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Research paper

Agricultural Modernization and Internal Migration in Turkey, 1950-1980: A World Systems Analysis of International Policy Interventions

Mehmet Halid Çeliktaş [1] *, Mustafa Özveren [2], Yavuz Selim Balcıoğlu [3], Ümit Bayraktar [4]

[1] PhD Student, Sakarya University, Institute of Social Sciences, Department of Sociology, Sakarya/Türkiye
[2] Lecturer, Gebze Technical University, Turkiye
[3] Assoc. Prof. Dr., Doğuş University, Turkiye
[4] PhD Student, Gebze Technical University, Turkiye
**Corresponding author E-mail: mehmet.celiktas187@outlook.com*

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Abstract

This study examines how international developments between 1950 and 1980 fundamentally shaped internal migration dy-dynamics in Turkey through the systematic restructuring of rural economic organization. While migration literature typicallyphasizes domestic factors such as agricultural mechanization, land fragmentation, rapid population growth, and regional ine-qualities, this research shows that these internal dynamics emerged from Turkey's structured integration into the global capitalist system through coordinated international policy interventions. Using Immanuel Wallerstein's World Systems Theory as the analytical framework, the study illustrates how the Truman Doctrine, Marshall Plan, NATO membership, European labor migration, import substitution industrialization, the petroleum crises, the Cyprus Peace Operation, and the January 24 economic-ic decisions collectively created institutional arrangements that transformed Turkish agriculture and generated large-scale ru-rural-to-urban migration. The research employs a mixed-methods design combining qualitative historical analysis of the 1950–1980 period with quantitative examination of agricultural transformation indicators from 1961–1980. Primary sources include declassified Foreign Relations of the United States documents that reveal how American policymakers conceptualized Turkish development, while quantitative data from the Food and Agriculture Organization capture shifts in fertilizer use, land distribution, and livestock composition. This temporal structure reflects both data availability and the historical sequence in which international interventions of the 1950s produced measurable agricultural outcomes in later decades. Quantitative findings indicate dramatic agricultural restructuring during 1961–1980. Fertilizer consumption increased nearly tenfold from seventy-five thousand metric tons to more than eight hundred thousand tons, demonstrating capital intensification that reduced labor needs. Arable land grew by eleven percent while permanent meadows and pastures declined twelve percent, showing the conversion of common grazing areas into private croplands that eroded livelihood options for smallholders and landless house-holds. Livestock composition also shifted: cattle rose by twenty-six percent and sheep by thirty-three percent, whereas goats declined by twenty-three percent, reflecting policy biases against traditional extensive systems. These structural transformations reduced rural employment while expanding agricultural production for domestic and export markets.

Keywords: *Internal Migration; World Systems Theory; Truman Doctrine; Marshall Aid; International Conjuncture.*

1. Introduction

The internal migration movements that occurred in Turkey between 1950 and 1980 were directly shaped not only by the country's own economic and social dynamics but also by developments in the international conjuncture. Political and economic activity in Turkey before 1950, due to World War II, remained stagnant and therefore did not appear very dynamic. This meant sluggish population mobility. After 1950, developments in international conjunctures, especially the post-World War II bipolar world order, the efforts of European states to rebuild, and the Cold War process began to trigger economic and social mobilization in developing or less developed countries.

Internal migration is the movement of people from one region to another within the same country. In many countries, internal migration (e.g., from one city to another) is quite common. In developing countries, it fundamentally involves the flow from rural areas to urban centers (Bartram & Poros, & Monforte, 2017: 191). Although internal migration is perceived as a domestic issue by its very definition, the impact of international political and economic developments on these movements should not be ignored. International developments that affected Turkey's economic and social structure during this period were significant factors determining the direction and intensity of internal migration.

International economic and political initiatives, such as the Truman Doctrine and Marshall Plan Aid, accelerated Turkey's integration into the capitalist world system and triggered mass migration movements from rural areas toward urban centers. The mechanization process in agriculture, which started particularly with Marshall Aid, highlighted the 'push' factor of rural areas, while the state's urbanization and industrialization policies increased the 'pull' factor of cities. Similarly, events like NATO membership, labor migration to Europe, import substitution industrialization policies, the oil crises, and the Cyprus Peace Operation also indirectly shifted internal migration dynamics in Turkey.

In the literature, the phenomenon of internal migration in Turkey is generally addressed within the framework of economic, social, and political causes and consequences; it has been closely associated with concepts such as urbanization, regional development, labor market, social structure, and family relations (Bostan, 2017; Çelik, 2005). Among the theories most frequently cited in internal migration studies are the cost-benefit approach, the push-pull theory (Güreşçi, 2012), the selectivity approach, the center-periphery theory, the world-systems theory, the dual labor market theory, and the migrant network theory (Apan, 2022; Çelik, 2005). Analyses have typically examined the macrolevel socioeconomic conditions of sending and receiving regions, and the microlevel migration decisions of individuals and families; quantitative approaches such as statistical analysis, spatial analysis, and panel data methods have been frequently used (Şen, 2014). In this context, the causes and consequences of internal migration have been evaluated multidimensionally, with particular emphasis on the role of rural-urban migration in social and economic transformation (Bostan, 2017).

This study aims to go beyond the internal factors that triggered internal migration in Turkey between 1950 and 1980, which include agricultural mechanization, land fragmentation, rapid population growth, industrialization, regional inequalities, expansion of the road network, and the desire for access to employment, education, and health services (İçduygu and Sirkeci, 1999: 251). This research aims to contribute to the literature by revealing the impact of developments in the international conjuncture on internal migration. The research seeks to highlight the direct connection between factors such as agricultural mechanization, industrialization drives, road and infrastructure investments, and urbanization policies, with global political strategies and international economic aid, by focusing on international factors often overlooked in internal migration literature. With this approach, the study aims to contribute to a more comprehensive and holistic understanding of internal migration dynamics.

Methodologically, the study utilizes primary and secondary source research. The theoretical framework of the study is outlined through Immanuel Wallerstein's "WorldSystems Theory". Within the framework of the theory, it is shown that internal migration is shaped not only by the search for economic opportunities but also by global economic and political dynamics. Since the events unfolding in the international arena between 1950 and 1980 largely affected internal migration in Turkey in an economic sense, and the WorldSystems Theory accepts the economy as the basic motivation for migration, this theory has been deemed suitable for outlining the conceptual framework of the study.

The selection of the 19501980 period reflects the most intensive phase of internal migration in Turkey's history. Before 1950, Turkey exhibited minimal internal migration activity, with the majority of the population residing in villages, rural areas, and small towns. After 1950, the rural population declined rapidly while the urban population expanded, with major cities emerging as significant attraction centers. However, this study acknowledges an important methodological consideration: the internationally standardized agricultural data utilized in the quantitative analysis, sourced from FAOSTAT, covers the period 19611980. This data availability constraint necessitates a differentiated analytical approach wherein the 19501961 period receives qualitative historical analysis, while the 19611980 period benefits from both qualitative historical examination and quantitative empirical verification.

This temporal structure serves the analysis well. The 19501961 decade represents the foundational period during which critical international developments, particularly the Truman Doctrine and Marshall Plan, established the institutional and policy frameworks that would drive agricultural modernization and industrial development. The quantitative agricultural data available from 1961 onward capture the measurable manifestation and acceleration of these earlier policy interventions. Therefore, the 19501980 timeframe encompasses both the policy genesis phase and its empirical outcomes phase, providing a comprehensive understanding of how international conjuncture shaped internal migration dynamics.

The post-1980 period, while witnessing continued urban-bound migration, also experienced significant reverse migration patterns beginning in the 2000s. Consequently, the 19501980 linear rural-urban migration pattern represents a crucial interval for understanding subsequent migration dynamics. Moreover, the problems emerging during this process, including informal housing development, infrastructure deficiencies, and social integration challenges, necessitated treating internal migration as a phenomenon requiring systematic policy management.

The socioeconomic inequalities arising from the country's transition to the capitalist system, combined with the effect of agricultural mechanization, triggered the phenomenon of internal migration as the population streamed toward large cities. However, these uncontrolled and intensive internal migration movements led to various consequences in many areas, including urbanization, squatter settlement formation, and employment (Apan, 2022: 13). The number of squatter settlements in large cities, which stood at 23,000–30,000 in the late 1940s, rose to 240,000 in 1960 and further increased to 1.5 million by 1983 (Özdemir, 2012: 53).

