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# Wind from the east: Soviet aid and radical land reform in developing countries

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**Abstract**

What explains radical land reforms in developing countries? While existing literature primarily attributes land reform to domestic factors, we introduce an international dimension by examining how Soviet intervention in the Third World influenced the dynamics of land reforms during the Cold War. We argue that Soviet economic aid encouraged radical land reform through two mechanisms: diffusing socialist norms and providing material resources. We illustrate these mechanisms with case narratives on land reforms in Ghana and Indonesia. Drawing on a novel dataset of Soviet aid and land reforms, we find that higher levels of Soviet aid correlate with an increased likelihood of radical land reform enactment, even after controlling for alternative explanations and measurement strategies. To further support our argument, we leverage Gorbachev's rise to power as a sudden shock, demonstrating a marked decline in radical land reforms among Soviet-dependent countries after the policy shift in 1985. These findings contribute to understanding foreign aid's impact on domestic policy, highlighting how Cold War dynamics shaped social transformations in the developing world, with implications for contemporary studies on international influence in domestic reform policies.

**Keywords:** Cold War; land reform; foreign aid; Soviet Union; norm diffusion

## 1. Introduction

What explains the initiation of radical land reforms in developing countries? In the post-World War II era, the profound inequality in land distribution became a pressing concern for

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leaders across the Third World. In Brazil, Egypt, and India, the top 1.5%, 1.9%, and 13.1% of landowners respectively controlled approximately half of all agricultural land (Russett 1964). European settlers, feudal landlords, and tribal chiefs dominated land ownership in Africa, while in Latin America, large plantation owners, estate holders, and foreign corporations held sway. This concentration of land ownership perpetuated poverty among landless and small-landholding farmers and undermined incentives for agricultural improvement. The entrenched land system stratified society into distinct classes, with landowners often employing ideologies such as racial superiority and paternalism to justify their dominance.

Consequently, land reform holds substantial implications for alleviating rural poverty and bolstering agricultural productivity in developing countries. Moreover, it represents a critical step toward political modernization by fostering a more homogenous social structure. However, land reform inevitably challenges the vested interests of the landed elites, prompting them to deploy various strategies to obstruct, undermine, or dilute reform efforts (Albertus 2015; Lipton 2009). Given these hurdles, it is puzzling why some developing countries managed to implement sweeping reforms that redistributed land to the poor and/or strengthened state control over land, while others have struggled to effect meaningful change in their landholding structure.

Existing explanations of land reform have primarily focused on domestic factors, especially those underpinning the motivation and capacity of the state. However, for most post-1945 developing countries, the global competition between the United States and the Soviet Union deeply influenced their domestic policies. Both superpowers attached great importance to their rivalry in the Third World, aiming to propagate their own development models to gain advantage during the Cold War. As Barrington Moore (1966, x) pointed out, "the fact that the small countries depend economically and politically on big and powerful ones means that the decisive causes of their politics lie outside their own boundaries."

It is therefore surprising that very few studies have examined the impact of the Soviet Union (the USSR) on land reform in Third World countries. During the Cold War, the USSR provided significant economic and military assistance to emerging countries in Asia, Africa, and Latin America, aiming in part to disseminate its development models to recipient nations. Informed by its own ideology and revolutionary history, the USSR posited that Third World countries needed comprehensive socio-economic reforms to break free from the legacies of colonialism and capitalism and to embark on independent socialist development paths, with thorough land reform being an essential component. This article seeks to address this gap in

the literature by investigating how Soviet economic aid influenced the course of land reform in recipient states.

We argue that the provision of Soviet economic aid increases the likelihood that recipient states will enact radical land reform, defined as significant changes in land ownership and agricultural practices aimed at addressing historical injustices, socio-economic inequalities, and enhancing productivity. Radical land reforms typically involve the redistribution of land from large landowners or colonial powers to landless peasants or smallholders. Our theory proposes two potential mechanisms linking Soviet aid to radical land reform: firstly, by diffusing norms that advocate for and justify radical land reform; secondly, by providing material resources that support the enactment and implementation of land reform.

To probe the plausibility of the theoretical mechanisms, we employ two case narratives that illustrate the interplay between foreign aid and domestic factors leading to radical land reforms in Ghana and Indonesia. We then conduct a systematic test of the theory drawing on two sources of data. To assess Soviet economic aid, we rely on annual reports detailing economic assistance provided to various developing countries, as documented in Soviet publications and compiled by Bach (2003). For comprehensive information on land reform initiatives, including enactment years, reform objectives, and implementation status worldwide throughout the 20th century, we utilize an extensive dataset assembled by Bhattacharya, Mitra, and Ulubaşoğlu (2019).

Our key finding is that, between 1955 and 1985, Third World countries are more likely to launch radical land reform when they have received more Soviet aid in preceding years. According to the baseline estimates, a one-standard deviation increase in aid intensity is associated with over 2.5 percentage point increase in the likelihood of enacting radical reforms. This increment is substantial considering that the average probability of such reforms across the sampled countries is about 3.3 percent in any given year. Various robustness checks are conducted to bolster confidence in the finding, including using Probit models instead of linear probability models and alternative ways to construct the Soviet aid variable. We demonstrate that Soviet aid not only makes land reform more likely to be initiated but also more likely to be implemented.

The primary threat to the inference made in this study is the nonrandom allocation of Soviet aid. Skeptics might argue that the USSR selectively distributed aid to nations aligned ideologically with itself, which were already predisposed to pursuing land reforms indepen-

dently of Soviet assistance. Were this assertion true, any observed correlation between Soviet economic assistance and the enactment of land reform would be spurious.

We employ multiple strategies to mitigate concerns regarding the endogeneity challenge. First, our empirical analyses control for plausible determinants of Soviet aid allocation. The two-way fixed effect models account for the time-invariant heterogeneities across countries and contemporaneous factors that could influence aid distribution. Together, these measures enable us to compare country-year observations that have a roughly equivalent likelihood of receiving Soviet aid. Second, we conduct causal heterogeneity analysis to show that Soviet aid stimulates land reform in centrist and right-wing regimes as well as in left-wing regimes, refuting the claim that Moscow only provided aid to like-minded states already predisposed to pursuing reforms. Finally, we exploit an event that abruptly altered the objectives of Soviet aid – the rise to power of Mikhail Gorbachev. The last leader of the USSR redefined Kremlin's interests and goals toward the Third World, emphasizing a reduction in aid and a cessation of support for radical reform initiatives in recipient states. If our argument holds true, we should observe a marked decrease in the likelihood of radical land reforms among countries historically dependent on Soviet aid. Indeed, our analysis uncovers compelling evidence supporting a substantial decline in the propensity for radical land reforms among recipients of Soviet aid after Gorbachev came to power.

To the best of our knowledge, this article is the first to systematically investigate the impact of Soviet economic assistance on a major social reform in the Third World. We make several contributions to theories of comparative development. First, we provide a novel explanation for disparities observed in the implementation of land reforms across developing countries. Existing studies have primarily focused on domestic contexts and processes as the key determinants of land reform (see Section 2 for a detailed review). Without denying the importance of domestic factors, we emphasize that the beliefs and motivations of ruling elites are deeply influenced by external interventions, and that foreign aid might be leveraged to overcome domestic obstacles of reform. These perspectives suggest that international assistance not only supplements local efforts but also reshapes the decision-making calculus of political leaders, thereby potentially accelerating social transformations.

Second, our study underscores the influence of the US-Soviet rivalry on the developmental pathways chosen by developing countries. The Cold War was not only a geopolitical confrontation between two superpowers but also a competition of ideologies and development models. As summarized by a Cold War historian, "U.S. and Soviet interventionisms

to a very large extent shaped both the international and domestic framework within which political, social and cultural changes in the Third World took place," and leaders of these countries "often framed their own political agendas in conscious response to the models of development presented by the two main contenders of the Cold War" (Westad 2005, 3). While existing research has broadly acknowledged the impact of prevailing development models on smaller nations and illustrated the mechanisms through specific country cases (Iandolo 2012; Kapstein 2017), few have examined how hegemonic powers facilitated or hindered decision-making in Third World countries on particular reform issues. This study focuses on land reform to provide more micro-level evidence for understanding the interaction between Cold War contexts and domestic policymaking.

Finally, this study contributes to our understanding of the multifaceted effects of foreign aid on domestic policy processes. Existing studies predominantly examine the effects of Western aid, including its role in promoting democratization (Bak and Moon 2016; Kim 2022), achieving economic growth (P. Boone 1996; Easterly 2003), enhancing state capacity (Goldsmith 2001), and incentivizing liberalization reforms (Crawford 1997; Heckelman and Knack 2008). In contrast, research on aid from non-Western powers has mostly focused on its impact on authoritarian resilience (Bader 2015; Casey 2020; Heurlin 2020), domestic conflicts (Gehring, Kaplan, and Wong 2022; Raleigh and Kishi 2020; Strange et al. 2017), and foreign policy alignment (Dreher et al. 2021). According to these scholars, non-Western aid is seen as instrumental, aimed at maintaining their own regime security or capturing economic and geopolitical interests, lacking the profound influence to shape the development direction of other countries (Von Soest 2015; Way 2016). This article suggests that authoritarian aid may also be driven by ideologies and beliefs, thereby promoting substantive social reforms in recipient countries.

## 2. Relevant literature

Existing studies of land reform have predominantly centered on domestic variables, proposing several prominent theories to explain the origins and trajectories of major land reforms. First, some scholars argue that regime type plays a crucial role in driving land reform initiatives (Acemoglu and Robinson 2006). A transition from autocracy to democracy empowers the average citizen, fostering an increased demand for redistribution among the populace. Consequently, democratic regimes are more likely to propose land reforms as a significant

redistributive measure. Conversely, Albertus (2015) has noted that most redistributive land reforms occurred under autocratic rule rather than democracy. According to the elite splits theory, divisions between ruling political elites and landed elites may prompt the former to utilize land reform as a mechanism to punish opponents (Javed 2022), to consolidate their coalition (Albertus 2015), and to enhance state capacity (Garfias 2018). Historically, leaders who gained power through military coups, revolutionary movements, or foreign occupation have been advocates of land reform. These actors often possess weaker ties to domestic landed elites, enabling them to pursue extensive reforms with fewer institutional constraints.

Second, research highlights regime transition as a critical juncture for enacting reform (Bhattacharya, Mitra, and Ulubaşoğlu 2019; Binswanger, Deininger, and Feder 1995). It has been posited that newly established regimes seek urgent support from emerging social groups and view land reform as a strategic means of garnering this backing. Victorious revolutions particularly facilitate large-scale land reform, as revolutionary warfare tends to diminish the power of the landowning classes while enhancing the mobilization capabilities of lower-class peasants (Levitsky and Way 2022). Third, a supply-side perspective suggests that the ideological orientation of political leaders significantly influences the introduction of radical reforms. Since left-wing leaders are more pro-poor and pro-labor than right-wing ones, the former are expected to endorse more redistributive land reforms (Bardhan and Mookherjee 2010; Bhattacharya, Mitra, and Ulubaşoğlu 2019). Finally, while many developing countries may express a willingness to pursue land reforms, successful implementation is contingent upon the availability of personnel, financial resources, and adequate infrastructure. Furthermore, the state must possess sufficient coercive power to overcome resistance from landed elites; thus, the capacity of the state ultimately determines the feasibility of fundamental changes to land tenure systems (C. Boone 2014; Herbst 2000).

In contrast, the role of foreign involvement in domestic land reform has received considerably less attention in the literature, with the few exceptions largely focusing on Western efforts to promote land reform in developing countries. For instance, Kapstein (2017) examines how the United States employed bilateral aid to promote land reform in East Asia as a means of enhancing political stability in pro-Western regimes and countering Communist influence. In this context, U.S. aid was utilized to compensate landlords for their redistributed holdings and facilitate the transition of their capital from agriculture to industry (11-12). Following the Cuban Revolution, the Kennedy administration launched the Alliance for Progress program in 1961, providing foreign aid to support land reform in Latin Ameri-

can countries. However, the effectiveness of U.S. foreign aid in promoting substantial social reforms is often compromised by the apprehension that such socioeconomic changes may lead to communist ascendancy (Wisniewski 1972, 63). In many instances, U.S. aid inadvertently bolstered reactionary regimes that impeded land reforms. Specifically, the Alliance for Progress mandated that aid could not be allocated for land expropriation and that land reforms must respect private property to qualify for assistance (Albertus 2015, 167). Consequently, this program contributed minimally to altering the entrenched balance of power between oligarchies and peasants through land redistribution (Feder 1965; Smetherman and Smetherman 1972).

Meanwhile, scant research has investigated the impact of Soviet aid on the trajectory of land reform in developing countries. Although previous studies have explored the nature, strategy, and implications of Soviet aid within the framework of Cold War rivalries (Goldman 1966; Gu 1983; Roeder 1985; Wisniewski 1972), there has been limited exploration of how Soviet assistance influenced socioeconomic reforms in recipient states. Some country-specific case studies have occasionally addressed the effect of Soviet aid on domestic reform initiatives (Boden 2008; Holbik and Drachman 1971; Robinson and Dixon 2010), but these anecdotal accounts do not provide a substitute for systematic evidence based on representative samples. This study aims to fill this gap in the literature by proposing a theory that elucidates the causal mechanisms linking Soviet economic aid to radical land reforms in developing countries.

# 3. Soviet aid and radical land reform: the causal mechanisms

## 3.1. Soviet aid to the Third World: origins and aims

During the Cold War, the USSR provided substantial economic assistance to the Third World, termed "economic cooperation" in official Soviet discourse (Kozik 1958). In most circumstances, Soviet economic aid took the form of credits for purchasing Soviet machinery and equipment or covering the expenses of Soviet-led development projects (Heurlin 2020, 3). Between 1955 to 1991, the USSR delivered over $46 billion in economic aid to 39 less developed countries (Heurlin 2020, 3). Six communist states received 53 percent of this total or $24.4 billion in economic aid, while the remaining noncommunist states received

$21.6 billion collectively (Bach 2003, 156). Although communist allies received slightly more Soviet aid in aggregate terms, substantial assistance was also directed toward strategically important noncommunist regimes pursuing quasi-socialist development strategies.

