the Farmer Input Support Program (FISP) (Resnick and Mason 2016). In Tanzania, the World Bank pressed for NAIVS to integrate lessons from prior subsidy research, clarifying targeting and voucher mechanisms to ensure greater private sector engagement (Mather and Ndyetabula 2016). The redesign discussions in India similarly relied on expert reports and consensus-building through the Group of Ministers (Birner et al. 2011).

Tactics

The adoption of fertilizer subsidy reforms is rarely straightforward, as it often requires strategic tactics to overcome resistance and secure political buy-in. Reform advocates and opponents employ a variety of approaches, including coalition building and lobbying, protests, strategic framing and narrative construction. One or more of these strategies were used in about a quarter of the cases. Coalition building was a central tactic in pushing for fertilizer subsidy reforms, as reform outcomes often hinged on the ability of different actors to align their interests and amplify pressure. In Malawi, opposition to the way FISP had been implemented in previous years generated significant pressure for reform in 2015. Media narratives portraying the program as a waste of scarce public

resources, combined with criticism from technocrats, donors, the private sector, and urban populations, created a coalition of actors pushing for change (Nkhoma et al. 2019). Similarly, in Nepal in 2009, the push for subsidy reform emerged from a coalition of farmers, civil society groups, and politicians mobilized to demand changes that would ensure reliable fertilizer supply and protect domestic producers from the influx of cheaper, subsidized imports from India (Shrestha 2010).

In some cases, coalitions relied on direct lobbying to push for the adoption of subsidy reforms. In Ghana, large fertilizer importers such as Yara Ghana Ltd. spearheaded efforts by meeting with government officials in 2007–08 to advocate for a subsidy in response to declining demand caused by price increases. Their push was reinforced by the PFAG, which consistently lobbied for subsidies on behalf of its tens of thousands of smallholder members, making their demands electorally salient (Resnick and Mather 2016). Similarly, in India, the Fertilizer Association of India lobbied against reform proposals⁶ and, alongside opposition from state leaders, forced the government to abandon earlier recommendations. This lobbying ultimately led to the formation of a Group of Ministers, whose consensus-based deliberations paved the way for the New Pricing Scheme in 2003 (Birner et al. 2011).

The analysis uncovered that two tactics—protests and strategic framing—were less impactful in driving subsidy reforms. These two variables only appeared in Sri Lanka in 1994 where the reintroduction of subsidies followed organized protests by farmer groups in response to cost-cutting measures that had reduced the scope of the program to only subsidized urea. These protests, supported by coalition partners favoring the subsidy, pressured the government to restore the full program. Similarly, in 2018, farmers mobilized against the replacement of the traditional subsidy scheme with a cash grant program, viewing it as a restriction on their choice; the protests, amplified by politically motivated opposition groups and exacerbated by implementation challenges, contributed to the reversal of the reform. A key factor in this case was that the cash grant scheme was framed by farmers and opposition political groups as diminishing farmers’ choice. This framing generated widespread opposition, ultimately leading to the replacement of the cash grant program with the previous fertilizer subsidy model (Atapattu 2022).

Timing

As noted earlier, timing refers to the influence of temporal factors, including budget cycles, election cycles, unexpected shocks, and brief windows of opportunity, on the

⁶ The “reform proposals” refer to recommendations made by the Expenditure Reforms Commission (ERC) in 2000, a government body established under Finance Minister Yashwant Sinha to rationalize agricultural input subsidies, particularly fertilizer subsidies.

planning, announcement, and implementation of fertilizer subsidy programs and reforms. It was a critical variable in 81 percent of the successfully adopted cases, shaping when policies were introduced, adjusted, or scaled to maximize political, economic, and social impact.