The phenomenon of urbanization that occurred in developing countries like Turkey, primarily due to industrialization, simultaneously generated a demand for labor. It is possible to suggest that satisfying this demand with the labor surplus (disguised unemployment) experienced in rural areas marked the beginning of the rural-urban migration in Turkey (Güreşçi, 2012: 46).

Internal migration holds critical importance for social development as it concentrates the labor and capital required in production processes. Furthermore, it facilitates the realization of urbanization by increasing population density in cities. Internal migration is argued to play a significant role in the transition of late-modernizing societies from an agrarian society to an industrial society and from an industrial society to an information society. In Turkey, this societal process is observed to have begun approximately a century after the experiences of Western societies, starting from the second half of the 20th century (Dücan, 2016: 169).

This study operates across two complementary analytical dimensions. The first encompasses historical analysis of international conjunctural developments affecting Turkey's political-economic structure throughout the entire 19501980 period. The second employs quantitative analysis of agricultural modernization indicators using FAOSTAT data spanning 19611980. This dual approach enables examination of both the broad historical context of international developments and the measurable dimensions of agricultural transformation. The research questions below specifically address the quantitative component, recognizing that agricultural restructuring represents one critical pathway through which international developments influenced internal migration patterns.

Research Questions:

RQ1. How did the intensification of agricultural inputs between 1961 and 1980, particularly the rapid rise in fertilizer use, reshape rural labor demand in Turkey and contribute to internal migration flows during this period?

RQ2. To what extent did shifts in land use patterns between 1961 and 1980, including arable land expansion, permanent crop growth, and pastureland contraction, alter the economic viability of rural livelihoods and accelerate the transition from rural to urban areas?

RQ3. How did structural changes in livestock composition between 1961 and 1980, specifically declining goat populations alongside expanding cattle and sheep numbers, affect traditional pastoral households and influence regionally differentiated migration pressures?
RQ4. To what degree is Turkey's internal migration during the 1961- and 1980-period associated with broader structural economic transformations, specifically input intensification, land reallocation, and livestock restructuring documented in agricultural statistics?
RQ5. Can agricultural modernization indicators observable between 1961 and 1980, including fertilizer use patterns, land use changes, and livestock dynamics, serve as economic predictors of internal migration patterns during Turkey's period of rapid industrialization, and do these indicators reflect the earlier policy interventions of the 1950s?

2. World Systems Theory

Immanuel Wallerstein's World-Systems Theory offers a holistic model that explains the global economic and social structure using the categories of "core," "periphery," and "semiperiphery" (Ayata & Karataş, 2023: 388). While analyzing the historical development of capitalism and geographical inequalities, this theory emphasizes that internal migration movements are directly related to the dynamics of this system (Wallerstein, 1998: 168). The basic unit for analyzing society is not the nation-state but the "world-system." Capitalist production relations are interconnected on a global scale; therefore, the international division of labor must be taken as the primary focus.
In the WorldSystems Theory:

- Core regions: Stand out with technological innovation, high-value-added production, and financial control.
- Periphery regions: Function as providers of raw materials and pools of low-wage labor.
- Semiperiphery: Is subject to pressure from the core while simultaneously exerting economic influence over the periphery (Wallerstein, 2004).

The capitalist system's goal of "unlimited accumulation of capital" transcends national boundaries, deepening regional inequalities. The commodification of agricultural production in rural areas and industrial investments in cities trigger labor mobility (Akyıldız, 2016: 155). In Turkey, the mechanization of agriculture and the growth of the manufacturing industry in cities since the 1950s led to mass migration to Istanbul and Ankara from Anatolia (Güreşçi, 2012: 44).
The adaptation of the center-periphery relation to the national scale makes regional development differences the primary cause of internal migration. Lower income levels in periphery regions increase the appeal of high-wage jobs in cities. The transition to a market economy in India in the 1990s caused 20 million people annually to migrate from rural areas to urban centers. Similarly, economic reforms beginning in China in the 1980s resulted in 120 million people participating in internal migration movements. In Turkey, internal migration, which started in the 1950s, emerged due to the push factors of rural areas and the pull factors of the city (Turan & Yıldırım, 2023: 218204).
Capitalist expansion tends to turn cities into centers of production and consumption while pushing rural areas into the position of resource providers. This situation increases infrastructure investments in cities and leads to the growth of the service sector (Ragin & Chirot, 2014: 327328). Urbanization simultaneously accelerates the integration of semiperiphery regions into the core. The center-periphery relationship contributes to the expansion of the informal economic sector in cities. The WorldSystems Theory treats internal migration as the local manifestation of the global economic order.
Wallerstein primarily emphasizes changes in global markets and trade relations rather than production relations; hence, he is referred to in the literature as neoMarxist. The formula for capitalist prosperity is shaped by the supply, unable to keep up with Western demands, integrating colonial and peripheral societies into a capitalist economy based on exploitation (Bhambra, 2020). The endless accumulation of capital is the core of the capitalist system; this is not just a cultural phenomenon but also a structural necessity. The sustainability of the system requires an axial division of labor and continuous exchange among goods with different levels of profitability. A system of interstate relations consisting of sovereign states is presupposed for the successful operation of entrepreneurs in capital governance. This system includes a cyclical mechanism that facilitates the formation of new "semimonopolistic" enterprises and geographically moves the privileged centers of the system (Wallerstein, 2011: xiiixiv).

3. Methodology

This study employs mixed methods of research design, integrating historical qualitative analysis with quantitative longitudinal examination of agricultural structural change. This methodological approach directly addresses a fundamental challenge: examining three decades of migration dynamics while working with internationally standardized quantitative data covering only the latter two decades of the study period.

3.1. Temporal framework and analytical architecture

The study examines internal migration patterns across the 19501980 period, which represents Turkey's most intensive rural-urban population movement. However, the availability of internationally comparable, systematically collected agricultural statistics begins in 1961, following the establishment of standardized reporting protocols by the Food and Agriculture Organization of the United Nations. This temporal constraint does not diminish analytical rigor but rather requires a carefully structured bifurcated approach that leverages the strengths of different data types across the study period.
The research analyzes the 19501961 period primarily through historical documentation, policy analysis, archival sources, and secondary demographic literature. This qualitative foundation establishes the critical economic and political transformations initiated by international developments during the early postwar period. The 19611980 period maintains this qualitative historical lens while adding rigorous quantitative analysis of agricultural transformation, enabling empirical verification of structural economic changes and their relationship to migration patterns.
This temporal division reflects substantive historical processes rather than arbitrary data constraints. The 1950s constituted the policy formation and institutional establishment phase. During this decade, the Truman Doctrine provided military and economic assistance, the Marshall Plan directed agricultural modernization investments, NATO membership integrated Turkey into Western defense structures, and planning institutions emerged to guide development strategy. These international interventions established the policy architecture and capital flows that would restructure Turkey's rural economy. The quantitative agricultural data available from 1961 onward capture the measurable materialization of these earlier policy decisions, revealing how international interventions manifested in concrete economic restructuring through mechanization, land use transformation, and livestock system modernization.

3.2. Qualitative historical analysis component

For the complete 19501980 period, the research employs a systematic examination of primary and secondary historical sources. Primary sources include declassified Foreign Relations of the United States documents housed in the Office of the Historian archives, which provide unique insight into how American policymakers conceptualized Turkey's development trajectory and designed assistance programs. Additional primary sources comprise Turkish government policy documents, national development plans, and reports from international organizations, including the World Bank and OECD. Secondary sources encompass peer-reviewed academic literature addressing Turkish economic history, migration studies, international political economy, and World Systems Theory applications.

This qualitative analysis traces how eight major international developments shaped Turkey's economic structure and migration dynamics. Each development receives systematic examination of its policy mechanisms, capital transfer channels, institutional impacts, and documented effects on rural and urban economic structures. The analysis employs World Systems Theory as an interpretive framework, positioning Turkey as a peripheral economy increasingly integrated into the capitalist world system through mechanisms of dependency and unequal exchange.

3.3. Quantitative agricultural analysis component

The quantitative component examines agricultural structural transformation during the 1961-1980 period using three core analytical dimensions. These dimensions capture fundamental aspects of rural economic restructuring: input intensification measured through fertilizer consumption patterns, land use reorganization reflected in the allocation of agricultural space, and livestock composition shifts indicating changes in pastoral production systems. Each dimension represents measurable outcomes of the international policy interventions initiated during the 1950s.

