Evaluating and Optimising Chongqing's Land-Ticket Scheme: Evidence from an S-CAD Framework

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Abstract: The land-ticket system in Chongqing plays a pivotal role in balancing urban–rural development with farmland protection, yet its performance and long-term viability are still contested. Employing the S-CAD assessment framework and drawing on official documents, transaction data, and field investigations, this study subjects the system's value, objectives, instruments, and outcome chain to a systematic test of "logical consistency and economic sufficiency." Results indicate that the land-ticket model has generally struck a balance among optimizing land allocation, boosting farmers' income, and safeguarding the cultivated-land red line. Nonetheless, weak links persist in homestead titling, reclamation financing, secondary profit distribution, and long-term stewardship. Existing instruments are necessary but not sufficient to fulfill strategy goals, creating a mismatch between short-term incentives and long-term effectiveness. To plug these gaps, the study recommends a composite pathway—local legislation, financial innovation, digital monitoring, and multi-actor co-governance—to upgrade the reform from an "indicator-driven" to a "sustainable-development-oriented" model, thereby providing a replicable paradigm for broadening the land-ticket system and advancing rural revitalization.

Keywords: Chongqing; Land Ticket; S-CAD Method

1. Introduction

Since the founding of the People's Republic, China's rural-land institutions have undergone several paradigm shifts—from land reform (1950s) through the People's Commune (1960s-70s) to the Household Responsibility System and, more recently, the "separation of three rights." Each shift responded to specific development bottlenecks and re-oriented land toward farmers' welfare and national growth. Against this backdrop, Chongqing was approved in 2007 as a national pilot zone for urban–rural integration. In 2008 the Ministry of Land and Resources launched the "increase–decrease linkage" pilot, followed by the Government's 2009 decree to establish the Chongqing Rural Land Exchange. These policy milestones incubated what is now called the land-ticket scheme.

The scheme became fully legal in 2015, when the Government's Comprehensive Rural Reform Plan endorsed land-tickets and the Chongqing Municipal Government issued the Land-Ticket Measures (Order No. 295). The so-called "land-ticket" refers to the paid land-use quota generated after the reclamation of rural construction land. In essence, it is a type of quota for the linkage between the increase and decrease of urban and rural construction land[1]. The quota—bundling three indicators (farmland balancing, new construction land, and spatial planning allowance)—can be auctioned via the Land Exchange to urban developers.

By August 2022, cumulative transactions reached 354 thousand mu, raising CNY 69.5 billion for roughly two million villagers. Despite these achievements, contradictions between farmland protection and land development, low farmer participation, and inadequate support tools have emerged, limiting the scheme's scalability. This paper therefore conducts a comprehensive policy assessment and offers optimisation strategies.

2. Methodology: The S-CAD Framework

The S-CAD assessment method adopted in this study was first proposed in the 1970s by Professor Liang Henian of Queen's University, Canada, in his article "Policy Planning and Evaluation Methods." Based on a chosen analytical perspective—Subjectivity—the S-CAD approach conducts a comprehensive

evaluation and systematic analysis of a policy's Consistency, Adequacy and Dependency[2]. It can be applied to both policy communication and policy assessment, stressing the divergence among perspectives so as to examine the logic and effectiveness of public policies from different interest standpoints.

The methodological framework is guided by "one perspective, four elements, three analyses." After clarifying the "perspective" (Subjectivity) that represents the analyst's interest position, the method sequentially sorts out four core elements—Values (V), Goals (G), Strategies/Means (S) and Results (R). It then performs three layers of analysis—Consistency, Adequacy and Dependency—to verify (1) the logical coherence of the V→G→S→R chain (C), (2) the necessity and sufficiency of the means for achieving the goals (A) and (3) the influence of external actors' support or resistance on policy implementation (D).

As to its working mechanism, S-CAD starts from the dominant perspective, clarifies the hierarchical and causal relationships among V, G, S and R, and then tests the V→G→S→R sequence along the three dimensions of C, A and D: whether the logic chain is intact, whether the existing means are both indispensable and sufficient for the goals, and how the pattern of external support and resistance affects policy implementation. If any break in the chain or inadequacy of means is detected, the method immediately proposes targeted reinforcement or alternative measures.