The origins of Soviet aid to the Third World can be traced to the strategic pivot enacted by Nikita Khrushchev, who elevated economic assistance as the cornerstone of Soviet engagement with these countries (Gu 1983). At the twentieth Congress of the Communist Party of the Soviet Union (the CPSU) in 1956, Khrushchev introduced the novel "peaceful transition" approach, envisaging the granting of economic aid to newly independent countries to develop their economies and steer them toward a gradual embrace of socialism (CPSU (Communist Party of the Soviet Union) 1956). This marked a departure from the Stalin-era policy of regarding newly liberated colonies as puppets of the former metropolises lacking real independence (Korbonski and Fukuyama 1987, 26). To reconcile the Soviet new strategy toward emerging national states with the broader Communist movement, another notion of the "National Democratic Country" was later elaborated in Khrushchev's 1961 report (CPSU (Communist Party of the Soviet Union) 1962). This concept depicted states in a transitional phase led by a coalition of nationalists and Communists, with a noncommunist at the helm. While the "national bourgeoisie" is to hold the formal reins of political power, within this framework the Communists are to maintain their strength and freedom of action, preparing to seize control at the appropriate time. During their transitional period, "National Democratic Countries" should draw increasingly closer to the Communist states and carry out internal reforms that would facilitate a steady, and in most cases, nonviolent transition to communism (Shinn 1963).

In the broader context of the Cold War, Soviet engagement with the Third World aligned with its global strategy. Khrushchev's principle of "peaceful coexistence" marked a tactical shift from military confrontation with the West to a competition of economic models—Soviet socialism versus Western liberal capitalism (CPSU (Communist Party of the Soviet Union) 1956). The Third World became a critical arena for this strategic competition, where the USSR saw an opportunity to replicate its own transformation from an underdeveloped agrarian society into an industrialized superpower (Iandolo 2012). Soviet theorists asserted that political liberation alone did not ensure true independence as long as these states remained integrated into the capitalist system, necessitating a non-capitalist path to economic development, which Moscow was eager to support (Abebe 1994; CPSU (Communist Party of the Soviet Union) 1956).

Aid relationships typically served as the institutional backbone through which other forms of Soviet influence—including elite exchanges, technical missions, educational programs, and military cooperation—were organized and sustained (Heurlin 2020; Iandolo 2018; Westad 2005). Reviewing Soviet activities in developing countries, a 1957 U.S. National Security Council assessment noted that Soviet trade delegations and emissaries visited numerous countries while representatives from those same countries were invited to Moscow and offered economic, cultural, and, in some cases, military assistance (*U.S. National Security Council* 1957). Similar linkages characterized Soviet educational and technical cooperation. Educational aid formed a major part of the overall Soviet developmental aid. For example, the establishment of the Patrice Lumumba University was announced during Khrushchev's 1960 visit to Indonesia, with its goal explicitly designed to train future engineers, administrators, and professionals and to cultivate a Soviet-friendly intelligentsia in the postcolonial world (Katsakioris 2017, 2019). Similarly, Soviet development assistance was frequently bundled with technological cooperation. Infrastructure and industrial projects commonly involved the deployment of Soviet specialists, the training of local engineers and technicians, and educational exchanges, thereby creating sustained channels of interaction between Soviet personnel and local elites (Kochetkova et al. 2017). To the extent that such contacts influenced domestic political outcomes, they were frequently embedded within Soviet aid programs, making aid flows a reasonable proxy for the broader infrastructure of Soviet influence in cross-national analyses.

From the Soviet perspective, initiating thorough land reform was essential for Third World states to begin their peaceful transition toward communism, drawing on the USSR's revolutionary experience and ideology. Even before seizing power, the Bolsheviks had championed the slogan of "bread, peace, and land," which resonated widely among Russian peasants. Following the October Revolution of 1917, the Soviet government implemented extensive land reforms aimed at redistributing land from the nobility and wealthy landowners to peasants. By the late 1920s, the focus shifted from individual land ownership to collectivization, a strategy aimed at consolidating farms into large collective units (Ladejinsky 1934). This reform of land tenure system was crucial in paving the way for the USSR's socialist transformation and rapid industrialization.

Informed by this historical experience, Moscow advocated that developing countries aspiring to a non-capitalist path must first dismantle feudal social structures and eliminate reactionary landlord classes. To be clear, the USSR did not uniformly encourage radical

land reforms in aid recipients. At times, it advised against moving too far, too fast, worrying that sweeping reforms would cause instability in client states or increase Soviet economic obligations. In the grand scheme of things, though, the USSR envisioned Soviet aid as an instrument that can accelerate "internal events that can lead these countries onto broad path of socialism" (Boden 2008, 125). However, translating Soviet policy preferences into the land reform decisions of aid recipients required a specific process. This article posits that Soviet aid might enhance the likelihood of Third World countries implementing land reforms through two causal mechanisms: the diffusion of norms associated with Soviet-style development and the provision of material resources critical for land reform.

### 3.2. Diffusing norms associated with the Soviet model

Soviet aid to the Third World was never purely economic; it was also a vehicle for transmitting ideas about state-led development and social transformation. For Moscow, land reform was not a peripheral issue but a foundational step in the broader socialist project. Drawing on its own revolutionary experience, the Soviet Union regarded agrarian transformation as essential to dismantling feudal structures, consolidating state authority in the countryside, and mobilizing peasant support for modernization. Thus, Soviet assistance came bundled with a vision of development that linked industrial progress to the redistribution of land and the empowerment of rural producers.

Economic cooperation agreements were accompanied by a deliberate campaign of ideological exchange. First, high-level visits between Soviet and Third World leaders served as key venues for promoting socialist-oriented development. Recent scholarship on diplomatic visits suggests that face-to-face interactions among political leaders can communicate support, reassurance, and shared political orientation (Malis and Smith 2021; McLean and Whang 2014). Great powers use high-level visits and elite interactions to reinforce political alignment and patterns of regime similarity under conditions of geopolitical competition (Balci and Aras 2025). In practice, Soviet officials consistently framed aid not as charity but as a partnership in social reconstruction, urging counterparts to undertake agrarian reforms as the foundation of national independence. In Khrushchev's 1955 visit to India, for instance, he publicly endorsed India's mixed-economy approach while urging deeper socialist policies, influencing policy debates within the ruling Congress Party (Sahni 2024).

Second, Soviet educational aid played a central role in cultivating pro-reform elites. Thousands of students and mid-level bureaucrats from Africa and Asia studied in Soviet univer-

sities, where they absorbed both technical skills and ideological lessons. Between 1956 and 1964, the number of foreign students in the USSR grew from 12,565 to 23,000, many of whom took advantage of the heavy emphasis on applied sciences in Soviet institutions (Weaver 1985, 106–9). Training programs in agronomy, cooperative management, and rural administration emphasized the Soviet experience of transforming a peasant society through land reform and state planning. Many of these graduates later joined ministries of agriculture or planning commissions, becoming domestic advocates of redistributive policies. Soviet-built institutions abroad, such as agricultural training centers in Guinea and Mali, further diffused this developmental template by embedding Soviet agricultural expertise and ideological language within local bureaucracies (Bartenev 2007).

Finally, Soviet experts stationed in recipient countries functioned as on-site transmitters of reform norms. For example, the Soviet-Indonesian agreement signed in 1956 facilitated the exchange of experts and trainees (Boden 2008). Soviet experts proposed goals such as the "liquidation of colonial structures" and the "reform of the agrarian system" in their recommendations to Sukarno on socio-economic reform in Indonesia (Farizov 1964, 16). In Afghanistan, Soviet advisors drafted key land and water laws following the 1978 revolution, codifying the principle that economic development required the liquidation of landlord power (Slinkin 2001). Through these direct exchanges, Soviet aid did more than fund projects—it reframed the developmental agenda. It persuaded reform-minded leaders that genuine national sovereignty and modernization required a radical reordering of agrarian relations.

In short, Soviet aid transmitted not only resources but a coherent developmental ideology that made land reform appear both legitimate and necessary. While not all recipients fully internalized these norms, they provided reformist leaders with ideational justification and policy models for confronting entrenched landed elites.

### 3.3 Provision of material resources

If Soviet norm diffusion offered the ideological rationale for reform, material aid supplied the means and political leverage to carry it out. The effectiveness of land reform depends not only on ideological commitment but also on the capacity to overcome resistance from landowners, military elites, and foreign interests. Soviet assistance—financial, technical, and military—altered this balance of power in at least three ways.

First, Soviet aid enhanced the material autonomy of reformist states vis-à-vis conservative domestic groups. External financial resources reduced recipient governments' dependence on

domestic taxation and bargaining with powerful economic elites, thereby increasing rulers' fiscal autonomy from landed interests (Ahmed 2012). Moreover, many postcolonial governments depended on Western donors, whose aid came with strong disincentives against redistributive reforms that threatened foreign investors and settler interests. Soviet assistance, in contrast, provided a politically unconditional alternative that enabled leaders to pursue socially disruptive policies without jeopardizing vital capital inflows. By financing irrigation systems, power stations, and agricultural infrastructure, Soviet aid reduced governments' dependence on landed elites and Western firms that had dominated these sectors (Al-Qazzaz 1971; Keilany 1973). In Egypt, for example, Soviet support for public-sector expansion and state-led cooperatives allowed Nasser to weaken the influence of domestic business classes tied to Western interests and pursue far-reaching agrarian reform (Anderson 2009; Holbik and Drachman 1971).

Second, Soviet aid restructured internal political coalitions by empowering leftist and reformist actors. The fungibility of aid meant that resources could be redirected to co-opt key constituencies or strengthen pro-reform organizations. In Iraq, the flow of Soviet economic assistance coincided with pressure on the Ba'ath regime to rehabilitate the Communist Party, resulting in its inclusion in the 1970 national front government and the adoption of its agricultural reform proposals (Golan 1990). This illustrates how Soviet aid indirectly translated into greater political representation for pro-reform forces, which in turn shaped policy outcomes.

Third, Soviet military assistance could relax coercive constraints on redistributive reform by creating dependencies between recipient militaries and Soviet security institutions. Soviet arms transfers were typically accompanied by military training programs, technical assistance, organizational support, and long-term maintenance relationships that embedded recipient militaries within Soviet logistical and doctrinal systems (Lalwani et al. 2021). Existing research on foreign military training suggests that sustained interaction with external military partners may influence officers' professional networks, strategic outlooks, and patterns of political behavior through processes of professional socialization and organizational learning (Savage and Caverley 2017). Over time, these relationships generated path dependence, as armed forces became reliant on Soviet equipment, spare parts, training practices, and operational expertise. This could make the military leaders less hostile to reformist political actors and create greater political space for redistributive demands. In this way,

even military aid— often seen as unrelated to social reform—could transform domestic power relations in ways conducive to land redistribution.

Together, these mechanisms demonstrate that Soviet assistance, though often delivered under the banner of industrial development, had profound agrarian consequences. By providing both the ideological framework and the material resources to challenge landed elites, Soviet aid enabled reformist leaders to translate radical visions into policy. It thus functioned as a dual instrument of persuasion and empowerment—reshaping not only what leaders thought was desirable, but also what they believed was possible.

The discussion above leads to the core hypothesis of this study:

*Hypothesis 1: Higher levels of Soviet economic aid are associated with greater likelihood of enacting radical land reforms in Third World countries.*

# 4. Case narratives

This section probes the plausibility of the theoretical mechanisms by studying the effect of Soviet aid on the unfolding of land reform in Ghana and Indonesia. By analyzing these cases, we assess how Soviet assistance— arriving as a historically contingent response to local leaders' frustration with inadequate Western support—shaped the trajectory of agrarian transformation. In each instance, Soviet aid catalyzed the diffusion of pro-reform norms and provided crucial resources that reconfigured domestic power dynamics. The analysis allows us to construct plausible counterfactual scenarios: without Soviet intervention, initiating significant land reforms would have been far more challenging, if not impossible.

## *4.1 Ghana*

At independence in 1957, Ghana faced the profound challenge of achieving economic sovereignty after prolonged colonial domination, with its monoculture economy heavily dependent on cocoa exports to Britain. Kwame Nkrumah, Ghana's first president, saw agricultural reform as a critical priority for his government. The early attempt to diversify and mechanize agriculture faltered due to disappointing outcomes from Western engagement, especially from the United States and Britain (Iandolo 2022, 101; Lambert 2019). Meanwhile, the USSR was actively trying to export its development model to newly independent nations. Initial overtures by Soviet diplomats were cautiously received in Accra, as Ghana's dependency on British economic infrastructure remained substantial (Iandolo

2022, 70). Yet, Ghanaian dissatisfaction with Western aid steadily intensified— illustrated by the failure of the US to support the construction of a crucial dam project—ultimately compelling Nkrumah to reconsider Soviet proposals.

The Soviet leadership engaged Ghana through targeted diplomatic and ideological influence. Symbolically significant was the dispatch of the State Farms Minister Ivan Benediktov as the USSR's representative to Ghana's independence celebrations in March 1957. Benediktov had previously served as the Minister of Agriculture during the ambitious "Virgin Lands" campaign—an expansive effort to rapidly transform unused Soviet territories into highly productive agricultural areas. His visit to Ghana was intended to showcase the possibilities and perceived successes of the Soviet agricultural model, explicitly framing it as replicable in the Ghanaian context (UKNA 1957).

Despite initial caution, Nkrumah gradually became receptive to Soviet overtures, especially as Western support fell short of expectations. In September 1959 and May 1960, Ghanaian delegations visited the USSR and traveled extensively throughout the Soviet heartland, visiting mechanized collective farms in Georgia, Kazakhstan, and Azerbaijan. Delegates marveled at Soviet efficiency and modernization, impressed by the technological sophistication and apparent benefits of collectivized agriculture in facilitating industrialization (Iandolo 2012, 694–5; 2022, 104). Powerful ideological diffusion often occurs through direct observation and political persuasion—precisely what transpired during these visits. Upon their return, influential figures within Nkrumah's government became vocal proponents of Soviet-style agriculture. Krobo Edusei, a key member of the ruling party, reportedly emerged as an enthusiastic advocate of the Soviet system. Francis Yao Asare, Ghana's Minister of Agriculture, was so inspired that he immediately drafted concrete policy plans for the establishment of fifteen collective farms (Lambert 2019).