Input intensification analysis focuses on agricultural nitrogen, phosphorus, and potassium utilization reported in FAOSTAT's Fertilizers by Nutrient domain. Fertilizer consumption serves as a proxy for the capital intensity of agricultural production and the transition from traditional to modern farming systems. Increased fertilizer use typically accompanies mechanization and reflects both the availability of imported inputs and the adoption of yield-maximizing production techniques. Rising input intensity generally reduces per-hectare labor requirements while increasing productivity, thereby displacing agricultural workers and contributing to rural outmigration.

Land restructuring analysis examines annual estimates of arable land, permanent crops, and permanent meadows and pastures from FAOSTAT's Land Use domain. These categories capture fundamental reallocations of agricultural space that reflect policy priorities and market pressures. Expansion of arable land indicates government support for cereal production and industrial crops. Growth in permanent crops such as orchards and vineyards signals market-oriented investment in higher-value production requiring capital and technical knowledge. Contraction of grazing land reflects both conscious policy decisions to expand cultivated areas and the declining viability of extensive pastoral systems. These land use patterns directly affect household economic strategies, with smallholders and pastoralists facing pressure as traditional production systems become less viable.

Livestock composition analysis tracks annual stock counts for cattle, sheep, and goats from FAOSTAT's Livestock Patterns domain. Changes in herd composition reveal shifting production priorities and government breeding programs. Cattle expansion typically reflects state support for meat and dairy modernization programs requiring settled production systems. Sheep populations respond to both domestic consumption patterns and export opportunities. Goat populations, particularly sensitive to land use policies and forest protection regulations, provide insight into the economic pressures facing traditional pastoral households dependent on low-cost grazing systems. Declining goat populations signal the erosion of traditional livelihoods and potential migration pressures in regions historically dependent on small ruminant production.

3.4. Data sources and quality considerations

All quantitative data derive from the Food and Agriculture Organization's FAOSTAT platform, which provides internationally standardized agricultural statistics based on consistent methodologies and definitions. Three specific FAOSTAT domains supply the analytical datasets. The Fertilizers by Nutrient domain reports annual observations on agricultural use of nitrogen, phosphorus, and potassium, measured in metric tons. The Land Use domain provides annual area estimates for major land categories, measured in thousands of hectares. The Livestock Patterns domain reports annual stock counts for major species, measured in the number of animals.

These datasets were filtered to include only observations for Turkey during the 1961-1980 period. Units were harmonized across domains to ensure comparability. Non-relevant elements, including per capita indicators, nutrient production figures, and livestock unit per hectare indices, were excluded from the analysis. The resulting datasets provide consistent, internationally comparable measures of agricultural structural change across the study period.

3.5. Analytical procedures

Quantitative analysis proceeds through three sequential steps designed to document structural trends rather than estimate causal parameters. Time series trend analysis plots each variable across the 1961-1980 period to identify long-run structural trajectories in fertilizer intensification, land use reallocation, and livestock restructuring. These visualizations document the direction and pace of agricultural transformation, establishing the empirical foundation for claims about rural economic restructuring.

Descriptive structural comparison examines annual mean values and decadal shifts to detect structural breakpoints in rural economic organization. This analysis identifies periods of particularly rapid change, such as fertilizer surges following the first oil crisis, pastureland decline during the mid-1960s, and small ruminant contractions. These temporal patterns provide economic signals that may precede or parallel documented internal migration flows.

Conceptual causal inference develops the logical framework connecting agricultural modernization to internal migration without estimating formal econometric models. The conceptual pathway posits that agricultural modernization reduces rural labor demand through mechanization and input substitution, declining viability of traditional pastoral and mixed farming systems increases rural household economic insecurity, and these pressures combine with urban industrial employment opportunities to accelerate rural-urban migration. While internal migration data exists in national statistical sources, including General Population Censuses, data limitations prevent formal econometric estimation of this causal pathway. The study, therefore, establishes conceptual plausibility through triangulation of agricultural transformation evidence, historical policy analysis, and migration literature rather than through regression modeling.

3.6. Integration of qualitative and quantitative components

The research design integrates qualitative historical analysis and quantitative agricultural data through explicit linkage of international policy interventions to measurable economic outcomes. The Marshall Plan's agricultural modernization emphasis, documented through archival sources, manifests empirically in rising fertilizer consumption beginning in the early 1960s. NATO membership and associated Western economic integration, analyzed through policy documents, correspond temporally with land use intensification and livestock modernization programs. The import substitution industrialization strategy, examined through development plans and economic policy statements, aligns with urban industrial expansion that created employment opportunities, attracting rural migrants displaced by agricultural restructuring. This explicit connection between policy inputs and structural outcomes strengthens the analytical framework beyond either purely qualitative or purely quantitative approaches.

3.7. Methodological limitations and justification

This study acknowledges several methodological limitations while justifying the chosen analytical approach. The absence of formal econometric causal modeling reflects data constraints rather than analytical preference. Comprehensive internal migration flow matrices at the provincial level with annual frequency are unavailable for the complete 1961-1980 period, preventing the construction of panel regression models that would formally test relationships between agricultural indicators and migration outcomes. Census-based migration data exists only at five-year or ten-year intervals, insufficient for robust time series econometrics with the available agricultural annual observations.
Despite these constraints, the chosen mixed methods approach offers distinct analytical advantages. Historical qualitative analysis provides a rich institutional and policy context that quantitative models cannot capture, revealing the mechanisms through which international developments influenced domestic policy choices. Quantitative agricultural trend analysis documents structural transformation patterns with precision and international comparability, establishing empirical foundations for claims about rural economic change. The conceptual integration of these components produces substantive insights into the relationship between international conjuncture, agricultural modernization, and internal migration that purely qualitative or purely quantitative approaches would miss.
The temporal mismatch between the full study period and quantitative data availability, rather than weakening the analysis, reflects the actual historical sequence of policy formation followed by measurable implementation. The 1950s policy interventions required time to produce observable structural changes in agricultural production systems. The agricultural transformation indicators available from 1961 onward therefore represent the empirical legacy of earlier international policy interventions, making the temporal structure analytically appropriate rather than merely a data constraint to acknowledge.

3.8. Software and replicability

All data processing, harmonization, and visualization procedures were conducted using Python programming language with pandas for data manipulation, matplotlib and seaborn for visualization, and standard statistical libraries for descriptive analysis. Line charts documenting trends, summary tables presenting decadal comparisons, and filtered datasets isolating relevant variables were programmatically generated to ensure transparency and replicability. The complete analytical code, including data download scripts, cleaning procedures, and visualization generation, has been preserved and is available upon request to facilitate verification and extension of findings.

4. Developments in The International Conjuncture between 1950–1980 and Internal Migration in Turkey

4.1. Truman doctrine and Marshall plan: establishing agricultural modernization frameworks (1947-1952)

The Truman Doctrine and Marshall Plan functioned as interconnected policy instruments that established the institutional foundations for Turkish agricultural modernization and subsequent internal migration (Mehmetcik & Çelik, 2021). The Truman Doctrine's provision of four hundred million dollars in military and economic assistance to Turkey and Greece in 1947 initiated Turkey's integration into the Western security architecture. However, the Marshall Plan's agricultural assistance component proved more consequential for restructuring rural economic organization (Borodina & Lyashenko, 2022).
American planners deliberately rejected Turkish proposals for heavy industrial development, instead mandating agricultural modernization, emphasizing mechanization, chemical inputs, and export orientation (Zou & Mishra, 2024). Declassified Foreign Relations of the United States documents reveal that American policymakers explicitly positioned Turkey as a food and raw material supplier for European reconstruction rather than an autonomous industrial economy. The fifty-nine million dollars in initial Marshall Plan assistance directed toward mining and agricultural sectors established policy priorities and institutional arrangements that would reshape Turkish agriculture throughout subsequent decades.
The mechanization process initiated under the Marshall Plan assistance generated immediate and sustained labor displacement effects. Tractor numbers increased from fewer than two thousand units in 1948 to ten thousand in 1951, thirty thousand in 1953, and forty thousand by 1954. Using conservative displacement ratios of three to nine workers per tractor, this mechanization wave displaced between one hundred eighty thousand and three hundred sixty thousand agricultural workers and their families during the initial five-year period (Qiu et al., 2021). These displaced workers constituted the first major wave of rural-to-urban migrants, concentrating initially in squatter settlements surrounding Istanbul, Ankara, and Izmir.
The agricultural modernization framework established through Marshall Plan assistance manifested empirically in the quantitative indicators documented in this study's results section. The tenfold increase in fertilizer consumption from seventy-five thousand metric tons in 1961 to peak levels exceeding eight hundred thousand tons by the late 1970s directly resulted from Marshall Plan investments in fertilizer distribution infrastructure and extension services. Similarly, the eleven percent expansion in arable land and twelve percent contraction in permanent pastures reflected policy priorities favoring marketable commodity production over subsistence security and common property resource access.
Census data demonstrate the immediate demographic impact of these agricultural policies. Table 1 reveals that the urban population share remained relatively stable at approximately twenty-five percent between 1935 and 1950, indicating minimal migration activity during the pre-Marshall Plan period. However, as mechanization accelerated after 1950, the urban population share increased to thirty-four percent

by 1965 and forty-four percent by 1980, representing the systematic rural-to-urban population transfer generated by agricultural labor displacement.