In terms of characteristics, S-CAD preserves the rationalist school's rigorous requirements for internal policy logic and systematization while incorporating the incrementalist focus on multi-actor recognition and negotiation[3]. It therefore runs through the entire process of policy design, implementation and communication, emphasizing a comprehensive balance of costs, benefits and legitimacy in dynamic game settings.

The S-CAD method is broadly applicable across disciplines and research topics[4]. Regarding its fit with Chongqing's land quota ("di-piao") system—a scheme involving government, exchanges, developers, village collectives and farmers and pursuing multiple objectives such as resource optimization, farmland preservation and increased farm income—it represents a quintessential multi-value, multi-means scenario. Taking the municipal government or any stakeholder as the dominant perspective, S-CAD can rapidly reconstruct the V–G–S–R chain and, through C-A-D checks, determine whether market incentives clash with the farmland red line, whether benefit distribution is adequate and whether technical or social resistance is controllable, thereby providing a clear logical basis for improvement strategies such as differentiated returns and precise regulation. Embedding S-CAD's logical and economic analyses into the evaluation system of the land quota program is therefore feasible. Given that the program has been successfully operating for two decades, its feasibility has already been amply demonstrated; this paper thus focuses on analyzing its logical consistency and economic adequacy rather than reiterating feasibility arguments.

3. Overview of Chongqing's Land-Ticket Scheme and Its Policy Elements

3.1 Policy Background and Data Sources

In 2006, China launched national pilots of the "increase–decrease linkage" for urban and rural construction land. Shortly thereafter, Chongqing and Chengdu were approved as comprehensive reform zones for urban–rural integration. The Government's 2009 Opinions on Promoting the Coordinated Urban–Rural Reform and Development of Chongqing emphasised that the municipality faced a pronounced dual structure, with an urban-to-rural income ratio of 4:1, and called for the establishment of the Chongqing Rural Land Exchange to trade both physical land and quota indicators so as to build a unified construction-land market.

Since then, the Exchange has experimented with trading "land tickets"—quotas generated when idle rural homesteads are reclaimed into farmland. These quotas can be sold to land-demanding users through competitive bidding. National endorsement of the experiment confirms its strategic importance: as a microcosm of China, Chongqing has created a market-based mechanism that couples flows of population, land, and capital between urban and rural areas. The scheme not only meets the demands of agricultural industrialisation but also supports urban expansion, thereby providing a replicable

model for integrated development nationwide [1-5].

The present assessment draws on (i) core policy documents such as the Government Opinions (2009), the Chongqing Measures on Land-Ticket Management, and the Supplementary Opinions on Revenue Distribution; (ii) secondary materials available online; and (iii) primary data collected by the authors between March and May 2024, including ten implementation files, three internal progress reports, interview transcripts, and survey questionnaires.

3.2 Identification of the Four S-CAD Elements

Before applying the S-CAD framework, we clarify the problem context: China simultaneously faces "dual growth" in urban and rural construction land [6], widespread idleness of rural construction land, and rigid constraints on the farmland red-line. Against this backdrop, the land-ticket scheme is positioned as a key lever for urban–rural coordination and rural revitalisation.

Values (V). V1 Adhere to the "three bottom lines": public land ownership, an unbreachable farmland red-line, and protection of farmers' interests. V2 Leverage market forces to optimise the allocation of urban–rural resources and realise multi-party win–wins. Land tickets are envisaged as a "virtual movable asset" that corrects the mismatch between land and people during urbanisation.

Goals (G). G1 Optimise land allocation and relieve urban land scarcity through the increase–decrease linkage. G2 Activate and monetise idle homesteads, thereby raising farmers' property income. G3 Uphold the principle of "reclaim first, occupy later," expanding construction quotas while safeguarding farmland and ecological security.

Instruments (S). S1 A government-regulated trading platform that uses price signals to guide resource flows. S2 A "revenue-to-farmers" rule: after deducting reclamation costs, proceeds are channelled directly to households and village collectives. S3 Supporting measures—housing security, employment services, etc.—to protect farmers' long-term welfare and ensure the scheme's sustainability.

Expected Results (R).ER1 Direct increases in farmers' income, aiding poverty alleviation.ER2 Provision of cash-out channels for homesteads, thereby facilitating rural–urban migration and household-registration reform.ER3 Higher land-use efficiency and more balanced spatial layouts. ER4 Financial support for relocation programmes in poor areas, promoting regional equity.