Election cycles shaped 15 of the 32 successful fertilizer subsidy reforms, with governments frequently deploying subsidies to consolidate political support. There were multiple pathways through which these electoral cycles mattered. The most common mechanism was the use of subsidies as a pre-election populist measure, with many governments expanding budgets or broadening coverage to appeal to rural voters. For instance, in Burundi, the 2013 voucher-based reform was strategically timed to boost the CNDD-FDD party's visibility in rural areas ahead of the 2015 elections, leveraging donor support to deliver fertilizer nationwide at subsidized prices (Chemouni 2014). The pattern was even more pronounced in Indonesia: budgets consistently swelled before elections and were trimmed only mid-term, underscoring their value as a political tool to win rural support (Alta et al. 2021). Election outcomes also created openings for reform or redesign thus making post-election period also significant. In Zambia, major subsidy initiatives often followed elections: Chiluba launched the Fertilizer Credit Program after his 1996 re-election, Mwanawasa introduced the FSP in 2001 and expanded it during his second term, and Banda transformed the FSP into the FISP after taking office (Mason et al. 2013). These cases suggest that newly elected governments may feel emboldened to reform unpopular or fiscally burdensome subsidies once immediate electoral pressures subside. The post-election popularity of a government often intersects with its intent to reform, meaning subsidies can also become a tool to regain or reinforce electoral trust. After losing local body elections in 2018, the Sri Lankan government reversed its cash transfer scheme and returned to a price subsidy system with even lower prices than before (Kishore et al. 2021).

Shocks shaped outcomes in 44 percent of successful cases. These shocks took many forms: natural disasters such as droughts and floods, sharp spikes in international food and fertilizer prices, internal political unrest and conflict, and fiscal crises caused by donor withdrawal or declining revenues. In Zambia, a severe drought between 2000 and 2002 reduced crop yields by 40 percent, which pushed the government to launch the Fertilizer Support Program in 2002 (Resnick and Mason 2016). In Nepal, soaring fertilizer prices on the global market prompted the adoption of a new subsidy policy in 2009 (Shrestha_2010). Global crises were equally important: Senegal's 2008 Grande Offensive Agricole pour la Nourriture et l'Abondance (GOANA) was launched in direct response to the global food price crisis of 2007–2008, which drove subsidy spending to unprecedented levels (Ricome et al. 2018), while Kenya reintroduced a general subsidy in 2008 after fertilizer prices tripled in the wake of an oil price shock, with domestic disruption further

aggravated by post-election violence (Kirimi et al. 2023; Njagi et al. 2024). More recently, Kenya's 2022 National Fertilizer Subsidy Program was re-introduced after a brief scaling-down to counter soaring input costs triggered by the Russia-Ukraine war (Ayalew et al. 2024).

While shocks are often negative, windows of opportunity are positive, representing time-delimited moments of political, institutional, or international change that can expand the policy space for action that would otherwise have been blocked. In Nigeria, a combination of a broader paradigm shift toward market liberalization and democratic governance, together with the high-profile Africa-wide Fertilizer Summit held in Abuja in 2006, created strong momentum for the country's first National Fertilizer Policy (Aberman et al. 2010). Kenya also drew directly on the Abuja Declaration: following the 2006 summit, the Ministry of Agriculture designed the ambitious National Accelerated Agricultural Inputs Access Program (NAAIAP), which aimed to reach 2.5 million smallholder farmers through a large-scale subsidy initiative (Sheahan et al. 2014). In India, reform was driven less by regional pressure and more by leadership change: the appointment of a reform-minded agriculture minister and a supportive bureaucratic team in the Ministry of Chemicals and Fertilizers, combined with WTO-driven liberalization pressures, opened a policy window that allowed for the New Pricing Scheme for urea in 2003 (Birner et al. 2011). Across these cases, windows of opportunity were short-lived but powerful—emerging from regional commitments, global trade rules, or the leadership of reformist ministers—and outcomes ultimately hinged on how quickly and strategically reformers acted before the window closed. By contrast, budget cycles seemed to be less important as a driver of fertilizer subsidy reforms. This suggests that the timing of policy changes has been shaped more by political and electoral dynamics, such as election cycles, than by routine fiscal planning.