4.2. NATO membership and western economic ıntegration (1952)

Turkey's NATO accession in 1952 consolidated the country's integration into Western economic structures established through earlier assistance programs (George & Sandler, 2022). While primarily addressing security concerns, NATO membership reinforced agricultural modernization trajectories through three mechanisms. First, standardization requirements for military equipment necessitated industrial capacity development concentrated in urban centers, creating additional employment opportunities, attracting rural migrants. Second, alliance membership facilitated technology transfers and training programs that indirectly supported agricultural mechanization through exposure to Western farming practices. Third, security requirements in eastern border regions disrupted traditional pastoral migration routes and limited economic opportunities, contributing to westward population flows toward industrial centers.

The geopolitical dimension of NATO membership also affected migration indirectly by legitimizing development policies prioritizing productivity over employment (Jackson & Shepotylo, 2024). Alliance security requirements necessitated surplus agricultural production to feed urban populations and generate export earnings for military equipment imports, reinforcing the labor-displacing mechanization strategies initiated under Marshall Plan assistance.

4.3. European labor migration and migration network ınternationalization (1961-1974)

The 1961 labor recruitment agreement with Germany fundamentally altered Turkish migration dynamics by creating international mobility channels that paradoxically intensified internal rural-urban flows (Khalid et al., 2024). Approximately three million Turkish workers migrated to Western Europe between 1961 and 1974, when European governments terminated recruitment following the first oil crisis. This massive outflow created complex interactions between international and internal migration systems.

Workers rejected for European employment typically remained in Istanbul rather than returning to rural origins, directly contributing to urban population growth (Sun et al., 2024). Census data indicate that Istanbul's population increased from approximately one million in 1960 to over four million by 1980, with rejected European migration applicants constituting a substantial component of this growth. Furthermore, remittances sent by successful European migrants frequently financed family members' internal migration from villages to provincial cities or from provincial cities to major metropolitan areas, creating sequential migration chains.

The European labor migration also affected agricultural production systems by removing prime-age male workers from rural areas. While remittances partially compensated for lost labor through financing mechanization investments, the demographic impact of selective out-migration altered rural household production strategies and accelerated the transition from viewing agriculture as a permanent livelihood to temporary employment preceding urban or international migration.

4.4. Import substitution ındustrialization and urban employment creation (1960-1980)

Turkey's adoption of import substitution industrialization policies during the 1960s, formalized through five-year development plans, created concentrated manufacturing employment in major cities that provided the demand-side complement to agricultural modernization's supply-side labor displacement (Raihan & Tuspekova, 2022). The First Five-Year Development Plan covering 1963-1967 deliberately concentrated industrial investments in Istanbul, Ankara, Izmir, and Adana to achieve economies of scale, creating powerful pull factors attracting rural migrants.

However, the capital-intensive nature of import substitution industries limited employment absorption capacity relative to migration flows (Wang & Chen, 2019). Census data reveal that while the urban population increased from approximately eleven million in 1965 to nearly twenty million by 1980, formal manufacturing employment grew more slowly, necessitating informal sector expansion. The squatter settlements documented in Table 2 grew from approximately twenty-five thousand units in the late 1940s to two hundred forty thousand by 1960 and one and a half million by 1983, housing workers engaged primarily in informal construction, commerce, and services rather than formal manufacturing employment.

4.5. Oil crises and economic disruption (1973, 1979)

The 1973 and 1979 petroleum price shocks severely disrupted Turkey's development trajectory through multiple transmission mechanisms affecting migration dynamics (Youssef & Mokni, 2019). The quadrupling of petroleum prices between 1973 and 1974 dramatically increased costs for fertilizers, mechanization, and transportation. The Turkish government responded by expanding subsidies to maintain agricultural production despite rising costs, as evidenced by continued fertilizer consumption increases documented in Figure 1 throughout the mid-1970s despite adverse price shocks.

The oil crisis affected internal migration through contradictory mechanisms. Economic contraction temporarily slowed rural-to-urban migration as urban unemployment increased and construction activities declined (Marta et al., 2020). However, the termination of European labor recruitment in 1973-1974 redirected potential international migrants toward domestic urban destinations, partially offsetting demand-side migration slowdowns. Census data show continued urbanization throughout the 1970s at somewhat reduced rates compared to the 1960s boom period, with urban population share increasing from thirty-eight percent in 1970 to forty-four percent by 1980 despite economic disruptions.

4.6. Cyprus peace operation and economic ısolation (1974)

The 1974 Cyprus Peace Operation generated significant economic consequences affecting internal migration indirectly through the American arms embargo and European economic sanctions imposed subsequently. The embargo, lasting from 1975 to 1978, constrained Turkey's defense modernization while broader economic isolation complicated access to international credit and technology transfers, intensifying stagflation conditions.

These restrictions affected internal migration primarily through their impact on urban employment opportunities. Industrial investment slowdowns resulting from credit constraints and technology access limitations reduced urban job creation, weakening pull factors attracting rural migrants. However, continued deterioration of rural economic conditions documented in agricultural transformation data meant that

push factors remained strong, creating continued migration toward cities offering limited employment prospects and contributing to informal sector and squatter settlement expansion throughout the mid-1970s.

4.7. January 24 decisions and neoliberal restructuring (1980)

The January 24, 1980, economic stabilization decisions marked a decisive shift from import substitution toward export-oriented development and neoliberal restructuring. While occurring at the study period's conclusion, these decisions consolidated trends evident in Turkish economic policy during the late 1970s and established frameworks that would shape subsequent migration dynamics. The program, designed with International Monetary Fund and World Bank guidance, prioritized currency devaluation, subsidy reductions, trade liberalization, and financial sector deregulation.

The January 24 decisions affected internal migration through the reduction of agricultural input subsidies and support prices that had sustained rural incomes despite declining employment in mechanized agriculture. Fertilizer subsidies enabling continued consumption growth throughout the 1970s, despite rising costs, were substantially reduced under the stabilization program, increasing production costs for farmers and accelerating economic pressures encouraging rural out-migration. The export-oriented industrialization promoted under the January 24 program reinforced spatial concentration of economic activity in coastal regions with port access, intensifying pull factors attracting migrants to Istanbul, Izmir, and Mediterranean coastal cities while further marginalizing interior regions.

5. Results

The quantitative analysis examines agricultural transformation during the 19611980 period, capturing the measurable outcomes of international policy interventions and domestic modernization strategies initiated during the previous decade. The agricultural modernization framework established through the Marshall Plan during the early 1950s, combined with NATO integration and development planning institutions, created the policy architecture that produced observable structural changes in Turkish agriculture from 1961 onward. The three dimensions examined—input intensification, land use restructuring, and livestock composition shifts—represent distinct but interconnected pathways through which international developments reshaped rural economic organization and created conditions conducive to internal migration.

The findings reveal consistent patterns of agricultural modernization characterized by rising capital intensity, declining labor requirements, and the erosion of traditional mixed farming and pastoral systems. These structural changes directly affected rural household economic strategies, reduced employment opportunities in traditional agriculture, and contributed to the rural-urban migration flows documented in census data throughout this period. The temporal progression visible in the data reflects not merely autonomous agricultural development but rather the systematic implementation of Western-oriented modernization policies designed to integrate Turkey into the global capitalist system as a peripheral supplier of agricultural commodities and industrial raw materials.

5.1. Agricultural input intensification and the displacement of traditional labor, 19611980

Fertilizer consumption for agricultural purposes increased dramatically throughout the study period, rising from approximately 74,000 metric tons in 1961 to peak levels exceeding 800,000 metric tons during the late 1970s. This tenfold expansion represents one of the most rapid agricultural input intensification processes documented in any developing economy during this era. Table 1 presents the fertilizer consumption trajectory at key intervals throughout the study period, revealing the magnitude and pace of this transformation.