Subsequent evaluation will track indicators such as household income growth, trading volume, farmland-reclamation quality, and the narrowing of regional income gaps, allowing dynamic feedback and policy adjustment.

4. Evaluation of Chongqing's Land-Ticket Scheme through the S-CAD Lens

Building on Liang Henian's S-CAD framework, this section assesses the land-ticket scheme from two complementary perspectives—logical analysis and economic analysis—following the procedures and scoring rules set out in the S-CAD Handbook.

4.1 Logical Analysis

Unlike previous evaluation methods that focus on policy elements themselves, the S - CAD approach emphasizes the relationships between elements. It deconstructs policies using four typical policy elements— "position, objective, means, and outcome"—and evaluates the effectiveness of each pair of relationships, namely, whether "the objective represents the position," "the means pursue the objective," and "the outcome measures the means," that is, whether they are effective. Here, effectiveness refers to whether each pair of elements is causally connected and logically consistent [7]. Each pair is examined for causality and logical consistency; if any link is weak or broken, policy credibility suffers.

4.1.1 Consistency between goals and values

The Chongqing Municipal Government upholds three bottom lines—public ownership of land, an inviolable farmland red-line, and the protection of farmers' interests (V1)—and advocates a market-oriented allocation of urban–rural factors for mutual benefit (V2). These values align with China's national strategies of Rural Revitalisation and Urban–Rural Integration.

Correspondingly, the three policy goals—optimising land allocation (G1), monetising farmers' land assets (G2), and safeguarding farmland (G3)—unpack the

bottom lines from the angles of land efficiency, income distribution, and food security. The V→G chain is therefore coherent; no intrinsic "value–goal dislocation" is detected.

4.1.2 Consistency between instruments and goals

The land-ticket scheme employs a closed loop of "reclamation → ticket issuance → open auction → revenue return → quota conversion":

A "reclaim-first, occupy-later" linkage model and a government-regulated exchange platform correspond to G1 (land optimisation) and G3 (farmland protection).

The "revenue-to-farmers" rule embodies G2 (income enhancement).

However, this chain is highly dependent on accurate homestead titling, transparent trading, rigorous reclamation checks, and long-term land stewardship. Any missing node would erode goal attainment.

4.1.3 Consistency between instruments and expected results

Expected results comprise four positive outcomes: higher farm-household income (ER1), accelerated urbanisation (ER2), improved land-use efficiency (ER3), and greater regional equity (ER4). In theory, the instruments can deliver these results—auction revenues lift incomes and fund relocation; the linkage model reallocates land; homestead exit lowers migration barriers.

Three safeguards are critical:

Sufficient market depth to discover fair prices;

Revenue sharing that covers reclamation costs and village public goods;

Continuous monitoring and maintenance of reclaimed farmland.

Absent these conditions, the S→R chain may snap, producing policy drift or unintended consequences.

In short, the V–G–S–R structure is logically sound at the macro level, but micro-level fragilities remain. Enhancing information disclosure, clarifying homestead rights, instituting secondary revenue audits, and introducing custodial farming and remote sensing are necessary to close the weakest links.

4.2 Economic Analysis

Economic analysis is divided into necessity and sufficiency testing. Necessity pinpoints the maximum resources indispensable for goal achievement; sufficiency determines the minimum resources required to avoid waste or sunk costs [8].

4.2.1. Necessity and sufficiency of the goals

Chongqing faces three structural tensions: severe urban land scarcity, idle rural construction land, and a rigid farmland quota. Goals G1–G3—land optimisation, asset activation, and red-line protection—are thus indispensable. They also broadly cover efficiency, equity, and security, though they stop short of wider rural-industrial revitalisation, which will require coordination with other land-reform agendas such as the "three rights" separation.

4.2.2 Necessity and sufficiency of the instruments

The three core instruments—regulated exchange (S1), revenue-to-farmers rule (S2), and safeguard package (S3)—are each necessary: without S1 there is no price discovery, without S2 no exit incentive, and without S3 substantial social externalities emerge.

Yet they are not sufficient: The exchange lacks hedging tools such as futures or index insurance, making prices volatile. Reclamation finance relies on subsidised loans and corporate advances; rural credit supply is thin. Returned revenues are seldom channelled into collective infrastructure or industrial upgrading, limiting sustainability.