In 1960, seeking tangible assistance to accelerate his modernization goals, Nkrumah personally wrote to Nikita Khrushchev, "As soon as possible ... Soviet experts [should] come and start their work here without delay. My aim is to promote the industrialization and electrification of the country and to develop and mechanize agriculture with utmost speed" (Lambert 2019, 33). Moscow readily embraced this appeal and, by August 1960, Ghana and the USSR had signed bilateral pacts promising substantial aid for large-scale state-run farms. Soviet assistance flowed abundantly—tractors, irrigation systems, fertilizers, and expert advisors became readily available, facilitating Ghana's swift initiation of agricultural reforms (Iandolo 2022).

Nkrumah's government promulgated a comprehensive land reform act in 1962 that nationalized all land and disregarded the traditional customary tenure system previously controlled by local chiefs. Under the "stool lands" system, traditional chiefs had enjoyed considerable autonomy, collecting rents and maintaining local authority. The 1962 Act dismantled this traditional power structure, centralizing control over rural land in the state and enabling the establishment of expansive, Soviet-style farms (Knox 1998; Kunkel 2022). Not surprisingly, this shift provoked significant domestic contention. Powerful rural constituencies—especially cocoa farmers whose lands were seized—expressed fierce opposition. Yet the Nkrumah regime, fortified by Soviet material and ideological backing, pressed forward and brushed aside local opposition.

Ghana's experiment with land reform suffered a setback after Nkrumah's abrupt removal in a 1966 military coup. Within a year of the coup, numerous state farms were abandoned and thousands of workers lost their employment (Kunkel 2022, 243). Many of these workers were impressed by the substantial progress that large-scale farms brought to their rural communities and lamented their dissolution, believing that the coup had inhibited Ghana's socioeconomic advancement (Kunkel 2022, 237). The 1962 reform, however, was still significant as it nationalized landownerships at the expense of the customary tenure system. In some localities, the land remained under government ownership and state farms continued to exist even after the coup.

The Ghana case illuminates the interplay between international economic assistance, ideological diffusion, and domestic political decision-making. Initially, Nkrumah intended to pursue a moderate form of agricultural reform, relying on small holder farming and American investment. His change of policy was primarily due to frustration with Western aid and the olive branch extended by the Soviets. Nevertheless, the ultimate sustainability of externally-inspired norms remained contingent on domestic political stability, internal elite consensus, and continuous external support—factors notably fragile in Ghana's turbulent post-colonial political landscape.

### *4.2 Indonesia*

In the late 1950s, Indonesia's strategic pivot toward the Soviet Union marked a dramatic reorientation in both its international alliances and domestic policies. Following a disheartening 1956 trip to the United States and Western Europe that resulted in scant aid, President Sukarno found himself with few alternatives. The West's reluctance to extend substantial

support left Sukarno with an urgent need to secure assistance for Indonesia's turbulent economy and unstable political environment. In stark contrast, Khrushchev offered generous aid packages designed to advance Moscow's broader objective of hastening the spread of socialism (Boden 2008, 510–11).

Sukarno's turn to the Soviet Union was born out of necessity. His failure to procure adequate support from the West created a political and economic vacuum that the Soviet offer filled. Moscow saw Indonesia as a critical arena for the ideological contest of the Cold War, and its aid was explicitly designed to reform key sectors of society (Boden 2008, 124–25). Soviet experts arrived in Indonesia with clearly articulated goals, particularly in the area of agrarian reform. They argued that restructuring the agrarian system was essential for breaking the hold of the colonial past and for redistributing power and resources more equitably among the peasantry.

Sukarno's own domestic agenda aligned with these Soviet objectives. He championed land reform as a transformative act that would dismantle the remnants of colonial agrarian structures and to empower the rural poor (Utrecht 1969). However, his radical proposals encountered fierce resistance at home. Traditional landowners and conservative groups, whose economic interests were deeply intertwined with the existing order, mounted a vigorous opposition. These actors had considerable political clout and were determined to block reforms that threatened their dominance and vast landholdings. The resulting deadlock underscored the profound social and political rifts within Indonesian society.

Amid this domestic impasse, Soviet aid played a critical role in altering the balance of power. Between 1959 and 1965, Indonesia received an unprecedented level of Soviet support—both economic and military—that dramatically shifted the internal dynamics of power. Approximately 90 percent of this aid was channeled into military expenditures, a proportion unmatched among Soviet recipients outside the communist bloc (Boden 2008, 2008). This massive influx of resources had far-reaching implications. The Indonesian armed forces, long accustomed to a dominant role in domestic politics, became increasingly dependent on Soviet military assistance, which altered their political incentives and reduced their willingness to suppress leftist movements. The availability of Soviet arms and the accompanying technical assistance eroded the military's anti-communist resolve, creating an environment in which repressive actions against the communist were difficult to sustain.

The military's reduced willingness to suppress leftist movements created greater political space for the Indonesian Communist Party (PKI). Once marginalized and under constant

threat from state repression, the PKI began to experience a surge in both legitimacy and influence. The steady stream of Soviet military and economic support effectively lowered the barriers that had previously prevented the party from operating openly (Pauker 1962). In this more permissive environment, the PKI capitalized on the opportunity to expand its reach among the masses (Hindley 1962, 1963). By aligning itself with Sukarno's reform agenda and leveraging Soviet backing, the party consolidated its political standing and reoriented the national discourse toward radical social change.

The PKI's expanded political space was most evident in the realm of agrarian reform. With the Soviet blueprint for restructuring the countryside in hand, the PKI pushed land reform initiatives in a direction that was both more radical and more inclusive than Sukarno's original proposals. The party mobilized peasants across the archipelago, galvanizing support for sweeping changes that aimed to dismantle the feudal agrarian structure. The enactment of the 1960 Basic Agrarian Act, which imposed aggressive limits on landholdings, reflected this shift (Utrecht 1969).

The intensification of agrarian reform under PKI influence also deepened societal divisions. As the party mobilized rural communities and accelerated the pace of reform, opposition from landowners and conservative groups became more vehement. This internal discord culminated in the 1965 coup attempt and the subsequent violent crackdown that abruptly halted the reform process. However, the Indonesian government never officially rescinded the reform, and by 1968, land redistribution proceeded more smoothly as it was no longer hampered by party political struggle. It is estimated that between 1962 and 1968, about 1 million hectares of land were redistributed to 1 million families (Utrecht 1969, 87).

In this case, the material support mechanism played a more prominent role than norm diffusion. Sukarno was determined to initiate radical reform before the arrival of Soviet assistance, but his plans were stymied by entrenched domestic interests and conservative opposition. Soviet aid later proved instrumental in shifting the domestic balance of power in favor of reform: the massive inflow of resources increased the Indonesian military's dependence on Soviet assistance, altered its political incentives, and reduced its willingness to suppress the PKI, thereby expanding the party's political space. Operating in this more permissive environment, the PKI mobilized peasants and pushed agrarian reforms in a markedly more radical direction. Despite the 1965 coup, the 1960 reform act was at least partially successful in laying the legal groundwork for a more equitable land tenure system and in empowering the rural poor.

# 5. Empirical analysis

## 5.1 Dependent variable

The main dependent variable in this study is *radical land reform enactment*, defined as any major agricultural land-related act passed by parliament or issued by the executive within a country-year observation. Data is drawn from Bhattacharya, Mitra, and Ulubaşoğlu (2019), which records 372 major land reform enactments across 165 countries from 1900 to 2010. "Major" reforms are acts or directives that change the trajectory of land ownership, land tenure, and land use within a country; reforms that fall short of this threshold are excluded. Importantly for our purposes, the dataset also specifies the motives behind each reform, coding 12 distinctive motives: landholding ceiling imposition, expropriation, redistribution, distribution, restitution, consolidation, improving tenure security, privatization, collectivization, nationalization, recognizing customary land rights, and other. Most reform enactments involve multiple motives.

As mentioned, radical land reform in this study refers to significant changes in land ownership and agricultural practices aimed at addressing historical injustices, socio-economic inequalities, and enhancing productivity. In keeping with this definition, we classify reforms as radical if they include at least one of the following motives:

(1) Landholding ceiling: imposes an upper limit on private land ownership, typically in highly unequal setting and mostly combined with expropriation and redistribution. (2) Expropriation: takes away the title of the land from the former owner, frequently alongside redistribution, though occasionally for punitive reasons. (3) Redistribution: transfers the ownership of the lands of the rich to the poor by the ruler. (4) Nationalization: generally an African undertaking, the reform can have a rhetorical, abstract dimension in which the state claims land and/or a concrete dimension in which the state actually owns and operates lands. (5) Collectivization: typically structured under the Soviet model, this reform transfers land ownership to the state, which manages it while individuals hold usufruct rights under central control.

These reforms are deemed radical due to their challenge to established landowner interests and their fundamental restructuring of land distribution. Thus, the outcome variable is coded as one if a land reform with any of these five motives is enacted in a country-year observation. We exclude less fundamental changes such as regulation of rents, security of tenure, and consolidation of fragmented lands from the definition of radical reforms. Also

excluded are reforms that seek to reverse Soviet-style land reforms such as restitution (returning collectivized lands to their former owners) and privatization (the sale of state-owned farmlands for money). Although also significant, these reforms do not challenge the powerful landowners or aim to address historical injustice of unequal land distribution. Table A1 in the Appendix lists all the radical land reforms launched during the study period. In addition, we also employ a binary indicator of any land reform, regardless of motive, as the outcome variable (general reform). During the study period, the probability that a country enacts a general or radical land reform in a given year is 4.5% and 3.3%, respectively.

### 5.2 Independent variable

The core independent variable is *Soviet aid*, defined as the amount of Soviet economic assistance received by a country. Data is extracted from Bach's "Soviet Aid to the Third World: The Facts and Figures," covering the period from 1955 to 1991. Bach's compilation primarily relied on the Soviet official publication, the Annual of Soviet International Trade Statistics, which included a section entitled "Deliveries under economic co-operation agreements." These figures, reported in millions of US dollars, consist of materials, equipment, and technical assistance (i.e., the service cost of experts during project construction, local training, and documentation).

This dataset has two advantages. First, the data reflects the actual aid received in each year, rather than future aid commitments. Second, Bach adheres to the international criteria of aid and includes only concessional aid with a grant element above 25% (Bach 2003, 16). One limitation of the dataset is that Latin American countries, except for Cuba and Chile, were beyond the scope of Soviet official statistics and therefore excluded from our analysis. According to Bach, this exclusion was likely due to administrative reasons, with the organization providing data to the Soviet Central Bureau of Statistics not having these countries in its bailiwick (16-17). In total, there are 39 recipient states in the dataset, most of which are Asian, Middle Eastern, and African countries. Figures a1 and a2 in the Appendix show the total amount of Soviet aid received by each state during the study period, in millions of US dollars and in logged form, respectively.

Following standard practices for measuring foreign aid intensity, we constructed a variable representing Soviet aid on a per capita basis and log-transformed the measure to reduce skewness and mitigate the impact of outliers. For country-year observations with no aid, we assigned a value of \$1 (or \$0.00001 million) to avoid missing data due to log transformation

(Heurlin 2020, 7). Recognizing that the effect of Soviet aid on domestic policies may result from cumulative aid over several years, we use cumulative aid from the previous three years as the independent variable in the baseline analysis. We also consider aid from the previous two or four years in robustness checks. Finally, we further validate our results by measuring aid intensity using aid as a percentage of GDP.

As a plausibility probe, we conduct a simple difference-in-means test to examine whether countries that initiated at least one radical land reform during the study period indeed received more Soviet aid than other countries. The results shown in Table A3 in the Appendix indicate the presence of this correlation: countries with a record of radical reforms indeed received more aid than those that never initiated any such reform, measured in average annual aid and per capita annual aid.

### 5.3 Control variables

A primary concern in making inference about the effect of Soviet aid is that its allocation is likely not independent of the potential outcomes— namely, whether radical land reforms are enacted. In other words, there may be confounding factors that influence both the amount of aid a country receives from the USSR and the likelihood of enacting radical land reforms. The conventional method for addressing this issue is statistical adjustment—if we control for these confounders in the statistical model, the assignment of treatment can be assumed to be independent of potential outcomes. Based on existing literature, we identify the following factors as potential determinants of both Soviet aid allocation and land reform and include them as control variables in the empirical analysis:[1]

First, substantial evidence suggests that the USSR distributed aid on the basis of the ideological inclinations of countries' leaders (Gu 1983, 72). Communist states on average received far more Soviet aid than noncommunist states (Heurlin 2020, 3). Among noncommunist states, "revolutionary democracies"—regimes perceived as bypassing capitalism and moving toward socialism—received the majority of the resources that the USSR expends on the Third World (Albright 1991, 43). Therefore, we draw on Herre (2023) and M. C. Miller (2020) to create an ordinal variable representing leader ideology, assigning 0 for right-wing

[1]The selection of control variables follows a standard back-door adjustment logic in observational causal inference (Pearl and Mackenzie 2018). Specifically, the models include variables that could plausibly affect both Soviet aid allocation and the likelihood of land reform, thereby helping reduce potential confounding between treatment and outcome (Angrist and Pischke 2009; Cinelli, Forney, and Pearl 2024). The goal is not to claim that these controls perfectly isolate an exogenous effect of Soviet aid, but rather to account for observable factors that may jointly shape Soviet aid allocations and land reform likelihood.

leaders, 1 for centrist leaders, 2 for left-wing leaders, and 3 for Marxist leaders. Table A4 probes whether leader ideology is indeed a strong determinant of receiving Soviet aid. As the results show, whether we measure ideology as an ordinal variable (columns 1 and 2) or a series of dummies with right-wing leaders as the omitted category (columns 3 and 4), left-wing leaders tend to receive substantially more aid than their right-wing counterparts.

Second, the USSR is known to have extended aid to Third World states partly to exploit their natural resources. For example, it signed agreements regarding assistance to exploit gas and oil in Iraq, Iran, and Syria (Gu 1983, 76). To account for this, we control for countries' resource dependence, measured as fuel and metal revenues as a percentage of GDP (Haber and Menaldo 2011).

Third, studies suggest that Soviet assistance often targeted nations overlooked by Western powers or those seeking alternatives to the Western model of development (Goldman 1966). In countries receiving substantial Western aid, the USSR may have found fewer opportunities to curry favor with their leaders. Thus, we control for Western aid, defined as official development assistance as a percentage of GDP (log-transformed, from World Bank 2011).