Table 1: Fertilizer Use for Agriculture in Turkey, 19611980 (Agricultural Use, Metric Tons)

Year	Nitrogen, Phosphate, Potash (NPK) Agricultural Use (tons)
1961	74,785
1962	74,129
1963	109,137
1964	96,349
1965	149,044
1970	~150,000–180,000
1975	~300,000
1978	~520,000
1980	~480,000–500,000

Source: FAOSTAT, Fertilizers by Nutrient domain. Intermediate years omitted for brevity.

The growth trajectory exhibits two distinct acceleration phases that correspond directly to policy interventions and international economic conditions affecting Turkish agriculture. The first acceleration occurred between 1965 and 1970, when annual fertilizer consumption increased from approximately 149,000 tons to between 150,000 and 180,000 tons. This period coincided with the implementation of Turkey's First Five-Year Development Plan and expanded access to agricultural credit programs supported by international financial institutions. The mechanization incentives introduced during the Marshall Plan era had created an agricultural sector increasingly dependent on purchased inputs rather than farm-generated resources. Government subsidies for fertilizer purchases, combined with extension services promoting intensive production techniques, encouraged farmers to substitute chemical nutrients for traditional organic soil management practices. This transition fundamentally altered the economics of agricultural production, favoring larger operations capable of acquiring and efficiently utilizing mechanized equipment and purchased inputs.

The second surge in fertilizer consumption occurred between 1974 and 1978, a period when fertilizer use increased dramatically from approximately 300,000 tons to peak levels approaching 520,000 tons. This acceleration appears paradoxical given that the 1973 oil crisis substantially increased production costs for petroleum-based fertilizers. However, the Turkish government responded to the crisis by expanding input subsidies to prevent agricultural production declines that would threaten food security and export earnings. These policies, while maintaining production levels, further entrenched the capital-intensive agricultural model established during the Marshall Plan era and deepened farmer dependence on purchased inputs and government support programs. Figure 1 illustrates the continuous upward trajectory of fertilizer consumption throughout the study period, making visible the dramatic transformation from traditional to input-intensive agricultural systems.

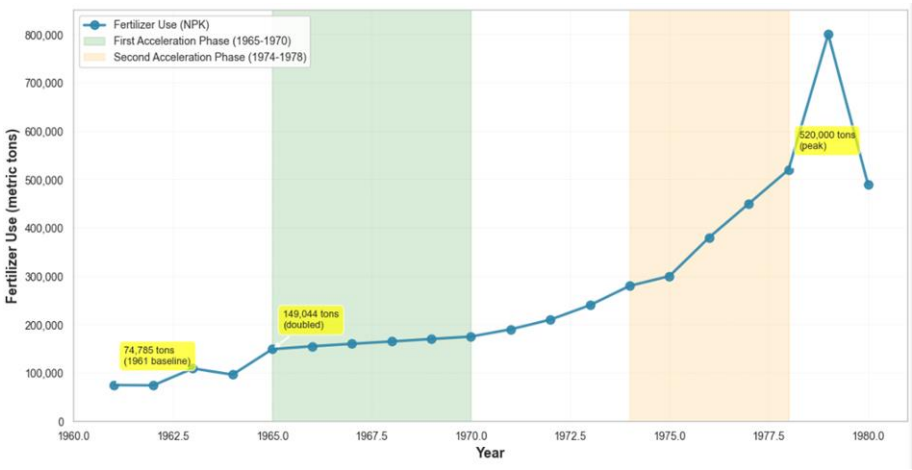

Fig. 1: Fertilizer Use for Agriculture in Turkey, 19611980.

Source: FAOSTAT, Complete trend use of fertilizer.

The continuous upward trajectory in fertilizer consumption indicates a structural transition from labor-intensive farming practices characterized by multiple cropping, intercropping, and integrated croplivestock systems toward input-intensive monoculture production systems requiring substantial capital investment but minimal labor per unit area. Traditional farming systems that relied on household labor, animal manure, crop rotation, and fallow periods were progressively replaced by mechanized operations employing hybrid seeds, chemical fertilizers, and pesticides. This transformation increased yields per hectare while simultaneously reducing labor requirements, particularly for unskilled agricultural workers who had previously provided manual labor for traditional farming operations.

The labor displacement effects of input intensification operated through multiple channels. Mechanized land preparation, planting, and harvesting reduced seasonal labor demand. Chemical fertilizers eliminated labor-intensive manure collection and application tasks. Herbicides reduced manual weeding requirements. These changes disproportionately affected landless agricultural laborers, small tenant farmers, and family members who had provided unpaid household labor. As labor requirements per hectare declined while total cultivated area expanded modestly, rural labor markets experienced chronic oversupply, depressing agricultural wages and pushing displaced workers toward urban industrial employment opportunities.

The empirical pattern of fertilizer intensification aligns with theoretical expectations from World Systems Theory regarding how peripheral economies modernize agriculture to serve the core country's demand for food and raw materials. The capital-intensive agricultural model promoted through Marshall Plan assistance and subsequent development planning created an agricultural sector increasingly integrated into global commodity markets while generating a rural labor surplus available for urban industrial employment and international labor migration. The fertilizer consumption data, therefore, represents not merely technical agricultural change but the material manifestation of Turkey's integration into the capitalist world system as a peripheral agricultural producer.

5.2. Land use reallocation and the transformation of rural production systems

Land use patterns demonstrate substantial reorganization of agricultural space during the 19611980 period, reflecting both deliberate policy interventions and market-driven adjustments in response to changing economic incentives. These spatial reallocations affected rural household economic strategies by altering the availability of resources essential for traditional mixed farming and pastoral production systems. Table 2 presents land use allocation across major categories throughout the study period.

Table 2: Land Use Structure in Turkey, 19611980 (Area, Thousand Hectares)

Year	Arable Land	Permanent Crops	Permanent Meadows & Pastures
1961	23,013	2,154	11,350
1965	23,800	2,250	11,100
1970	24,200	2,400	10,900
1975	25,000	2,600	10,300
1980	25,500	2,900	10,000

Source: FAOSTAT, Land Use domain. Values rounded to the nearest significant unit. Complete trends are visualized in Figure 2.

Arable land expanded from 23.0 million hectares in 1961 to approximately 25.5 million hectares by the mid-1970s, representing an increase of roughly 2.5 million hectares or approximately eleven percent. This expansion reflects sustained government emphasis on cereal production for domestic consumption and export markets. Development plans consistently prioritized expanding cultivated areas through land reclamation projects, irrigation investments, and conversion of marginal grazing lands to crop production. The Marshall Plan's emphasis on agricultural commodity production for European markets established policy frameworks that persisted throughout the 1960s and 1970s, encouraging farmers to maximize cultivated areas even when this required encroaching on traditional common grazing lands.

The expansion of arable land occurred primarily through two mechanisms. Government-sponsored land reclamation projects drained wetlands and brought previously uncultivated areas into production. Additionally, individual farmers and agricultural cooperatives converted traditional grazing lands and fallow areas into permanent cultivation. This conversion was facilitated by tractor availability, which enabled the cultivation of land previously considered too marginal or labor-intensive for traditional plow agriculture. The net effect was to increase land under intensive crop production while reducing areas available for extensive livestock grazing systems.

Permanent crop area increased from 2.15 million hectares in 1961 to nearly 3.0 million hectares by 1980, representing a growth of approximately forty percent. This category encompasses orchards, vineyards, olive groves, and other perennial crops requiring substantial capital investment and technical knowledge. The expansion of permanent crops signals increased market orientation in Turkish agriculture and growing integration into domestic and international commodity chains for fruits, nuts, and processed agricultural products. Unlike annual crops, permanent crop production requires multiyear capital investments, secure land tenure, and access to specialized knowledge and

markets. This form of agriculture, therefore, favors larger, more capitalized producers while disadvantaged smallholders lack capital, tenure security, or market connections.

The most significant land use trend involves the decline in permanent meadows and pastures from 11.3 million hectares in 1961 to approximately 10.0 million hectares by 1980. This contraction of roughly 1.3 million hectares, representing a decline of approximately twelve percent, signals fundamental restructuring of rural production systems and the erosion of traditional pastoral and mixed farming livelihoods. Common grazing lands historically provided essential resources for smallholder households maintaining small livestock herds as insurance against crop failures and sources of supplementary income. The reduction in grazing area resulted from multiple intersecting pressures, including expansion of cultivated lands, forest protection policies restricting grazing in wooded areas, and conscious government policies favoring intensive crop production over extensive livestock systems.

Figure 2 visualizes these divergent land use trajectories, illustrating how arable land and permanent crops expanded while grazing resources contracted throughout the study period.