Technological and administrative innovations did not independently drive most reforms but instead shaped *when* certain redesigns became feasible. In several cases, reforms were adopted only once the necessary technological infrastructure or delivery mechanisms were in place. In India, the readiness of JAM infrastructure and PoS devices allowed fertilizer subsidies to shift to Direct Benefit Transfer, while the Integrated Fertilizer Monitoring System improved tracking of supply chains (Mankunnummal 2022; Praveen et al. 2017). In Zambia, the emergence of mobile-based e-vouchers through Zoono in 2009 created the technological opening for subsidy redesign (Resnick and Mason 2016). Similarly, in Mexico, cash transfers emerged as a new mechanism to replace regressive subsidies in 2018 and found buy-in from the government (Secretaría De Agricultura Y Desarrollo Rural and AGRICULTURA 2024).

VII. Political economy barriers in failed cases

Failed reform cases refer to those where a subsidy policy was in place and efforts to redesign or phase it out were not successful. The larger sample size of successful reform cases compared to failed ones allowed for a more nuanced understanding of the political economy factors that facilitate adoption. Yet, even the limited set of failed reforms revealed three important dynamics. First, elites with vested economic or political interests often obstruct reforms when they stand to lose rents from existing subsidy structures. For instance, fertilizer subsidies in Indonesia are paid to Pupuk Indonesia under its public service obligation to lower production costs, rather than to farmers. The company dominates the market, holding a 99.59 percent share of urea production in 2020. The subsidy creates an unfair advantage over private producers, and the high investment needed to build fertilizer plants limits entry for competitors. Any reform reducing subsidies or increasing competition would threaten Pupuk Indonesia's position, giving it a strong incentive to maintain the status quo (Alta et al. 2021). In Zambia, early e-voucher reforms to the Farmer Input Support Program stalled because the main opponents were the handful of major fertilizer importers who stood to lose their favored position in the traditional FISP program (Resnick and Mason 2016).

Second, while election cycles often create openings that facilitate the adoption of reforms, budget cycles can sometimes act as a countervailing force, contributing to their stalling. This can be seen in the case of India's attempts at increasing the farmgate prices of urea as a way of limiting the size of the fertilizer subsidy bill. Birner (2011) noted how the price rises succeeded on occasions when such attempts were delinked from the budget process and the attempts in 1998 and 2003, in fact, had to be rolled back. The budget is a high-stakes political process, where failure to pass it could topple the government, and opposition actors gain heightened visibility. During periods of widespread agrarian distress and farmers' suicides, opponents framed support for higher fertilizer prices as anti-farmer. In 2003, for example, senior members of the BJP and key coalition partners, including the NDA's SAD from Punjab, openly opposed the increase, forcing the government to abandon the measure.

Third, the presence of research and evaluative evidence does not guarantee reform adoption. In five of the six cases of failed fertilizer subsidy reforms, robust evidence was available that highlighted inefficiencies, implementation gaps, or potential fiscal gains from reforming extant subsidies; yet, those reforms did not proceed. For instance, in Malawi (2008), technical recommendations to substantially increase farmer contributions under FISP were ignored, as politicians judged that the political benefits of keeping contributions low outweighed the fiscal costs (Nkhoma et al. 2019). Similarly, evaluations

of Zambia's FISP identified clear shortcomings in the program's design and implementation, providing a strong rationale for adopting e-vouchers (Resnick and Mason 2016).⁷ In Indonesia, multiple studies documented logistical inefficiencies and poor productivity under the subsidy system, yet political resistance and the populist appeal of maintaining subsidies prevented meaningful reform (Alta et al. 2021). In other contexts, technical recommendations were developed, policy documents drafted and adopted—such as Nigeria's 2006 National Fertilizer Policy—but their implementation depended on political will and the presence of policy champions (Aberman et al. 2010).