Fourth, the amount of Soviet aid a country receives may change dramatically during periods of regime transition. In the Cold War context, leaders who seized power in Third World states often turned to the USSR for material support and ideological legitimation (Laidi 1990). For instance, in the 1970s, numerous new military rulers in Africa adopted Marxism-Leninism to distinguish themselves from previous regimes and align with a worldwide political movement (Fukuyama 1984; Kauppi 1990). Conversely, the overthrow of socialist-leaning regimes, often instigated by the United States, typically marked the end of Soviet aid. Accordingly, we control for a dummy variable indicating regime transition, which equals one for the year of regime change and the three years thereafter (data on regime failure is from Geddes, Wright, and Frantz 2014).

Fifth, we control for two socioeconomic variables: logged GDP per capita (in 2000 US dollars, from World Bank 2011) and logged population (Heston, Summers, and Aten 2011), as a country's level of development and population size may also influence aid allocation.

Sixth, our empirical models incorporate year- and country-fixed effects. The former controls for common, time-varying unobserved effects, while the latter account for country-specific, time-invariant conditions such as geographical proximity to the USSR, colonial legacy, culture, and initial inequality in land distribution. However, the inclusion of country-fixed effects fundamentally changes the interpretation of the results: the model then esti-

mates the effect of within-country variation in Soviet aid over time, rather than differences across countries. To provide a complete picture, we first present results without country-fixed effects, which assess whether countries receiving higher levels of aid are more likely to enact reforms compared to *other* countries, before showing the results that incorporate country-fixed effects. Finally, since the probability of enacting land reforms may be influenced by prior reforms, we include a dummy variable in all models to indicate whether a land reform of the same category (general reforms or radical reforms) had been previously enacted. Table A2 in the Appendix provides the descriptive statistics for the main variables.

### *5.4 Model*

This study constructs a panel dataset comprising 2292 country-year observations, covering all countries in Asia, the Middle East, and Africa, as well as Cuba and Chile. The temporal scope spans from 1955 to 1985. We restrict the analysis to the pre-Gorbachev period because, as explained below, Soviet foreign policy underwent a fundamental shift after 1985, effectively abandoning efforts to promote radical reforms in the Third World. The baseline model is specified as follows:

$$Y_{i,t} = \alpha + \beta_1 AidPast3_{i,t} + \beta_2 X_{i,t-1} + \lambda_i + \mu_t + \epsilon_{i,t} \quad (1)$$

where $Y_{i,t}$ indicates whether country $i$ enacts a radical land reform in year $t$, $AidPast3_{i,t}$ stands for cumulative Soviet aid received by country $i$ from *t-3* to *t-1*, $X_{i,t-1}$ denotes a series of control variables, $\lambda_i$ and $\mu_t$ represent country-fixed and year-fixed effects respectively, and $\epsilon_{i,t}$ is the error term. According to hypothesis 1, we expect $\beta_1$ to be positive.

For ease of interpretation, we follow Bhattacharya, Mitra, and Ulubaşoğlu (2019) in using linear probability models as the benchmark estimation methodology with standard errors clustered at the country level. This approach allows us to include two-way fixed effects to tackle unobserved heterogeneity, something that is not as straightforward to implement in non-linear models (Farbmacher and Tauchmann 2023). However, we also adopt a probit estimation to check the robustness of our results.

## 6. Results

Table 1 shows the effect of Soviet aid on the enactment of radical reform (column 1 to 4). The first model uses a naïve specification with only year- fixed effects, the second adds

the economic covariates, the third incorporates the full set of covariates, and the fourth further adds country-fixed effects. Column 5 shows the results when the outcome variable indicates general reforms. Across the specifications, Soviet aid is positively and significantly associated with the likelihood of enacting land reforms. Specifically, model 4 indicates that a one standard deviation increase in Soviet aid corresponds to a 2.57 ($6.425 \times 0.004$) percentage point increase in the probability of enacting radical land reforms. Given that the average probability of initiating such reforms is approximately 3.3% in any given year, this 86% increase from the mean is substantively meaningful.

In Figure 1, we plot the predicted probability of a country initiating radical land reform in a given year at varying levels of Soviet aid, while holding all other variables at their means. When a country receives no aid, the predicted probability of reform is approximately 1.3 percent. As aid levels rise to the $75^{\text{th}}$, $90^{\text{th}}$, and $99^{\text{th}}$ percentiles, the predicted probability increases to around 5.5 percent, 6.8 percent, and 7.5 percent, respectively. These results suggest that higher levels of Soviet aid are associated with a markedly greater likelihood of undertaking such reforms.

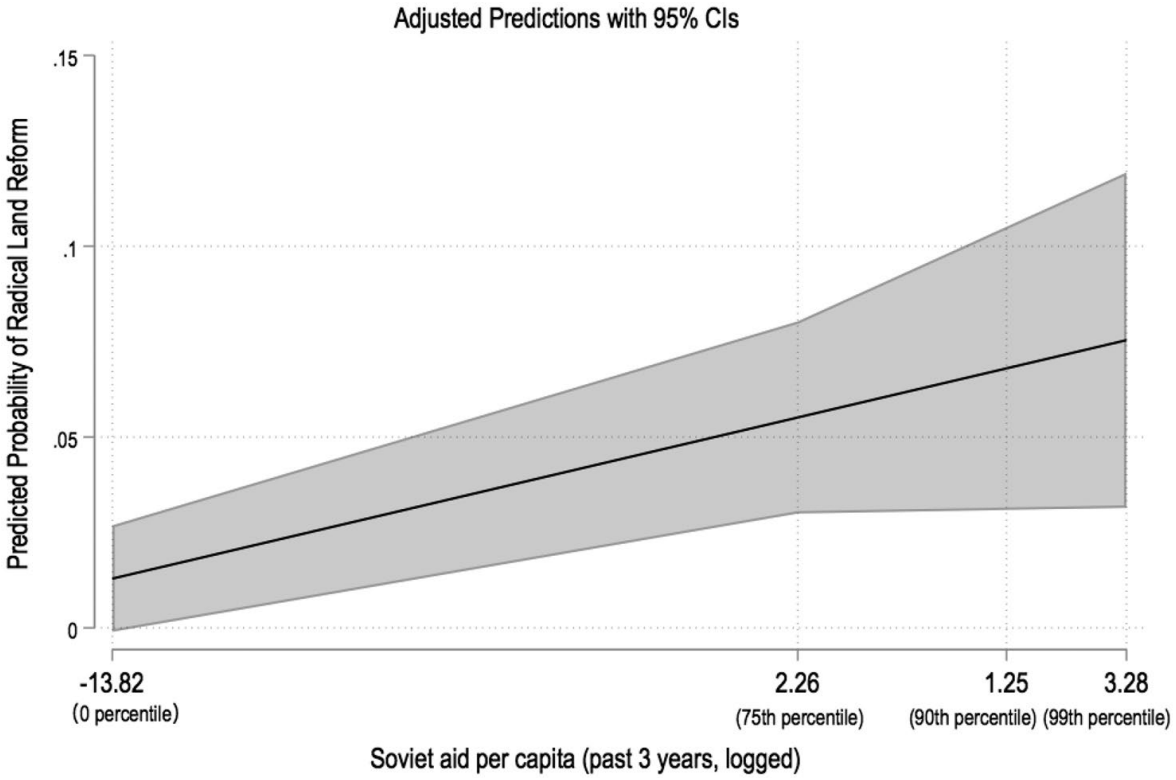
**Table 1. Main results.**

| | (1) Radical land reform | (2) Radical land reform | (3) Radical land reform | (4) Radical land reform | (5) Land reform |
|---|---|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | 0.001** | 0.002*** | 0.002** | 0.004** | 0.005*** |
| | (0.001) | (0.001) | (0.001) | (0.002) | (0.002) |
| Previous radical reform | | -0.031*** | -0.029*** | -0.145*** | |
| | | (0.009) | (0.010) | (0.032) | |
| Previous land reform | | | | | -0.072* |
| | | | | | (0.039) |
| Resource dependence | | -0.000 | -0.000 | 0.000 | 0.000 |
| | | (0.000) | (0.000) | (0.001) | (0.001) |
| GDP (logged) | | 0.002 | 0.012** | -0.005 | 0.012 |
| | | (0.004) | (0.005) | (0.020) | (0.021) |
| Population (logged) | | 0.005* | 0.012*** | -0.022 | -0.084 |
| | | (0.003) | (0.003) | (0.076) | (0.075) |
| Leader ideology | | | 0.006 | 0.033*** | 0.046*** |
| | | | (0.004) | (0.009) | (0.009) |
| Western aid (logged) | | | 0.004*** | 0.004 | 0.004 |
| | | | (0.001) | (0.003) | (0.003) |
| Period of regime transition | | | 0.033** | 0.040** | 0.023 |
| | | | (0.015) | (0.016) | (0.019) |
| Constant | 0.043*** | 0.007 | -0.148*** | 0.332 | 0.732 |
| | (0.006) | (0.043) | (0.052) | (0.733) | (0.750) |
| Country FE | NO | NO | NO | YES | YES |
| Year FE | YES | YES | YES | YES | YES |
| Observations | 2113 | 1990 | 1431 | 1430 | 1430 |

*Note:* This table presents the effect of cumulative Soviet aid (previous 3 years) on the likelihood of land reforms. Robust standard errors clustered on country are in parentheses.

* p<0.10, ** p<0.05, *** p<0.01.

**Figure 1. Predicted Probability of Radical Land Reform by Levels of Soviet Aid.**




*Note:* This figure shows the predicted probability of launching radical land reforms in a given year by different levels of Soviet aid (0th percentile, 75th percentile, 90th percentile, and 99th percentile values), holding other control variables at their means. The model specification is based on Column 4 of Table 1. The solid line represent the point estimates, and the shaded area represents 95% confidence intervals.

To verify the robustness of our baseline findings, we conduct several additional tests, detailed in the online Appendix. First, we utilize probit models instead of OLS to address the dichotomous nature of the outcome variables (Table A5). Second, we examine whether the results are sensitive to different time frames used to calculate cumulative Soviet aid. Thus, we test the results using cumulative Soviet aid per capita from previous two and four years (Table A6). Third, we apply an alternative measure of the independent variable, calculating Soviet aid as a percentage of domestic Gross Domestic Product (GDP) (Table A7). These results of these tests are largely consistent with the findings of the baseline analysis. Fourth, we recoded Soviet aid into quartiles representing four different levels of aid exposure (this was done by finding the $25^{\text{th}}$, $50^{\text{th}}$, and $75^{\text{th}}$ percentiles of aid exposure among aid recipients). Analyses based on this measurement show that countries in higher quartiles are generally more likely to undertake radical reforms (Table A8).

The mere announcement of land reforms does not guarantee their implementation. Fortunately for our purposes, Bhattacharya, Mitra, and Ulubaşoğlu (2019) provided a classification of land reform acts into fully implemented, partially implemented, and unimplemented. To address the concern that Soviet aid may have only encouraged Third World leaders to announce radical land reforms without ensuring their implementation, we constructed an ordinal dependent variable coded as follows: 0 if no radical reform was initiated, 1 if a radical reform was promulgated but ended up unimplemented, 2 if a radical reform was promulgated and partially implemented, and 3 if a radical reform was enacted and fully implemented. We estimated an ordered probit model to assess whether Soviet aid predicts the degree of reform implementation. As shown in Table A9, the coefficients for cumulative aid are consistently positive and significant, indicating that higher levels of Soviet aid are associated with an increased likelihood of both enacting land reforms and achieving higher levels of implementation.

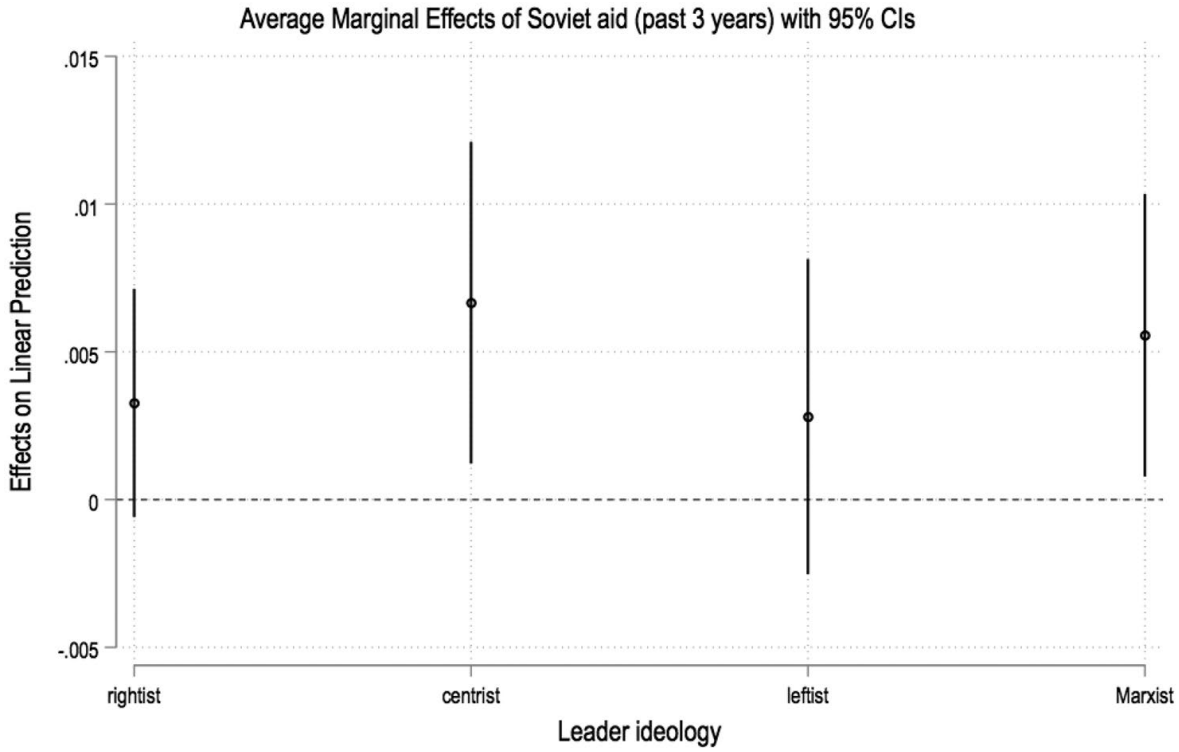
To ensure that the findings are not driven by outliers, we replicated the main analysis excluding the five largest recipients of Soviet aid, measured as annual aid per capita. Table A10 shows that the results are unaffected. Finally, Table A11 shows that our results remain unchanged when we measure leader ideology as a series of dummy variables (with right-wing leaders as the omitted category) instead of an ordinal variable.