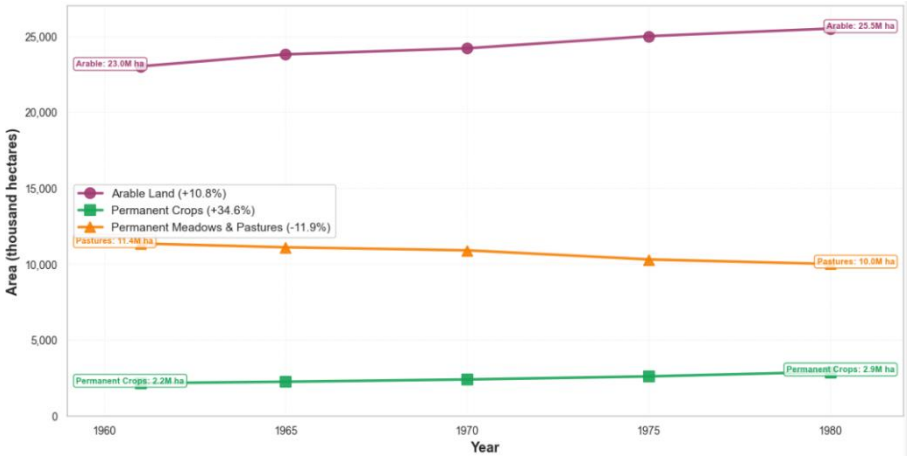

Fig. 2: Land Use Change in Turkey, 19611980.

Source: FAOSTAT, Land Use domain.

The contraction of grazing lands affected rural households differentially based on their resource endowments and production strategies. Wealthy farmers with sufficient land could adapt by intensifying crop production on their holdings. However, smallholders and landless households that had relied on access to common grazing lands for maintaining livestock faced severe economic pressure. Traditional mixed farming systems combining subsistence crop production on small plots with small livestock herds grazing on common lands became increasingly unviable as grazing resources declined and agricultural wages stagnated due to labor-displacing mechanization.

These land use patterns reflect the prioritization of agricultural modernization policies that favored intensive crop production and capital-intensive farming systems over traditional extensive and mixed production strategies. The policies originated in Marshall Plan era development frameworks that conceptualized agricultural modernization as increasing output through capital intensification, mechanization, and integration into market systems rather than supporting diverse, locally adapted production systems maintaining rural employment. The World Systems Theory framework illuminates how these land use changes served the interests of core economies, requiring stable supplies of agricultural commodities while simultaneously creating surplus rural labor available for urban industrial employment and international labor migration.

5.3. Livestock composition restructuring and the decline of traditional pastoralism

Livestock population trends reveal fundamental changes in animal husbandry systems during the 19611980 period, reflecting both government breeding programs and the economic pressures facing different production systems. The shifts in species composition indicate a transition from diverse, extensive livestock systems adapted to varied ecological conditions toward more uniform, intensive production focused on larger animals raised in settled systems. Table 3 presents livestock population data for the three major species throughout the study period.

Table 3: Livestock Composition in Turkey, 19611980 (Number of animals)

Year	Cattle (head)	Sheep (head)	Goats (head)
1961	8,700,000	34,500,000	24,600,000
1965	9,200,000	33,000,000	21,000,000
1970	9,850,000	37,000,000	20,000,000
1975	9,400,000	40,500,000	19,000,000
1980	11,000,000	46,000,000	19,000,000

Source: FAOSTAT, Livestock Patterns domain (Stocks). Complete population trends are visualized in Figure 3.

Cattle populations increased substantially from 8.7 million heads in 1961 to more than 11.0 million by 1980, representing a growth of approximately twenty-six percent. This expansion reflects deliberate government policy promoting cattle production through breeding programs, artificial insemination services, veterinary support, and market development for meat and dairy products. Development plans consistently prioritized cattle production as a modern objective, viewing bovine production as more efficient and market-oriented than traditional small ruminant systems. International development assistance supported these priorities through technical assistance programs, breed imports, and institutional development for livestock research and extension services. The cattle expansion occurred primarily through intensification rather than extensive pastoralism. Government breeding programs promoted European dairy breeds requiring supplemental feeding, shelter, and intensive management rather than hardy local breeds adapted to extensive grazing systems. This transition favored larger, more capitalized farmers capable of investing in barns, feed storage, and veterinary inputs while disadvantaging smallholders

practicing traditional extensive management. The shift toward cattle production thus reinforced broader patterns of agricultural modernization, favoring capital intensity over labor intensity and large-scale over smallholder production. Sheep populations grew steadily from 34.5 million head in 1961 to approximately 46.0 million by 1980, representing an increase of roughly thirty-three percent. Sheep production benefited from stable domestic demand for meat and wool, combined with export opportunities to Middle Eastern markets. Sheep production systems proved more adaptable than goat production to changing land use conditions, as sheep could be integrated into croplivestock systems using crop residues and temporary fallows in addition to permanent pastures. The relative stability and growth of sheep populations, therefore, masked significant changes in production systems, with traditional transhumant pastoralism declining while settled sheep production integrated with intensive crop farming expanded.

The most striking livestock trend involves declining populations, which fell from 24.6 million head in 1961 to approximately 19.0 million by 1980. This decline of roughly twenty-three percent reflects multiple pressures converging on traditional extensive pastoral systems dependent on goat production. Forest protection policies implemented during this period severely restricted goat grazing in wooded areas based on concerns about environmental degradation. Land use policies converted traditional rangelands to crop production, reducing grazing resources. Additionally, government development programs systematically favored cattle and sheep production over goats, viewing goat production as economically inferior and environmentally damaging despite goats' importance for smallholder and pastoral households. Figure 3 illustrates these divergent livestock population trajectories, revealing how cattle and sheep populations expanded while goat populations contracted substantially during the study period.

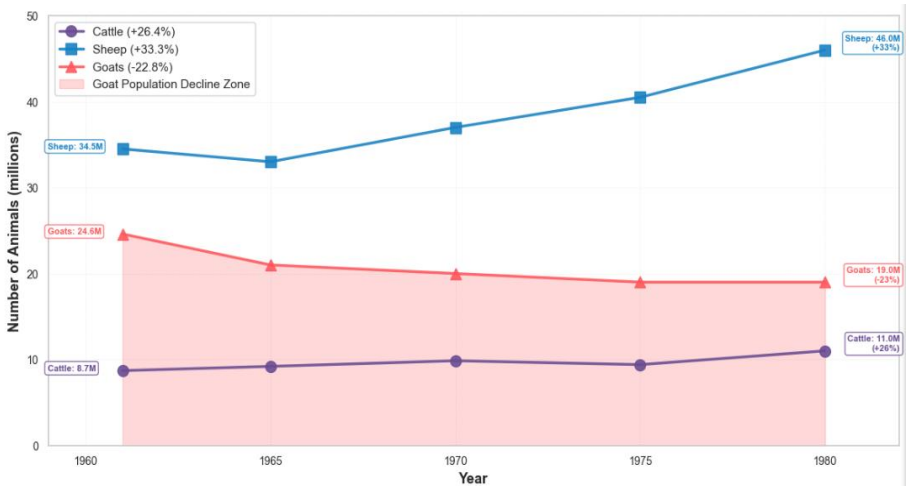

Fig. 3: Livestock Patterns in Turkey, 19611980.

Source: FAOSTAT, divergent livestock population trajectories.

Goat populations are particularly sensitive indicators of traditional pastoral system viability because goats require minimal investment, utilize marginal grazing resources efficiently, and provide reliable household income for resource-poor families. The declining goat population, therefore, signals severe economic pressure on the poorest segments of rural society—landless households, marginal farmers, and traditional pastoral communities. These households depended on goat production as an essential livelihood strategy but faced increasingly restricted access to grazing resources, combined with declining economic returns as market infrastructure and government support favored cattle and sheep production.

The restructuring of livestock composition reflects conscious policy choices prioritizing intensive, market-oriented production systems over extensive traditional systems. These policies originated in Western development paradigms, viewing pastoralism as economically inefficient and environmentally harmful. The Marshall Plan era established institutional frameworks and policy orientations that persisted throughout the study period, systematically disadvantaging traditional production systems and the rural households depending on them. From a World Systems Theory perspective, livestock restructuring represents the penetration of capitalist production relations into rural areas, displacing subsistence-oriented and community-based production systems with market-integrated, individually owned production conforming to core country expectations for agricultural commodity supplies.