VIII. Discussion and Conclusion

By extracting content from political economy studies about fertilizer subsidy policies, and coding it according to our theoretical framework, this paper serves as a theory testing effort to determine which political economy and policy process factors matter more than others. Some variables originally assumed to be important are overshadowed by others. For instance, among tactics, protests by farmers and framing and narratives rarely are a motivator for, or a barrier to, subsidy reforms. Similarly, the availability of technological innovations, such as electronic vouchers and point of sale devices, were less prominent in precipitating reform efforts than shocks, electoral cycles, and policy windows of opportunity.

Electoral, ideational, institutional, and technical factors were all present in more than 40 percent of successful cases. However, the weight of their influence varied according to the reform trajectory. Ideational and institutional factors are more prominent when introducing a subsidy; institutional factors also are key for phasing them out, especially through the influence of multilateral and regional organizations. By contrast, technocratic factors really come to the fore during subsidy redesign efforts. Finally, electoral factors are key at both the introduction and redesign; given that removing subsidies is viewed as less popular, electoral incentives are mentioned less often in the phasing out stage.

There are two important limitations to the analysis. First, because our primary consideration was to review the range of political economy explanations provided for the uptake or non-uptake of policy reforms, the cases reviewed here required at least one political economy study to exist. Since input subsidies are likely the most studied agricultural policy among political economists and political scientists, this approach

⁷ This refers to the period of 2013-2020 when the e voucher reforms were stalled even after a successful pilot during the 2015-2016 agricultural season.

resulted in 38 cases, which is considered a respectable number for a medium-N qualitative analysis (Goertz and Mahoney 2012; Seawright and Gerring 2008). However, the cases do not represent the full universe of fertilizer subsidy reforms globally but only the cumulative knowledge about political economy dynamics thus far that have been published. In addition, the analysis relies on what authors uncovered as important dynamics, meaning that other important factors driving reforms could have been overlooked.⁸ Second, elites' economic interests played a relatively small role, except in failed cases where they were more prominent in building coalitions that blocked reforms. However, the analysis likely underestimates the extent of elite capture in fertilizer subsidy programs because we did not explicitly focus on policy implementation; we only implicitly consider this when looking at how past performance and corruption within programs influenced reforms. Despite these two limitations, the included cases span a diverse range of countries and subsidy design types. This gives us confidence that the patterns are likely quite robust for LMICs.

What are the implications for repurposing subsidies? First, clearly attention to timing is key, especially being attuned to electoral cycles and shocks when efforts at redesign have been more successful. Second, while research and evidence can be important to redesign efforts, five out of the six failed reform cases occurred despite the existence of such resources. In those cases, research was either implicitly or explicitly vetoed by strong political actors who did not want to risk political losses (Malawi 2008, Indonesia 2003) or personal losses (Zambia 2013), where there was a lack of a political champion to galvanize around the research (Nigeria 2006), or where intervening shocks displaced reform momentum (Rwanda 2022). This suggests that researchers may not gain much impact by only highlighting the weaknesses of subsidy programs or just by providing recommendations about how to make them more efficient, targeted, and environmentally sustainable; instead, such recommendations must show politicians how they might benefit from such repurposing and be aligned with policymakers' other priorities.

Overall, this analysis reveals that unpacking the political economy of subsidy programs involves not only considering elite capture or electoral advantage but rather spans a much more nuanced set of factors that interact closely with policy process dynamics. This is important to keep in mind given that political economy is often viewed as a constraint on reform opportunities. To advance the environmental, nutrition, and financial goals of the repurposing agenda, we need a holistic understanding of the right entry point to generate interest and implementation on this issue. This will likely involve coupling a political feasibility study and policy engagement plan with credible research-

⁸ To address this limitation, a forthcoming complementary paper uses media stories to construct the full range of fertilizer subsidy episodes between 2010 and 2025.

informed pathways that account for the policy stage in which a decisionmaker is already embedded.