# 7. Additional analyses

In this section, we further examine other implications of our theory. First, we conduct a causal heterogeneity analysis to examine whether the effects of Soviet aid varied based on state leaders' ideological orientations. If the competing explanation that land reforms were driven primarily by the preexisting ideological preferences of left-wing governments were correct, we would expect the observed relationship between Soviet aid and land reform to be concentrated mainly among countries governed by left-wing leaders. To test this competing explanation, we interact the explanatory variable with a set of dummy variables for each ideological category— right-wing, centrist, left-wing, or Marxist (Herre 2023; M. C. Miller 2020), which permits the slope of Soviet aid to vary across ideological orientations. Figure 2 shows that the estimated effects of Soviet aid remain largely consistent acorss leadership ideologies. Importantly, the results indicate that Soviet aid bolstered the prospects of radical reforms even when recipient states were led by centrist ($p < 0.05$) or right-wing leaders ($p <$

0.1). This finding does not support the alternative explanation that the observaed correlation is driven by selection bias—namely, that the USSR primarily allocated aid to left-leaning leaders who would have pursued reforms regardless.

**Figure 2. Heterogeneous Effects of Soviet Aid Across Leader Ideology.**




*Note:* This figure shows the effect of Soviet aid on land reform for recipient states with different leader ideologies. The model specification is based on Column 4 of Table 1. The circles represent the point estimates, and the horizontal lines represent 95% confidence intervals.

Second, we conduct a placebo test to examine whether U.S. foreign aid had similar effects on radical land reforms in the Third World. As noted earlier, the United States distributed aid to encourage land reforms during the Cold War, but it was wary of reforms that threatened property rights or expropriated landed elites. Thus, we expect U.S. development assistance to have no significant effect on radical land reforms. To test this, we draw on data from OECD (2023) to create an indicator of U.S. aid intensity (cumulative amount over the past three years on a per capita basis, logged). As shown in Table A12, when explaining the onset of radical reforms, the effects of U.S. aid are small and, once country and year fixed effects are included, statistically insignificant. However, column 5 of Table A12 shows that more U.S. aid is associated with a greater likelihood of general land reforms. Together, these results suggest that, while U.S. aid may have contributed to the initiation

of land reforms in developing countries, it mainly encouraged more moderate reforms. Thus, the effect captured in our main analysis reflects a distinctive effect of Soviet aid, rather than a generic effect common to foreign aid from major donors.

Third, we perform another placebo test to examine if Soviet aid actually increased the probability of recipient states taking actions that reversed Soviet-style reforms. If such effect is detected, it will substantially undermine our argument about spreding socialist norms and strengthening the states' capacity to tackle landed elites. Because Soviet-style reforms generally aimed to expropriate the large land ownders and establish collective farms under state management, we define the following three types of land reforms as reversing Soviet reforms: Restitution, in which the state returns the collectivized lands back to their former owners or their descendants; Privatization, which refers to the sale of state-owned farmlands for money; Tenure security improvement, which allows the tenants and sharecroppers to make their own private and long-term decisions on agricultural activity with the security they receive. As shown in Table A13, in various models, Soviet aid is either negatively associated with such reforms or has no significant effect on their onset.

Fourth, we revisit the causal mechanism through which Soviet aid enhanced the material autonomy of recipient states, thereby enabling them to overcome opposition from powerful domestic groups. Testing this mechanism is challenging because state capacity is a multidimensional concept, and not all of its dimensions are equally susceptible to the influence of foreign assistance. We focus on coercive capacity because it is essential for reformers seeking to restructure society in the face of organized domestic resistance and because it can be measured relatively reliably. Following Hanson and Sigman (2021), we operationalize coercive capacity using military expenditure per capita and military personnel as a percentage of the population. As shown in Table A14, the receipt of Soviet aid is positively associated with both measures of coercive capacity. These findings are consistent with the argument that Soviet assistance enhanced the ability of Third World leaders to implement and enforce politically challenging reforms.

Fifth, a related mechanism we highlight is that Soviet aid could strengthen leftist groups within domestic political coalitions. Specifically, Soviet military assistance may render the armed forces dependent on continued aid flows, thereby reducing their incentive to suppress leftist groups advocating radical reforms. An observable implication of this mechanism is that, under leftist leaders, Soviet military aid should decrease the risk of military seizure of power via coup d'état. The military, anticipating that overthrowing an ideologically aligned

leader might jeopardize future Soviet aid, becomes less likely to intervene. Conversely, when other leaders are in power, Soviet military aid should have no such constraining effect.

To test this implication, we regress coup occurrence—measured using data from Powell and Thyne (2011), which includes both successful and failed coup attempts—on the amount of Soviet military aid. As a proxy for Soviet military assistance, we use the Stockholm International Peace Research Institute (SIPRI) Arms Transfers Database (SIPRI (Stockholm International Peace Research Institute) 2020), which reports the volume of major conventional weapons transfers using trend-indicator values (TIVs) derived from known unit production costs of a core set of weapons. Following our operationalization of economic aid, we construct an independent variable measuring Soviet military transfers per capita.

The results are presented in Table 2. Column 1 uses the sample of leftist regimes, defined as those led by left-wing or Marxist leaders (Herre 2023; M. C. Miller 2020). Consistent with our expectation, receiving more Soviet military aid reduces the likelihood of successful coups against leftist leaders. Column 2 shows that no such effect exists for centrist or right-wing leaders. Column 3 introduces an interaction term between leftist leadership and Soviet military aid; the negative coefficient for this term ($p < 0.1$) confirms that military aid reduces coup risk only for leftist leaders. Columns 4–6 replicate the analysis using a binary indicator for any coup attempt (both failed and successful) as the dependent variable, and the key findings remain robust. Together, these tests suggest that Soviet aid shifted domestic balances of power in recipient states in favor of reform-oriented leaders, making them less vulnerable to violent seizure of power by military officers.

**Table 2. Soviet military aid and coup d'état against leftist and rightist leaders.**

| | (1) Success coup | (2) Success coup | (3) Success coup | (4) Any coup | (5) Any coup | (6) Any coup |
|---|---|---|---|---|---|---|
| Soviet military aid per capita | -0.003*** | 0.001 | 0.002 | -0.003* | 0.003 | 0.005** |
| | (0.001) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Leftist leader | | | -0.051 | | | -0.057 |
| | | | (0.034) | | | (0.046) |
| Soviet military aid per capita × Leftist leader | | | -0.005* | | | -0.008** |
| | | | (0.003) | | | (0.003) |
| Resource dependence | -0.002*** | 0.000 | -0.000 | -0.003** | 0.000 | -0.001 |
| | (0.001) | (0.000) | (0.000) | (0.002) | (0.001) | (0.001) |
| GDP (logged) | -0.007 | -0.017 | -0.016 | -0.118** | -0.039 | -0.049* |
| | (0.027) | (0.019) | (0.017) | (0.052) | (0.027) | (0.030) |
| Population (logged) | -0.185** | -0.026 | -0.069 | -0.344*** | -0.082 | -0.112 |
| | (0.075) | (0.033) | (0.043) | (0.098) | (0.076) | (0.071) |
| Constant | 1.730** | 0.416 | 0.811* | 4.020*** | 1.140 | 1.504* |
| | (0.714) | (0.340) | (0.460) | (1.088) | (0.755) | (0.764) |
| Country FE | YES | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES | YES |
| Observations | 1312 | 1193 | 2423 | 1312 | 1193 | 2423 |

*Note:* This Table shows the effect of Soviet military transfer (past 3 years, logged) on the likelihood of Coup d'état. The study period is from 1955 to 1991. Robust standard errors clustered on country in parentheses.

* p<0.10, ** p<0.05, *** p<0.01.

Finally, we further inquire whether the effects of Soviet aid are stronger during regime transitions—a time when radical reforms are particularly likely to occur. Table A15 shows that the correlation between aid and reform is indeed stronger during the first years of a left-wing regime, although the coefficient for the interaction term is not statistically significant (p = 0.30). We find no evidence that the effects of aid are moderated by transitions to a right-wing regime.

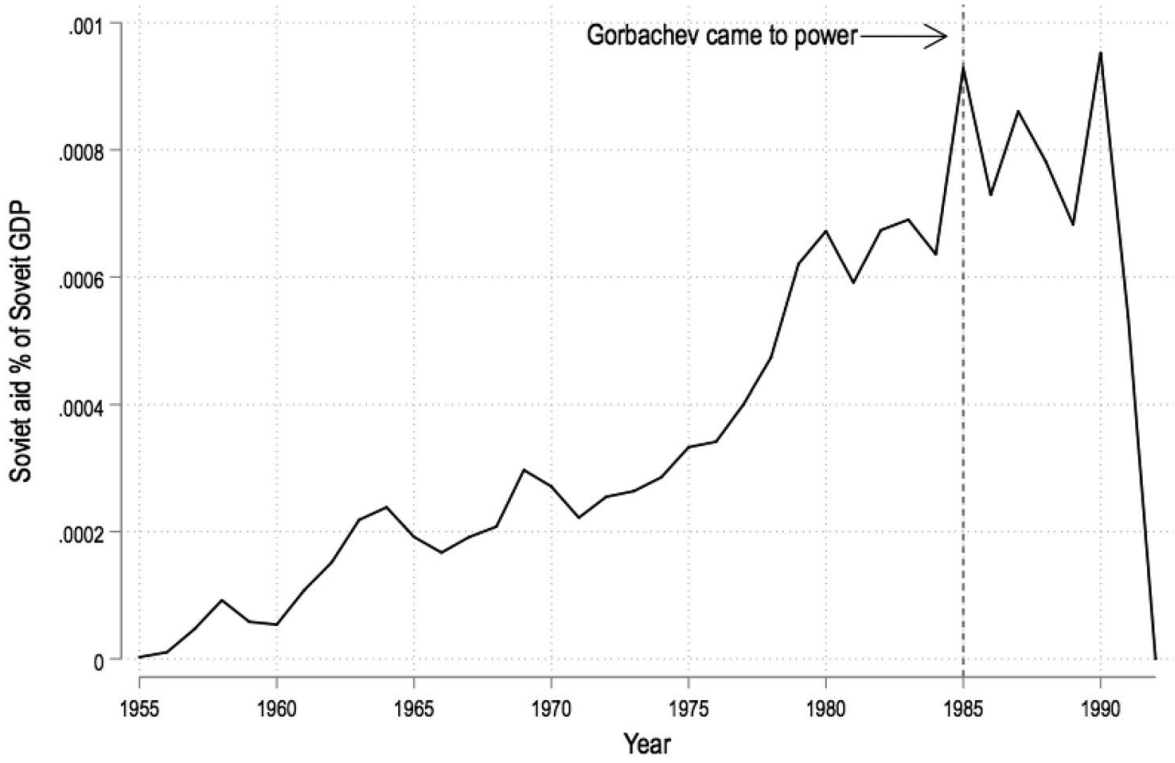
# 8. Temporal changes in the effect of Soviet aid

In this section, we examine the consequences of a leadership turnover within the USSR that brought about major shifts in the amount and purposes of Soviet aid—Mikhail Gorbachev's

rise to power in early 1985. The contrast in the effects of Soviet aid on land reform before and after Gorbachev's arrival in office provides additional evidence for our argument.

Gorbachev's ascension to power inaugurated a pivotal shift in Soviet foreign policy toward the Third World. The new Soviet leadership realized that the aggressive intervention of the Brezhnev era had brought few rewards and sought to reduce the cost of maintaining its Third World influence. This shift aimed to improve relations with Western countries, allowing Moscow to concentrate on domestic economic challenges (Fukuyama 1986, 722). Consequently, the USSR started to reduce economic assistance to its client states. In Gorbachev's first year, the Soviets signed aid agreements with only 14 countries, compared with 20 in the previous year, and many of these pledges required no long-term commitment (Goodman 1991, 146). Figure 3 illustrates the temporal trend of Soviet aid to the Third World, measured as total aid delivery as a percentage of Soviet GDP. It shows a trend of steady increase in Soviet aid since 1955, but it peaked in 1985 and then plateaued. More importantly, Gorbachev pressured pro-Soviet regimes to abandon radical social and economic programs such as collectivized agriculture and the prohibition of private industry (R. F. Miller 1991, 155). In other words, the continued aid under Gorbachev was only intended to preserve these regimes, not to spread the Soviet-style modernization. Although norm change is typically a gradual process, major shifts in hegemonic power can change perceptions of what norms ought to be considered appropriate. They do so by revealing hidden information about the effectiveness and human consequences of different social systems (Gunitsky 2014). Gorbachev's accession and the ensuing Soviet retrenchment produced such a shock for aid recipients.

**Figure 3. Soviet economic aid as a percentage of the GDP of the USSR.**




*Note:* This figure presents the temporal trend of Soviet economic aid to the Third World as a percentage of Soviet GDP from 1955 to 1991. Soviet GDP data is from the Maddison Project Database (Bolt and Van Zanden 2024).