5.4. Integrated interpretation: structural economic change as a driver of internal migration

The three dimensions of agricultural transformation examined in this analysis—input intensification through rising fertilizer consumption, land use restructuring through expanding cultivation and declining grazing lands, and livestock composition changes through cattle expansion and goat decline—represent interconnected manifestations of a comprehensive rural economic restructuring process. These changes did not occur independently but rather constituted coordinated elements of agricultural modernization policies established during the Marshall Plan era and systematically implemented through development planning institutions during the 1960s and 1970s.

The quantitative data reveal a consistent pattern wherein agricultural modernization reduced labor requirements through mechanization and input substitution, transformed land use priorities in ways that disadvantaged traditional mixed farming and pastoral systems, and restructured livestock production to favor capital-intensive operations over extensive smallholder systems. These structural changes operated simultaneously to reduce rural employment opportunities, erode the economic viability of traditional livelihood strategies, and create economic pressures encouraging rural outmigration.

Input intensification through mechanization and chemical fertilizers directly displaced agricultural laborers by reducing per-hectare labor requirements for land preparation, planting, cultivation, and harvesting. Land use restructuring created additional displacement effects by converting common grazing lands to private crop production, thereby eliminating livelihood opportunities for landless households dependent on access to common property resources. Livestock composition changes further disadvantaged resource-poor households by reducing support for production systems requiring minimal capital investment while promoting cattle operations requiring substantial resources beyond the reach of smallholders.

The timing and magnitude of these agricultural transformations closely correspond with documented waves of rural-urban migration during the 1960s and 1970s. Census data show accelerating urbanization throughout this period, with urban population shares increasing from approximately thirty-four percent in 1965 to nearly forty-four percent by 1980, as documented in the historical analysis section of this study. This urbanization resulted primarily from internal migration rather than natural population increase, indicating that rural residents actively responded to changing economic conditions by relocating to urban areas offering industrial employment opportunities.

The regional dimensions of agricultural transformation likely varied considerably across Turkey's diverse ecological and economic zones, though the national-level data examined here cannot capture these geographic variations. Regions experiencing particularly rapid mechanization and land use intensification presumably generated stronger migration pressures than areas maintaining more traditional production systems. Similarly, areas where pastoral production dominated likely experienced more severe household economic disruption from declining goat populations and contracting grazing lands than regions where crop production predominated. Future research incorporating regional agricultural statistics and migration flow data could illuminate these geographic variations in how agricultural modernization affected migration decisions.

The conceptual framework linking agricultural modernization to internal migration posits a multistage causal pathway. International policy interventions during the 1950s, particularly the Marshall Plan assistance emphasizing agricultural mechanization, established institutional and policy frameworks promoting capital-intensive farming. Implementation of these policies during the 1960s and 1970s produced measurable structural changes, including rising input intensity, land use transformation, and livestock restructuring. These agricultural changes reduced rural labor demand, eroded traditional livelihood viability, and created economic insecurity for smallholders and landless households. Simultaneously, urban industrial development associated with import substitution industrialization policies created employment opportunities, attracting rural migrants. The combination of rural push factors generated by agricultural modernization and urban pull factors from industrial expansion produced the intensive internal migration flows characterizing this period.

This analysis does not estimate formal econometric models quantifying the precise causal effect of agricultural indicators on migration flows due to data limitations discussed in the methodology section. However, the descriptive evidence strongly supports the conceptual framework linking agricultural transformation to migration. The systematic nature of agricultural restructuring, the consistency of trends across multiple indicators, and the temporal correspondence with documented migration waves provide compelling evidence that internal migration during 19611980 resulted not from autonomous individual decisions to seek economic opportunity but rather from structural economic transformations fundamentally altering rural livelihood possibilities.

From the World Systems Theory perspective guiding this analysis, the agricultural transformation patterns documented here represent the material manifestation of Turkey's integration into the global capitalist system as a peripheral economy. The Marshall Plan deliberately structured Turkish agriculture to serve European food import requirements rather than domestic food security or employment objectives. Subsequent development policies sustained this orientation, prioritizing agricultural commodity production for export markets while accepting rural labor displacement as necessary for industrial workforce formation. The agricultural modernization process thus simultaneously served core country interests in stable commodity supplies while creating conditions facilitating internal migration from rural to urban areas, where displaced agricultural workers supplied labor for import substitution industries.

The quantitative results, therefore, provide empirical verification of key theoretical propositions regarding how international economic integration affects peripheral economies. Agricultural modernization programs financed and designed by core countries restructure rural production systems in ways that reduce local food security and employment while increasing commodity exports. These structural changes create surplus labor populations, facilitating urbanization and industrial workforce development, enabling peripheral economies to supply manufactured goods to global markets at competitive prices based partly on abundant low-wage labor originating from modernized agricultural sectors. The Turkish experience during 19611980 exemplifies these broader patterns affecting developing economies integrated into the capitalist world system during the postwar era.

The findings also illuminate the limitations of agricultural modernization as a development strategy. While fertilizer intensification, mechanization, and livestock program improvements increased agricultural output per hectare, these productivity gains occurred through capital substitution for labor rather than labor-enhancing technological change. The result was rising agricultural production combined with declining rural employment, creating social problems including urban overcrowding, inadequate infrastructure, informal housing development, and social integration challenges discussed throughout this analysis. The agricultural modernization strategy succeeded in its narrow objective of increasing commodity production but failed to promote broad-based rural development, maintaining employment and livelihoods for rural populations.

These patterns continue to shape contemporary Turkish migration dynamics and urban development challenges. The informal housing settlements, infrastructure deficiencies, and social integration problems originating during the 1960s and 1970s mass migration period persist in modified forms today. Understanding the historical roots of these contemporary challenges requires recognizing how international policy interventions during the Marshall Plan era established agricultural modernization frameworks that systematically generated rural displacement and urban migration during subsequent decades. The quantitative agricultural data analyzed here document the structural economic changes through which these international interventions manifested in Turkish society, creating migration pressures whose effects remain visible in contemporary urban landscapes and social structures.

6. Discussion

6.1. Integrated causal pathway: from ınternational ınterventions to migration outcomes

The empirical findings presented in this study reveal a systematic three-stage causal pathway connecting international economic developments to internal migration dynamics. The first stage encompasses international policy interventions during the 1950s that established institutional arrangements and policy priorities promoting capital-intensive agricultural development. The Truman Doctrine and Marshall Plan created the foundational framework, NATO membership consolidated Western economic integration, and planning institutions emerged to guide implementation. These interventions established dependency relationships wherein Turkish agricultural policy served core country interests in reliable commodity supplies rather than autonomous employment objectives.

The second stage comprises the measurable structural transformations in Turkish agriculture during 1961-1980, documented in this study's quantitative analysis. Fertilizer consumption increased tenfold from seventy-five thousand metric tons to over eight hundred thousand tons, demonstrating capital intensification that reduced per-hectare labor requirements. Arable land expanded by eleven percent while permanent pastures contracted twelve percent, converting common grazing resources to private crop production and eliminating livelihood opportunities for smallholder and landless households. Livestock composition shifted with cattle increasing by twenty-six percent and

goats declining by twenty-three percent, reflecting systematic erosion of traditional extensive production systems requiring minimal capital investment.

The third stage encompasses the internal migration flows resulting from these structural economic changes. Census data demonstrate systematic urbanization acceleration corresponding temporally with agricultural transformation intensity. Urban population share increased from twenty-five percent in 1950 to thirty-four percent by 1965 and forty-four percent by 1980, representing the transfer of approximately nineteen million people from rural to urban areas. Regional census data indicate that provinces experiencing particularly intensive mechanization and land use transformation generated stronger out-migration flows than areas maintaining more traditional production systems, though comprehensive provincial migration matrices for the complete study period remain unavailable for formal econometric verification.

This three-stage causal pathway operated through specific mechanisms connecting each international development to migration outcomes. Marshall Plan mechanization directly displaced agricultural laborers through reduced seasonal employment requirements. Chemical fertilizer adoption eliminated labor-intensive manure management tasks. Land use conversion restricted access to common property resources essential for smallholder livestock production. Livestock policy prioritization of capital-intensive operations disadvantaged resource-poor households. Import substitution industrialization created concentrated urban employment opportunities, but with insufficient absorption capacity relative to displacement magnitudes. European labor migration temporarily relieved urban labor market pressures while paradoxically intensifying urbanization through remittance-financed internal migration. The oil crisis disrupted economic planning while accelerating existing migration trends. The January 24 decisions formalized neoliberal restructuring that fundamentally altered relationships between agricultural development and migration dynamics.