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Appendix 1: Coding Approach Details

| Code | Definition |
|--|--|
| ECONOMIC | |
| Donor resource availability | Influence of external funding or donor priorities on subsidy design, continuation, or reform. |
| Elite interests | Groups or firms that benefit economically from the subsidy program within the fertilizer supply chain (e.g., through market dominance, insider access to government contracts, or preferential allocation). |
| POLITICAL | |
| Campaign Promise | Fertilizer subsidies are leveraged as campaign tools, prominently featured in electoral platforms to signal responsiveness to agrarian voters and strengthen political support among rural constituencies. |
| Party leverage | Subsidy decisions provide leverage for policymakers within their political parties or vis-à-vis opposition parties |
| Win votes or maintain base | Fertilizer subsidies are selectively distributed to citizens in exchange for votes. Includes cases where a) targeting is used for vote-buying or b) program is used to gain or maintain support of key constituencies. |
| IDEATIONAL | |
| Self-sufficiency goals | Expressed sentiment by policymakers that subsidies are pivotal for food self-sufficiency |
| Ideology towards private sector engagement | Private sector is framed as either an essential partner or threat in subsidy delivery and reform. |
| Public legitimacy & social contract | Subsidy policy is expressed to build trust with the public or as an expected obligation of the state to its citizens |
| INSTITUTIONAL | |
| Inter-governmental structures | The relationships and power dynamics among different executive ministries impact the design, uptake, or implementation of the fertilizer subsidy program. Covers (1) inter-ministerial conflict hindering subsidy reforms, and (2) collusion or vested interests between departments and parastatals influencing reform. |
| Multilateral and regional bodies | Multilateral organizations that may impact policy decisions of national governments on fertilizers subsidies. This also includes the decision-making structures and policy goals of regional organizations (e.g. African Union, ECOWAS, ASEAN, etc.) that impacts subsidy policy. |
| Political institutions | Political institutional structures (e.g. presidential vs. parliamentary) that impact who has power over subsidy policy decisionmaking |
| Subnational administrations | The involvement of subnational governments (regions, counties, provinces, cities, districts, wards, etc.) that impacts subsidy policy decisions or administration. |

| TECHNOCRATIC | |
|------------------------|--|
| Underperformance | Subsidy not leading to expected agricultural productivity outcomes due to poor efficiency or targeting |
| Anti-corruption signal | Tackling corruption and improving transparency is an impetus for reforms |
| Research and evidence | Evidence and research from think tanks, universities, and research institutes is explicitly cited or commissioned to inform fertilizer subsidy reforms. |
| TACTICS | |
| Coalition building | Formation of alliances among actors, across sectors or interest groups, to support or oppose subsidy reforms and influence policy outcomes. |
| Framing and narratives | Use of language, symbols, or policy bundling to justify or legitimize subsidy policies, e.g., linking reforms to environmental goals, food security, or broader development agendas. |
| Protests | Collective actions such as strikes, demonstrations, or public unrest in response to subsidy changes or perceived threats to farmer or citizen interests. |
| TIMING | |
| Budget cycles | Influence of annual or multi-year government budgeting timelines on the planning, announcement, or implementation of subsidy programs and reforms. |
| Election cycles | Influence of electoral timing on subsidy policy, including (a) alignment of spending or reform delays with upcoming elections to gain voter support, and (b) initiation of new reforms by newly elected governments seeking to differentiate from predecessors. |
| Shocks | Unexpected negative events such as economic crises, environmental disasters, health outbreaks, or political unrest that disrupt subsidy systems or trigger abrupt policy changes. |
| Window of opportunity | Favorable moments that expand the space for subsidy reform. This includes events such as the appointment of a pro-reform minister, major economic policy overhauls, or international conferences that elevate reform issues. These windows are typically short-lived and require swift action by reform advocates. |
| Innovations | Introduction of new technologies and delivery tools to improve targeting, reduce leakage, or increase efficiency such as e-vouchers, direct cash transfer, point of sale machines, etc. |

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