Gorbachev's radical foreign policy shift was largely unrelated to the domestic trajectory of Third World countries. The 53-year-old reformist was selected by the Soviet leadership mainly to address the country's stagnating economy and improve living standards, not to redefine Soviet policy toward the Third World. Hardly anyone expected his reform to involve a fundamental reappraisal of Soviet ideological assumptions about the outside world and how to deal with it. As late as 1983, the CPSU Central Committee saw an "ideological crusade" mounted by world imperialism against socialism, necessitating "aggressive counter-propaganda work not only in the international arena, but also within the country" (R. F. Miller 1991, 64). Regarding the Third World, assistance for anti-imperialist movement was an article of ideological faith for Soviet leaders, and the need for a different approach only existed in academic debates rather than official policy discourse (R. F. Miller 1991, 138). It would take a political maverick like Gorbachev to translate the views of a small group of academic analysts into actual foreign policies. Thus, if Soviet aid truly drove radical land reforms in the Third World, we expect this relationship to exist only in the pre-Gorbachev

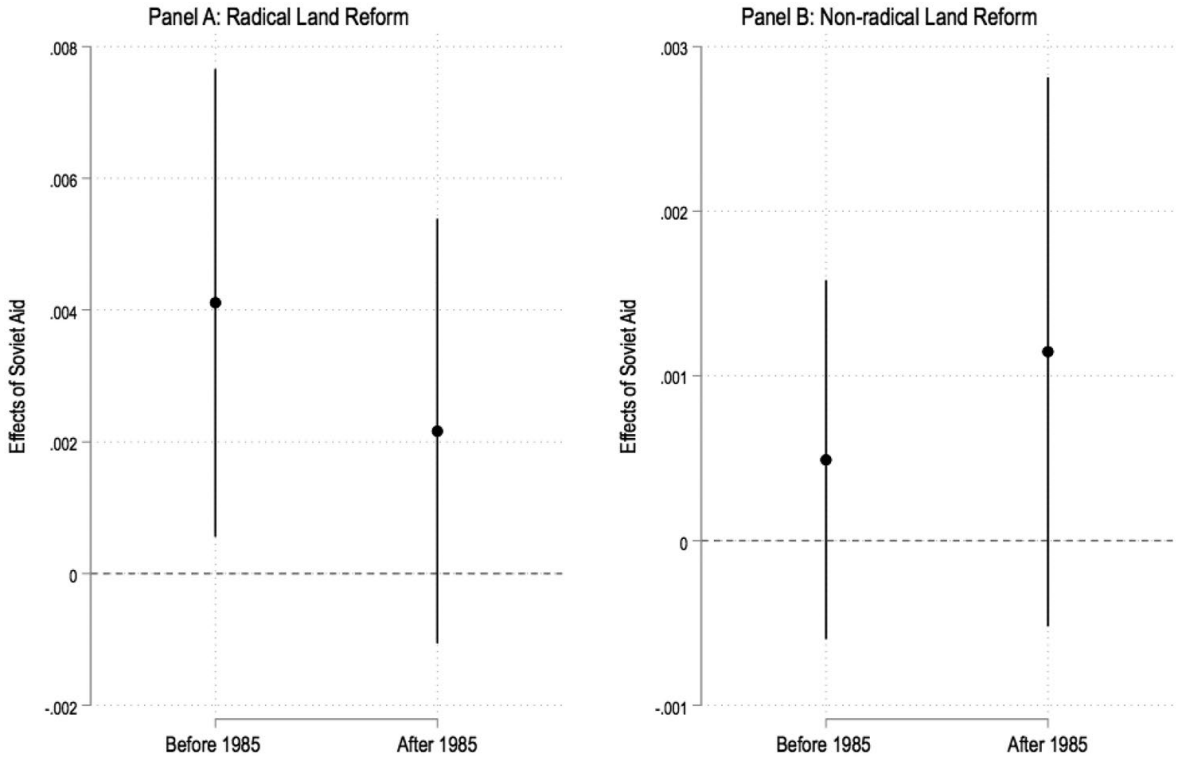
period. On the contrary, if such correlation is present in both pre and post-Gorbachev periods, it is likely to be driven by unobserved confounders. To test this implication, we add an interaction term to the baseline regression:

$$Y_{i,t} = \alpha + \beta_1 AidPast3_{i,t} + \beta_2 Post1985_t \times AidPast3_{i,t} + \beta_3 X_{i,t-1} + \lambda_i + \mu_t + \epsilon_{i,t} \quad (2)$$

where $Post1985$ is a dummy variable that equals one for years since 1985. We expect the coefficient for the interaction term, $\beta_2$, to be negative, indicating a decrease in the effect of Soviet aid on radical land reform after 1985. This analysis covers 1975-1995, with 10 years on either side of 1985.

Panel A of Figure 4 shows that Soviet aid had a significant effect on radical land reform before 1985, but not afterward. The difference in the two coefficients are statistically significant at $p = 0.05$ level, as indicated by the t-value of the interaction term shown in Table A16 of the Appendix. Another way to interpret the interaction term is that, the more a country relied on Soviet aid, the more the post-1985 period brought about a decline in the likelihood of enacting radical reforms. Panel B serves as a placebo test, wherein we examine whether the effect of Soviet aid changed after 1985 with respect to non-radical land reform. The results suggest no such change, as the effects are statistically insignificant in both periods. These findings remain robust if we narrow the bandwidth of the analysis to the 1980-1990 period, with 5 years on either side of 1985 (Column 2 and 4 of Table A16).

**Figure 4. The Effect of Soviet Aid on Land Reform: Before and After 1985.**




*Note:* This figure compares the effects of Soviet aid on the likelihood of land reforms before and after 1985. Results from the regression are shown in Table A16 of the Appendix. The circles represent the point estimates, and the horizontal lines represent 95% confidence intervals.

These results should not be interpreted as implying an immediate disappearance of the domestic processes that Soviet aid may have helped foster in recipient countries. Rather, they suggest that the ability of Soviet aid to encourage additional episodes of radical reform diminished once the Soviet leadership reduced both the scale of its support and its commitment to promoting Soviet-style transformation abroad. In this sense, the Gorbachev period is consistent with the argument that the effects of Soviet aid depended not only on the transfer of resources, but also on the broader political and ideological project that accompanied Soviet assistance during much of the Cold War.

# 9. Conclusion

This study provides a new explanation for the enactment of radical land reforms during the Cold War, underscoring the importance of Soviet intervention for redistributive land reforms in the Third World. Soviet aid not only provided material resources and technical support

but also diffused ideological norms that encouraged reform, reshaping the domestic policy preferences of recipient states. To further boost confidence in these findings, we leveraged Gorbachev's rise to power as a shock that significantly altered the nature of Soviet aid. As expected, we observe a marked decline in the effect of Soviet aid in the post-1985 period, and the watershed moment cannot be located in any year before 1985.

Most existing accounts portray Cold War foreign aid primarily as an instrument of geopolitical competition that sustained authoritarian rule, entrenched inefficient political coalitions, or prolonged strategic alignments. The recurring questions have been why superpowers supported abusive regimes and why foreign aid often failed to promote development. Our findings suggest a more complicated picture. Soviet aid was undoubtedly strategic in intent, yet strategic aid did not necessarily generate conservative outcomes. The implications extend beyond the Cold War. While organizations such as the World Bank and IMF often promote reform through formal conditionality and technical assistance, the Soviet case highlights a different pathway through which external actors can shape domestic reform trajectories. Aid relationships frequently bundled material resources with elite exchanges, educational programs, technical cooperation, and broader development models. Through these channels, foreign assistance could reshape political coalitions, alter perceptions of feasible policy alternatives, and expand the political space for reform. This perspective may also help illuminate the role of contemporary emerging donors. Much as Soviet assistance transmitted a distinct vision of development during the Cold War, China and other non-Western donors increasingly engage recipient countries through infrastructure finance, training programs, elite exchanges, and policy learning initiatives. The Soviet case should therefore be understood not as a historical anomaly, but as an early manifestation of a broader phenomenon in which aid relationships diffuse development models and governance practices.

While the cases of Ghana and Indonesia provide suggestive evidence for the proposed mechanisms, future research could examine more directly whether Soviet aid shifted policy norms, weakened landed elites, or strengthened reformist coalitions. Such analysis would further clarify how ideational and material channels worked together to translate foreign assistance into domestic reform. It should also examine whether the mechanisms identified here extend beyond land reform to other domains of state-led transformation, such as industrial policy, state-building, and gender equality. It should also explore how different donors promote distinct reform agendas through varying combinations of material assistance, elite networks, technical cooperation, and ideological influence. As competition among traditional

and emerging donors intensifies—and as some donors scale back their overseas assistance—the political consequences of aid provision and aid withdrawal are likely to become increasingly important. Put differently, donors export not only money, but also ideas about how societies should be organized and transformed.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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# Appendix

**Table A1: Radical Land Reforms: 1955-1992**

| Country | Year | Country | Year | Country | Year |
|---|---|---|---|---|---|
| Afghanistan | 1975 | Indonesia | 1960 | Somalia | 1975 |
| Afghanistan | 1978 | Iran | 1962 | Sri Lanka | 1972 |
| Algeria | 1963 | Iraq | 1958 | Sri Lanka | 1975 |
| Algeria | 1971 | Iraq | 1970 | Sudan | 1970 |
| Angola | 1976 | Israel | 1960 | Sudan | 1984 |
| Bangladesh | 1972 | Ivory Coast | 1963 | Syria | 1958 |
| Bangladesh | 1984 | Jordan | 1959 | Syria | 1963 |
| Benin | 1976 | Jordan | 1962 | Tanzania | 1963 |
| Bhutan | 1959 | Laos | 1978 | Tanzania | 1967 |
| Bhutan | 1979 | Libya | 1963 | Thailand | 1975 |
| Burkina Faso | 1984 | Libya | 1969 | Togo | 1978 |
| Cambodia | 1976 | Libya | 1978 | Tunisia | 1964 |
| Chile | 1962 | Libya | 1986 | Turkey | 1973 |
| Chile | 1967 | Mali | 1961 | Turkey | 1984 |
| Congo Brazzaville | 1983 | Mali | 1986 | Uganda | 1975 |
| Congo Kinshasa | 1973 | Morocco | 1966 | Vietnam North | 1958 |
| Cuba | 1959 | Mozambique | 1979 | Vietnam South | 1956 |
| Cuba | 1963 | Nepal | 1964 | Vietnam South | 1970 |
| Egypt | 1961 | Niger | 1962 | Zambia | 1975 |
| Egypt | 1969 | Niger | 1976 | Zimbabwe | 1982 |
| Ethiopia | 1975 | Nigeria | 1978 | Zimbabwe | 1985 |
| Gabon | 1963 | Oman | 1980 | Zimbabwe | 1992 |
| Gambia | 1992 | Pakistan | 1959 | | |
| Ghana | 1962 | Pakistan | 1972 | | |
| Guinea | 1959 | Pakistan | 1977 | | |
| Guinea-Bissau | 1975 | Philippines | 1955 | | |
| India | 1960 | Philippines | 1972 | | |
| India | 1961 | Philippines | 1988 | | |
| India | 1972 | Rwanda | 1976 | | |
| Indonesia | 1960 | Senegal | 1964 | | |

*Note:* This table shows all the radical land reforms launched between 1955 and 1992.

**Table A2 Descriptive Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| General land reform | 2292 | .045 | .206 | 0 | 1 |
| Radical land reform | 2292 | .033 | .179 | 0 | 1 |
| Soviet aid per capita past 3 years (logged) | 2113 | -9.72 | 6.425 | -13.816 | 5.04 |
| Soviet aid past 3 years/GDP (logged) | 1655 | -12.415 | 2.622 | -13.816 | -3.956 |
| Resource dependence | 2156 | 8.106 | 17.593 | 0 | 100 |
| GDP (logged) | 2280 | 7.583 | 1.1 | 5.234 | 11.854 |
| Population (logged) | 2292 | 8.808 | 1.648 | 4.824 | 13.872 |
| Leader ideology | 2118 | 1.229 | 1.234 | 0 | 3 |
| Western aid (logged) | 1720 | -.764 | 4.522 | -11.513 | 4.272 |
| Period of regime transition | 2292 | .171 | .377 | 0 | 1 |

**Table A3 Difference-in-means Test of Soviet aid between Countries with and without Radical Land Reform**

| | Without Reform (N=39) | With Reform (N=54) | Difference | p-value |
|---|---|---|---|---|
| Average Soviet aid received each year | 1.884128 | 16.0548 | -14.17067 | .0174843 |
| | (1.28) | (4.88) | (5.85) | |
| Average Soviet aid per capita received each year | .4563428 | 1.010298 | -.5539547 | .3684149 |
| | (0.39) | (0.44) | (0.61) | |

*Note :* This table tests whether the amount of Soviet aid received each year during the Cold War was significantly different between countries that never initiated any radical land reform and countries that initiated at least one such reform. The first row compares raw Soviet aid (in millions USD) received each year. The second row compares Soviet aid per capita (in millions USD) received each year. Standard errors are in the parentheses.