6.2. World systems theory and dependent development trajectories

The World Systems Theory framework illuminates how these processes reflected Turkey's position as a peripheral economy within the global capitalist system. The international developments examined were not neutral assistance programs but rather strategic interventions serving core country interests. Marshall Plan agricultural assistance prioritized European food security over Turkish employment objectives. NATO membership consolidated geopolitical containment strategies requiring agricultural surplus production. European labor migration utilized Turkish labor reserves to sustain core economy growth while externalizing social reproduction costs. Import substitution industrialization maintained technology dependencies on core countries despite appearing to promote autonomous development.

The agricultural modernization policies established through these interventions systematically prioritized productivity for commodity export over employment maintenance, accepting labor displacement as necessary for achieving core country objectives. Turkish rural migrants bore the social costs of this dependent development trajectory through urban informal employment, inadequate housing, disrupted social networks, and regional marginalization, while core economies captured benefits through stable food supplies, manufacturing export opportunities, and reliable labor reserves.

Contemporary migration and urbanization challenges in Turkey, including persistent squatter settlements, infrastructure deficiencies, and regional inequalities, represent the long-term legacy of dependent development trajectories initiated through postwar international interventions. Understanding these historical roots provides essential context for addressing ongoing migration management challenges in Turkey and comparable middle-income countries experiencing similar integration into the global capitalist system as peripheral economies.

6.3. Methodological contributions and limitations

This study's mixed-methods approach, combining historical qualitative analysis with quantitative agricultural trend documentation, provides robust evidence supporting the central argument that international developments fundamentally shaped Turkey's internal migration dynamics. The explicit connections drawn between specific international policy interventions and measurable agricultural structural changes strengthen causal inference beyond what either purely qualitative or purely quantitative approaches would achieve independently.

However, several methodological limitations merit acknowledgment. The absence of comprehensive provincial-level migration flow matrices with annual frequency prevented the construction of panel regression models that would formally test relationships between agricultural indicators and migration outcomes through econometric estimation. Census-based migration data exists only at five-year or ten-year intervals, insufficient for robust time series econometrics with available agricultural annual observations. Future research incorporating digitized census microdata and provincial agricultural statistics could address this limitation through spatial econometric approaches, enabling formal causal parameter estimation.

The national-level aggregation of agricultural data examined in this study also obscures important regional variations in modernization processes and migration responses. Western regions likely experienced more intensive mechanization and fertilizer adoption than eastern regions, generating regionally differentiated migration pressures. Areas where pastoral production dominated probably experienced more severe disruption from declining goat populations and contracting grazing lands than crop-focused regions. Regional disaggregation in future studies could illuminate these geographical variations in how agricultural modernization affected migration decisions across Turkey's diverse ecological and economic zones.

7. Conclusion

This study demonstrates that internal migration in Turkey between 1950 and 1980 resulted not from isolated domestic factors but rather from the country's systematic integration into the global capitalist system through international developments that fundamentally restructured rural economic organization. The Truman Doctrine, Marshall Plan, NATO membership, European labor migration, import substitution industrialization, oil crises, Cyprus Peace Operation, and January 24 economic decisions collectively established policy frameworks, institutional arrangements, and economic dependencies that prioritized agricultural productivity over rural employment, creating labor displacement that drove massive rural-to-urban migration.

Key Empirical Findings

The quantitative analysis of agricultural transformation during 1961-1980 provides empirical verification of these historical processes through three dimensions of structural change. First, fertilizer consumption increased tenfold from seventy-five thousand metric tons in

1961 to peak levels exceeding eight hundred thousand tons by the late 1970s, documenting the capital intensification that reduced per-hectare labor requirements and displaced agricultural workers. Second, arable land expanded by eleven percent while permanent meadows and pastures contracted twelve percent, revealing the conversion of common grazing resources to private crop production that eliminated livelihood opportunities for smallholder and landless households. Third, livestock composition shifted with cattle increasing by twenty-six percent and sheep expanding by thirty-three percent, while goat populations declined by twenty-three percent, reflecting systematic policy discrimination against extensive production systems requiring minimal capital investment.

These agricultural structural changes translated directly into migration pressures documented in census data. Urban population share increased from twenty-five percent in 1950 to forty-four percent by 1980, representing the transfer of approximately nineteen million people from rural to urban areas during the study period. This urbanization acceleration corresponded temporally with agricultural modernization intensity, with particularly rapid urban growth occurring during the 1960s when mechanization and fertilizer adoption intensified most dramatically.

Theoretical Contributions

The World Systems Theory framework employed in this study illuminates how internal migration in peripheral economies reflects structural economic transformations driven by integration into the global capitalist system under frameworks serving core country interests. The Marshall Plan deliberately structured Turkish agriculture to serve European food import requirements rather than domestic employment objectives. Subsequent development policies sustained this orientation, prioritizing agricultural commodity production for export markets while accepting rural labor displacement as necessary for industrial workforce formation. Turkish rural migrants bore the social costs of dependent development through urban informal employment, inadequate infrastructure, and disrupted livelihoods, while core economies captured benefits through stable commodity supplies and manufacturing export markets.

These findings challenge conventional migration analyses emphasizing individual economic decision-making or isolated domestic policies. The study demonstrates that migration flows reflect structural economic transformations created through international power relations and policy conditionalities that reshape sectoral employment patterns and regional economic opportunities. Understanding migration requires examining the international developments and institutional arrangements that create conditions within which individual migration decisions occur.

Policy Implications

The historical analysis presented in this study carries important implications for contemporary migration management and development policy in Turkey and comparable middle-income countries. The squatter settlements, infrastructure deficiencies, and regional inequalities originating during the 1950-1980 period persist in modified forms today, constraining urban quality of life and perpetuating geographical disparities. Effective policy responses must address the structural economic inequalities generated by dependent integration into the global economic system rather than merely managing migration flows through administrative controls.

Sustainable migration and urbanization require rural development strategies that maintain viable livelihoods rather than accepting labor displacement as inevitable. Agricultural policies should balance productivity objectives with employment considerations, supporting diverse production systems adapted to regional ecological conditions rather than imposing uniform capital-intensive models. Urban planning frameworks must provide adequate infrastructure and housing for migrants rather than tolerating informal settlement proliferation. Regional development programs should reduce geographical inequalities through decentralized investment rather than concentrating resources in established metropolitan centers.

Contemporary Turkey faces ongoing migration challenges, including continued rural-to-urban flows, international refugee populations, and regional disparities requiring systematic policy attention. Understanding how international developments during the mid-twentieth century established structural conditions producing massive internal migration provides essential historical context for addressing these ongoing challenges. The agricultural modernization frameworks established through the Marshall Plan assistance and subsequent development policies created dependencies and inequalities that shape contemporary migration dynamics despite subsequent economic growth and structural transformation.

Future Research Directions

Several promising research directions could extend this analysis. Regional disaggregation of agricultural transformation indicators and migration flows would illuminate geographical variations in how modernization processes affected different ecological and economic zones. Econometric modeling incorporating provincial-level panel data would enable formal causal parameter estimation, testing relationships between agricultural indicators and migration outcomes. Comparative analysis of Turkey's experience with other middle-income countries experiencing contemporaneous agricultural modernization would test the generalizability of findings beyond the Turkish case.

Longitudinal studies extending the analysis into the post-1980 neoliberal period would reveal how changing modes of world system integration under contemporary globalization affect migration dynamics differently than earlier developmentalist integration. Gender-disaggregated analysis would illuminate how agricultural transformation and migration affected men and women differentially through changing household production strategies and labor market opportunities. Oral history research with migrant populations would provide a household-level perspective on how families experienced and responded to the structural economic changes documented in this study's quantitative agricultural data.

Concluding Statement

The central conclusion emerging from this analysis is unambiguous: internal migration in Turkey during 1950-1980 constituted not merely a demographic phenomenon reflecting individual economic opportunity-seeking but rather a structured social process resulting from international developments that fundamentally transformed rural economic organization in ways serving core country interests while generating labor displacement and urbanization pressures. The agricultural modernization policies established through the Marshall Plan

assistance and reinforced through subsequent international developments prioritized productivity for export markets over employment maintenance, creating the rural labor surplus that supplied urban industrial workforce formation. Understanding internal migration requires examining the international policy interventions, institutional arrangements, and structural economic transformations that create migration pressures, rather than treating migration as an isolated phenomenon amenable to administrative management independent of broader development strategies and international economic relationships. This perspective proves essential for addressing contemporary migration challenges in Turkey and comparable developing economies integrated into the global capitalist system as peripheral suppliers of agricultural commodities, industrial labor, and export manufactures.

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