**Table A4 The Effect of Leader Ideology on Receiving Soviet Aid**

| | (1) Soviet aid per capita (logged) | (2) Soviet aid per capita (logged) | (3) Soviet aid per capita (logged) | (4) Soviet aid per capita (logged) |
|---|---|---|---|---|
| Leader ideology | 1.552*** | 1.018** | | |
| | (0.528) | (0.443) | | |
| Centrist | | | 1.585 | 2.874* |
| | | | (2.718) | (1.639) |
| Leftist | | | 3.156*** | 1.608** |
| | | | (1.041) | (0.803) |
| Marxist | | | 1.271 | 1.451 |
| | | | (1.976) | (1.409) |
| Resource dependence | 0.021 | 0.031 | 0.024 | 0.032 |
| | (0.023) | (0.029) | (0.022) | (0.027) |
| GDP (logged) | 0.302 | -0.332 | 0.194 | -0.328 |
| | (0.516) | (0.870) | (0.483) | (0.847) |
| Population (logged) | 0.567 | -3.663* | 0.616 | -3.170 |
| | (0.499) | (2.136) | (0.475) | (2.202) |
| Constant | -20.983*** | 21.977 | -20.650*** | 17.469 |
| | (6.734) | (21.879) | (6.410) | (22.654) |
| Country FE | NO | YES | NO | YES |
| Year FE | YES | YES | YES | YES |
| Observations | 2031 | 2031 | 2152 | 2152 |

*Note:* This table shows how the distribution of Soviet aid depends on leader ideology of the recipient countries. Robust standard errors clustered on country in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A5 Probit Analysis**

| | (1) Radical land reform | (2) Radical land reform | (3) Radical land reform | (4) Radical land reform | (5) Land Reform |
|---|---|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | 0.015** | 0.026*** | 0.030*** | 0.083*** | 0.067*** |
| | (0.007) | (0.008) | (0.011) | (0.030) | (0.021) |
| Previous radical reform | | -0.472*** | -0.613*** | -2.007*** | |
| | | (0.134) | (0.193) | (0.476) | |
| Resource dependence | | -0.005 | -0.001 | 0.012 | 0.014 |
| | | (0.004) | (0.005) | (0.019) | (0.011) |
| GDP (logged) | | 0.043 | 0.256** | -0.397 | 0.126 |
| | | (0.074) | (0.127) | (0.680) | (0.372) |
| Population (logged) | | 0.073* | 0.227*** | -1.238 | -2.874 |
| | | (0.039) | (0.052) | (2.825) | (2.084) |
| Leader ideology | | | 0.077 | 0.583*** | 0.627*** |
| | | | (0.059) | (0.199) | (0.139) |
| Western aid (logged) | | | 0.139** | 0.081 | 0.084 |
| | | | (0.067) | (0.147) | (0.113) |
| Period of regime transition | | | 0.444*** | 0.786*** | 0.348 |
| | | | (0.158) | (0.252) | (0.221) |
| Previous land reform | | | | | -0.745* |
| | | | | | (0.381) |
| Country FE | NO | NO | NO | YES | YES |
| Year FE | YES | YES | YES | YES | YES |
| Observations | 2113 | 1990 | 1431 | 555 | 748 |

*Note:* This table presents the effect of cumulative Soviet aid (previous 3 years) on the likelihood of land reforms, using Probit models. Robust standard errors clustered on country are in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A6 Using Different Time Frames to Calculate Cumulative Aid**

| | (1) Radical land reform | (2) Radical land reform | (3) Land Reform | (4) Land Reform |
|---|---|---|---|---|
| Soviet aid per capita past 2 years (logged) | 0.003 | | 0.004* | |
| | (0.002) | | (0.002) | |
| Soviet aid per capita past 4 years (logged) | | 0.003* | | 0.004** |
| | | (0.002) | | (0.002) |
| Previous radical reform | -0.154*** | -0.138*** | | |
| | (0.032) | (0.032) | | |
| Previous land reform | | | -0.067* | -0.060 |
| | | | (0.037) | (0.039) |
| Leader ideology | 0.034*** | 0.033*** | 0.045*** | 0.047*** |
| | (0.009) | (0.009) | (0.008) | (0.008) |
| Resource dependence | 0.000 | 0.000 | 0.000 | 0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Western aid (logged) | 0.003 | 0.004 | 0.003 | 0.003 |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| Period of regime transition | 0.042** | 0.035** | 0.027 | 0.016 |
| | (0.016) | (0.017) | (0.020) | (0.018) |
| GDP (logged) | -0.005 | 0.000 | 0.003 | 0.018 |
| | (0.020) | (0.020) | (0.024) | (0.022) |
| Population (logged) | -0.008 | 0.032 | -0.082 | -0.032 |
| | (0.069) | (0.060) | (0.070) | (0.064) |
| Soviet aid per capita past 4 years (logged) | | 0.003* | | 0.004** |
| | | (0.002) | | (0.002) |
| Constant | 0.193 | -0.206 | 0.769 | 0.205 |
| | (0.667) | (0.576) | (0.740) | (0.657) |
| Country FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |
| Observations | 1465 | 1393 | 1465 | 1393 |

*Note:* This table presents the effect of Soviet aid on the likelihood of land reforms, using different time frames to calculate cumulative aid. Robust standard errors clustered on country are in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A7 Measuring Aid as Percentage of GDP**

| | (1) Radical land reform | (2) Radical land reform | (3) Radical land reform | (4) Radical land reform | (5) Land Reform |
|---|---|---|---|---|---|
| Soviet aid past 3 years/GDP (logged) | 0.004** | 0.005*** | 0.005*** | 0.008* | 0.012** |
| | (0.002) | (0.002) | (0.002) | (0.005) | (0.005) |
| Previous radical reform | | -0.041*** | -0.038*** | -0.148*** | |
| | | (0.010) | (0.013) | (0.034) | |
| Previous land reform | | | | | -0.083* |
| | | | | | (0.044) |
| Resource dependence | | -0.000 | -0.000 | -0.000 | -0.000 |
| | | (0.000) | (0.000) | (0.001) | (0.001) |
| GDP (logged) | | -0.002 | 0.012** | -0.010 | 0.013 |
| | | (0.004) | (0.005) | (0.023) | (0.026) |
| Population (logged) | | 0.007** | 0.012*** | -0.061 | -0.142 |
| | | (0.003) | (0.003) | (0.087) | (0.088) |
| Leader ideology | | | 0.005 | 0.030** | 0.043*** |
| | | | (0.004) | (0.012) | (0.012) |
| Western aid (logged) | | | 0.003*** | 0.004 | 0.004 |
| | | | (0.001) | (0.004) | (0.004) |
| Period of regime transition | | | 0.029* | 0.037** | 0.014 |
| | | | (0.017) | (0.016) | (0.019) |
| Constant | 0.076*** | 0.077* | -0.101 | 0.796 | 1.369 |
| | (0.023) | (0.045) | (0.065) | (0.850) | (0.911) |
| Country FE | NO | NO | NO | YES | YES |
| Year FE | YES | YES | YES | YES | YES |
| Observations | 1655 | 1642 | 1260 | 1259 | 1259 |

*Note:* This table presents the effect of Soviet aid on the likelihood of land reforms, measuring aid as the cumulative amount as a percentage of domestic GDP. Robust standard errors clustered on country are in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A8 Quartile-based Measure of Soviet Aid**

| | (1) Radical land reform | (2) Radical land reform | (3) Radical land reform | (4) Radical land reform | (5) Land Reform |
|---|---|---|---|---|---|
| 2nd quartile | 0.029* | 0.028 | 0.023 | 0.023 | 0.039 |
| | (0.016) | (0.018) | (0.019) | (0.023) | (0.026) |
| 3rd quartile | 0.028* | 0.039*** | 0.036*** | 0.042** | 0.047** |
| | (0.014) | (0.013) | (0.012) | (0.019) | (0.022) |
| 4th quartile | 0.015 | 0.017 | 0.008 | 0.005 | 0.032 |
| | (0.010) | (0.011) | (0.013) | (0.018) | (0.027) |
| Previous radical reform | | -0.029*** | -0.027*** | -0.153*** | |
| | | (0.009) | (0.010) | (0.029) | |
| Resource dependence | | -0.000 | -0.000 | 0.000 | 0.000 |
| | | (0.000) | (0.000) | (0.001) | (0.001) |
| GDP (logged) | | 0.001 | 0.013*** | -0.005 | 0.022 |
| | | (0.004) | (0.005) | (0.019) | (0.023) |
| Population (logged) | | 0.006** | 0.013*** | 0.003 | -0.032 |
| | | (0.003) | (0.003) | (0.050) | (0.070) |
| Leader ideology | | | 0.008** | 0.034*** | 0.045*** |
| | | | (0.004) | (0.009) | (0.009) |
| Western aid (logged) | | | 0.004*** | 0.004 | 0.003 |
| | | | (0.001) | (0.003) | (0.004) |
| Period of regime transition | | | 0.037*** | 0.042*** | 0.027 |
| | | | (0.014) | (0.015) | (0.021) |
| Previous land reform | | | | | -0.057* |
| | | | | | (0.034) |
| Constant | 0.026*** | -0.025 | -0.193*** | 0.061 | 0.118 |
| | (0.004) | (0.040) | (0.055) | (0.504) | (0.731) |
| Country FE | NO | NO | NO | YES | YES |
| Year FE | YES | YES | YES | YES | YES |
| Observations | 2292 | 2156 | 1534 | 1533 | 1533 |

*Note:* In this analysis, Soviet aid is operationalized as a categorical variable based on quartiles of the distribution of logged Soviet aid per capita (cumulative, past 3 years). The omitted category is the lowest quartile. Coefficients therefore represent the estimated effect of belonging to the second, third, or fourth quartile relative to the lowest quartile. Robust standard errors clustered on country in parentheses. * p<0.10, ** p<0.05, *** p<0.01

**Table A9 Predicting Implemented Land Reform**

| | (1) Radical implementation | (2) Radical implementation | (3) Radical implementation | (4) Radical implementation | (5) Land reform implementation |
|---|---|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | 0.0381** | 0.0573*** | 0.0596** | 0.1483** | 0.1541*** |
| | (2.31) | (3.03) | (2.23) | (2.10) | (2.82) |
| Previous radical reform | | -0.9215*** | -1.0594** | -3.7955*** | |
| | | (-2.80) | (-2.40) | (-3.37) | |
| Previous land reform | | | | | -1.4042 |
| | | | | | (-1.60) |
| Resource dependence | | -0.0084 | 0.0099 | 0.0272 | 0.0235 |
| | | (-0.71) | (0.88) | (0.55) | (0.87) |
| GDP (logged) | | 0.1070 | 0.6617** | -1.2436 | -0.0726 |
| | | (0.61) | (2.25) | (-0.83) | (-0.09) |
| Population (logged) | | 0.1548* | 0.4930*** | -1.2725 | -4.9690 |
| | | (1.73) | (3.97) | (-0.21) | (-1.03) |
| Leader ideology | | | 0.1762 | 1.2335*** | 1.2187*** |
| | | | (1.52) | (2.84) | (3.94) |
| Western aid (logged) | | | 0.3985** | 0.1971 | 0.2138 |
| | | | (2.16) | (0.49) | (0.74) |
| Period of regime transition | | | 0.9592*** | 1.2382** | 0.3166 |
| | | | (2.82) | (2.21) | (0.63) |
| Country FE | NO | NO | NO | YES | YES |
| Year FE | YES | YES | YES | YES | YES |
| Observations | 2113 | 1990 | 1431 | 1431 | 1431 |

*Note:* This table presents the effect of Soviet aid on the likelihood of land reforms. The outcome variable is an ordinal variable that equals 0 for years with no reform, 1 for years with unimplemented reform, 2 for years with partially implemented reform, and 3 for years with fully implemented reforms. Robust standard errors clustered on country are in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A10 Replicating Main Analysis Excluding Outlier Countries**

| | (1) Radical land reform | (2) Radical land reform | (3) Radical land reform | (4) Radical land reform | (5) Land Reform |
|---|---|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | 0.002*** | 0.002*** | 0.002** | 0.004** | 0.005*** |
| | (0.001) | (0.001) | (0.001) | (0.002) | (0.002) |
| Previous radical reform | | -0.030*** | -0.029*** | -0.149*** | |
| | | (0.010) | (0.011) | (0.033) | |
| Resource dependence | | -0.000 | -0.000 | 0.000 | 0.000 |
| | | (0.000) | (0.000) | (0.001) | (0.001) |
| GDP (logged) | | 0.002 | 0.013*** | 0.000 | 0.015 |
| | | (0.004) | (0.005) | (0.020) | (0.021) |
| Population (logged) | | 0.004 | 0.012*** | -0.029 | -0.094 |
| | | (0.003) | (0.003) | (0.078) | (0.076) |
| Leader ideology | | | 0.006* | 0.032*** | 0.047*** |
| | | | (0.004) | (0.009) | (0.009) |
| Western aid (logged) | | | 0.004*** | 0.005 | 0.005 |
| | | | (0.001) | (0.003) | (0.003) |
| Period of regime transition | | | 0.025* | 0.033** | 0.014 |
| | | | (0.014) | (0.015) | (0.018) |
| Previous land reform | | | | | -0.086** |
| | | | | | (0.037) |
| Constant | 0.048*** | 0.020 | -0.153*** | 0.357 | 0.809 |
| | (0.007) | (0.043) | (0.052) | (0.750) | (0.764) |
| Country FE | NO | NO | NO | YES | YES |
| Year FE | YES | YES | YES | YES | YES |
| Observations | 1988 | 1876 | 1386 | 1385 | 1385 |

*Note:* This table replicates the baseline analysis by excluding the five countries that have received the largest amount of annual Soviet aid per capita: Guinea, Afghanistan, Vietnam, North Korea, and Cuba. Robust standard errors clustered on country in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A11 Measuring Leader Ideology as a Series of Dummies**

| | (1) Radical land reform | (2) Radical land reform | (3) Land Reform |
|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | 0.002*** | 0.004** | 0.004*** |
| | (0.001) | (0.002) | (0.002) |
| Previous radical reform | -0.033*** | -0.142*** | |
| | (0.010) | (0.030) | |
| Previous land reform | | | -0.061 |
| | | | (0.038) |
| Centrist | 0.096* | 0.099* | 0.156*** |
| | (0.048) | (0.053) | (0.016) |
| Leftist | 0.014 | 0.073*** | 0.100*** |
| | (0.009) | (0.025) | (0.022) |
| Marxist | -0.001 | 0.024 | 0.021 |
| | (0.012) | (0.044) | (0.033) |
| Resource dependence | -0.000 | 0.000 | 0.000 |
| | (0.000) | (0.001) | (0.001) |
| Western aid (logged) | 0.004*** | 0.003 | 0.003 |
| | (0.001) | (0.003) | (0.003) |
| Period of regime transition | 0.026* | 0.032* | 0.018 |
| | (0.015) | (0.018) | (0.020) |
| GDP (logged) | 0.011** | -0.014 | 0.000 |
| | (0.005) | (0.020) | (0.020) |
| Population (logged) | 0.012*** | -0.019 | -0.077 |
| | (0.003) | (0.074) | (0.070) |
| Constant | -0.139*** | 0.358 | 0.738 |
| | (0.049) | (0.713) | (0.695) |
| Country FE | NO | YES | YES |
| Year FE | YES | YES | YES |
| Observations | 1518 | 1517 | 1517 |

*Note:* This table replicates the baseline analysis by measuring leader ideology as a series of dummies, with rightist leaders as the omitted category. Robust standard errors clustered on country in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A12 The Effect of US Aid on Land Reform in the Third World**

| | (1) Radical land reform | (2) Radical land reform | (3) Radical land reform | (4) Radical land reform | (5) Land reform |
|---|---|---|---|---|---|
| US aid per capita past 3 years (logged) | 0.001 | 0.001* | 0.001** | 0.001 | 0.001** |
| | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| Previous radical reform | | -0.009 | -0.011* | -0.106*** | |
| | | (0.006) | (0.006) | (0.024) | |
| Previous land reform | | | | | -0.038* |
| | | | | | (0.020) |
| Resource dependence | | -0.000*** | -0.000*** | -0.000 | 0.000 |
| | | (0.000) | (0.000) | (0.000) | (0.000) |
| GDP (logged) | | 0.003 | 0.008* | -0.007 | -0.004 |
| | | (0.004) | (0.004) | (0.008) | (0.012) |
| Population (logged) | | 0.004*** | 0.005*** | 0.076** | 0.037 |
| | | (0.002) | (0.002) | (0.035) | (0.045) |
| Leader ideology | | | 0.007*** | 0.013*** | 0.014*** |
| | | | (0.002) | (0.004) | (0.004) |
| Period of regime transition | | | 0.035*** | 0.033*** | 0.019 |
| | | | (0.012) | (0.012) | (0.013) |
| Constant | 0.013*** | -0.037 | -0.092** | -0.580* | -0.270 |
| | (0.002) | (0.030) | (0.037) | (0.338) | (0.445) |
| Country FE | NO | NO | NO | YES | YES |
| Year FE | YES | YES | YES | YES | YES |
| Observations | 2688 | 2452 | 2328 | 2328 | 2328 |

*Note:* This table presents the effect of cumulative US aid (previous 3 years) on the likelihood of land reforms. Robust standard errors clustered on country are in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A13 The Effect of Soviet aid on Reforms that Reversed Soviet-style Reforms in the Third World**

| | (1) Reverse Soviet reform | (2) Reverse Soviet reform | (3) Reverse Soviet reform | (4) Reverse Soviet reform |
|---|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | -0.000*** | -0.000* | -0.000 | -0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Previous reverse reform | | 0.999*** | | |
| | | (0.002) | | |
| Resource dependence | | -0.000* | -0.000** | -0.000 |
| | | (0.000) | (0.000) | (0.000) |
| GDP (logged) | | 0.000 | 0.001 | 0.005 |
| | | (0.001) | (0.002) | (0.005) |
| Population (logged) | | -0.000 | -0.002* | -0.011 |
| | | (0.001) | (0.001) | (0.022) |
| Leader ideology | | | -0.000 | 0.001 |
| | | | (0.002) | (0.001) |
| Western aid (logged) | | | 0.000 | 0.000 |
| | | | (0.000) | (0.000) |
| Period of regime transition | | | -0.004* | -0.003 |
| | | | (0.002) | (0.002) |
| Constant | 0.001 | 0.002 | 0.019 | 0.060 |
| | (0.001) | (0.013) | (0.024) | (0.219) |
| Country FE | NO | NO | NO | YES |
| Year FE | YES | YES | YES | YES |
| Observations | 2113 | 1990 | 1431 | 1430 |

*Note:* This table presents the effect of Soviet aid on the likelihood of implementing land reforms that reversed Soviet-style reforms. Robust standard errors clustered on country in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A14 The Effect of Soviet Aid on Coercive Capacity**

| | (1) Military expenditures per capita (logged) | (2) Military expenditures per capita (logged) | (3) Military Personnel per 1,000 in pop (logged) | (4) Military Personnel per 1,000 in pop (logged) |
|---|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | 0.012* | 0.013* | 0.007 | 0.009** |
| | (0.007) | (0.007) | (0.006) | (0.005) |
| Resource dependence | 0.009** | 0.007* | 0.002 | 0.002 |
| | (0.004) | (0.004) | (0.002) | (0.002) |
| GDP (logged) | 0.844*** | 0.828*** | 0.165 | 0.143 |
| | (0.182) | (0.217) | (0.145) | (0.169) |
| Population (logged) | 1.942** | 2.082** | 0.384 | -0.281 |
| | (0.747) | (0.807) | (0.448) | (0.411) |
| Leader ideology | | -0.001 | | 0.046 |
| | | (0.040) | | (0.029) |
| Western aid (logged) | | -0.038* | | 0.017 |
| | | (0.021) | | (0.014) |
| Period of regime transition | | 0.002 | | -0.050 |
| | | (0.057) | | (0.035) |
| Constant | -21.162*** | -22.385*** | -2.954 | 3.106 |
| | (7.233) | (7.812) | (4.360) | (4.072) |
| Country FE | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES |
| Observations | 1770 | 1404 | 1816 | 1415 |

*Note:* This table presents the effect of Soviet aid on the coercive capability of the recipient states. Robust standard errors clustered on country in parentheses.

* p<0.10, ** p<0.05, *** p<0.01

**Table A15 How the Effect of Soviet Aid is Conditional on Regime Transitions**

| | (1) Radical land reform | (2) Radical land reform | (3) Radical land reform | (4) Radical land reform |
|---|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | 0.002*** | 0.004** | 0.002*** | 0.004** |
| | (0.001) | (0.002) | (0.001) | (0.002) |
| Transition to leftist leader | 0.046 | 0.072 | | |
| | (0.038) | (0.049) | | |
| Transition to leftist leader × Soviet aid per capita past 3 years (logged) | -0.001 | 0.004 | | |
| | (0.003) | (0.004) | | |
| Transition to rightist leader | | | 0.028 | 0.037 |
| | | | (0.030) | (0.036) |
| Transition to rightist leader × Soviet aid per capita past 3 years (logged) | | | -0.001 | -0.001 |
| | | | (0.003) | (0.004) |
| Previous radical reform | -0.028*** | -0.144*** | -0.032*** | -0.146*** |
| | (0.010) | (0.033) | (0.010) | (0.032) |
| Resource dependence | -0.000 | 0.000 | -0.000 | 0.000 |
| | (0.000) | (0.001) | (0.000) | (0.001) |
| GDP (logged) | 0.005 | -0.010 | 0.012** | -0.009 |
| | (0.004) | (0.020) | (0.005) | (0.021) |
| Population (logged) | 0.005* | -0.026 | 0.012*** | -0.033 |
| | (0.003) | (0.080) | (0.003) | (0.076) |
| Leader ideology | | 0.029*** | 0.008** | 0.036*** |
| | | (0.009) | (0.004) | (0.010) |
| Western aid (logged) | | 0.005 | 0.004*** | 0.004 |
| | | (0.003) | (0.001) | (0.004) |
| Constant | -0.025 | 0.401 | -0.142*** | 0.460 |
| | (0.045) | (0.770) | (0.052) | (0.743) |
| Country FE | NO | YES | NO | YES |
| Year FE | YES | YES | YES | YES |
| Observations | 1990 | 1430 | 1431 | 1430 |

*Note:* This table shows the interactive effects between receiving Soviet aid and regime transition. Robust standard errors clustered on country in parentheses. * p<0.10, ** p<0.05, *** p<0.01

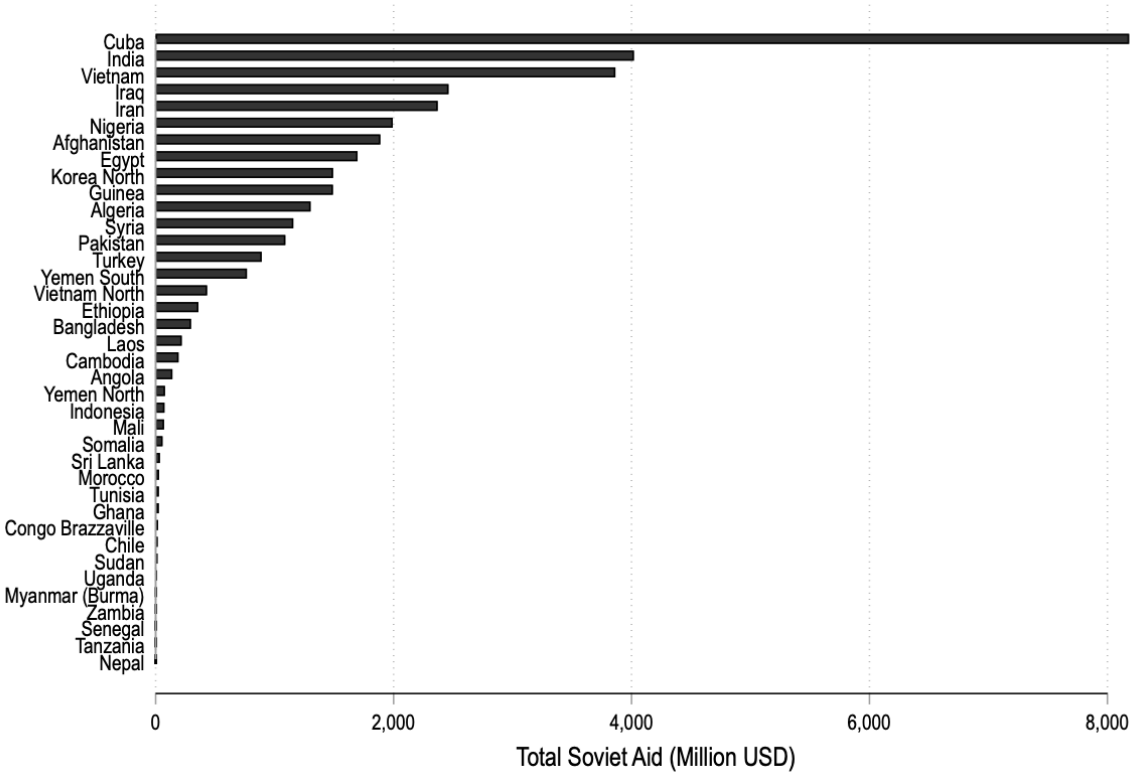
**Table A16 Comparing the Effect of Soviet aid: Before and After 1985**

| | (1) Radical land reform | (2) Radical land reform | (3) Non-radical land reform | (4) Non-radical land reform |
|---|---|---|---|---|
| Soviet aid per capita past 3 years (logged) | 0.004** | 0.003 | 0.000 | -0.000 |
| | (0.002) | (0.003) | (0.001) | (0.001) |
| Post-1985 × Soviet aid per capita previous 3 years (logged) | -0.002** | -0.002** | 0.001 | -0.000 |
| | (0.001) | (0.001) | (0.001) | (0.001) |
| Previous radical reform | -0.236*** | -0.286*** | | |
| | (0.049) | (0.087) | | |
| Previous non-radical reform | | | 0.014 | 0.099 |
| | | | (0.069) | (0.108) |
| Leader ideology | 0.017* | 0.024** | 0.010* | 0.016 |
| | (0.009) | (0.010) | (0.006) | (0.011) |
| Resource dependence | 0.001* | 0.001 | -0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Western aid (logged) | 0.001 | 0.003 | 0.000 | 0.001 |
| | (0.003) | (0.003) | (0.001) | (0.002) |
| Period of regime transition | 0.021 | 0.003 | -0.017* | -0.025** |
| | (0.015) | (0.010) | (0.010) | (0.012) |
| GDP (logged) | -0.005 | 0.024 | -0.019 | 0.023 |
| | (0.020) | (0.033) | (0.016) | (0.027) |
| Population (logged) | 0.083 | 0.098 | -0.016 | 0.093 |
| | (0.051) | (0.072) | (0.026) | (0.060) |
| Constant | -0.549 | -0.896 | 0.305 | -1.056 |
| | (0.520) | (0.777) | (0.335) | (0.708) |
| Country FE | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES |
| Observations | 1503 | 1087 | 1503 | 1087 |

*Note:* This table compares the effect of Soviet aid on the likelihood of land reforms before and after 1985. Column 1 and 3 use data from 1975 to 1995, and Colum 2 and 4 use data from 1980 to 1990. Robust standard errors clustered on country are in parentheses.

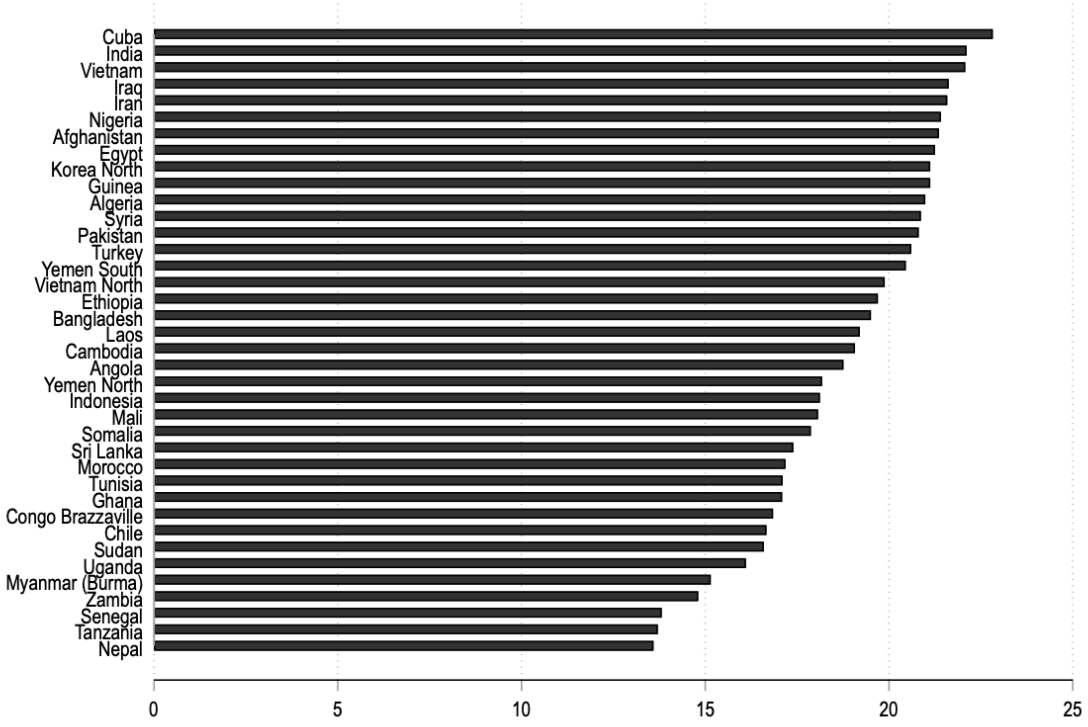
* p<0.10, ** p<0.05, *** p<0.01

**Figure A1 Total Soviet Aid by Recipient Country: 1955-1991**




*Note:* This figure shows the total amount of Soviet aid received by each country during the Cold War period. The data is from Bach (2003).

**Figure A2 Logged Total Soviet Aid by Recipient Country: 1955-1991**




*Note:* This figure shows the total amount of Soviet aid received by each country (in logged form) during the Cold War period. The data is from Bach (2003).