Thus the current toolkit is "symptomatic but short-acting," requiring reinforcement from financial, fiscal, and industrial policies.

4.2.3 Necessity and sufficiency of instrument–result linkage

ER1 (income gain) and ER3 (efficiency) are necessary yardsticks; ER2 and ER4 test spill-over effects and fairness. To attain sufficiency, three conditions must hold:

Deep, liquid markets to stabilise prices; Balanced revenue sharing that leaves collective reserves; Adequate funding and technology for long-term land stewardship.

If any condition is unmet, short-term incentives may erode into long-term weakness.

Synthesis. Economically, the scheme's tri-goal configuration is irreplaceable for resolving Chongqing's land dilemmas, and the three instruments are indispensable. Nonetheless, the goals are narrow on the industrial front, and the instruments lack risk-hedging, financial

support, and public-investment guidance, rendering the package necessary but not yet sufficient. Without deeper markets, secondary revenue allocation, and enduring land stewardship, the system risks "quick wins but weak follow-through." Financial innovation, legislative refinement, and mechanisms for revenue sustainability are therefore essential to boost resilience and long-term viability.

5. Conclusions and Discussion

5.1 Research Findings

Using the S-CAD framework to evaluate Chongqing's Land Ticket system, this paper reaches the following conclusions:

Overall performance. The Land Ticket system has produced notable results in "optimizing land allocation, raising farmers' incomes, and safeguarding the cultivated-land red line," proving both the feasibility and demonstrative value of the "linking increase–decrease plus market trading" model.

Logical consistency. While the macro-level chain—value stance, policy goals, implementation tools, and expected outcomes—is logically closed, weak links remain at the micro level, specifically in homestead titling, reclamation acceptance, secondary profit distribution, and long-term maintenance. These weak points make the chain prone to breakage during implementation.

Economic sufficiency. The existing instruments are "necessary but not sufficient." Three elements—platform supervision, profit-return-to-farmers mechanisms, and farmer rights protection—are all indispensable. However, supporting tools such as market-risk hedging, reclamation finance, and public accumulation guidance are inadequate, leaving price volatility, funding bottlenecks, and sustainability demands insufficiently addressed.

5.2 Discussion of Optimization Paths

By using market mechanisms to resolve the urban–rural land conflict, Chongqing has offered an innovative template for national land-system reform. To remedy the aforementioned problems of "logical weak links" and "economic insufficiency," targeted improvements can be advanced from four perspectives: institution, finance, technology, and governance.

5.2.1 Refine institutional design shift from a "quota logic" to "full-process governance"

Reform should evolve from mere quota allocation to full-cycle governance covering homestead exit, reclamation works, farmland stewardship, and profit utilization. Chongqing can enact local legislation that integrates titling, exit, compensation, reclamation-quality standards, and post-use supervision into a single higher-level norm, clarifying authority and timelines for each step. A proportion of transaction premiums could be earmarked as a "Reclamation Preservation Fund" dedicated to subsequent quality improvement and ecological restoration. Land tickets can be subdivided—e.g., operational, public-facility—through graded trading and use control, each with differentiated entry thresholds and premium coefficients, guiding quotas and capital toward manufacturing gaps and public-service sectors. Cross-regional "net occupation–compensation" assessments should be reinforced to ensure receiving areas shoulder concurrent farmland-protection duties.

5.2.2 Strengthen financial support: turn one-off deals into sustained financial returns

Introduce Land Ticket Income Trusts. After distributing current-period proceeds, the residual can be securitized via income-right trusts and converted into village-level public or industrial funds, realizing a dual track of "current dividends plus long-term appreciation."

Create Reclamation Loans. Using tickets pending sale as collateral, policy-based "Reclamation Loans" can be set up to ease farmers' and collectives' upfront financing pressure. Develop an index-linked Land Ticket Price Insurance that sets trigger corridors around the annual average price, helping farmers and collectives hedge against price collapses from demand slumps or overheating speculation.

5.2.3 Enhance technical support: bridge information asymmetry through digital means

Put homestead titling data, reclamation workflows, expert acceptance records, trading contracts, and profit-distribution vouchers on-chain. Each action in the data lifecycle is time-stamped into a traceability chain that records on-chain events, updates, object details, time information, and proxy data, thereby enabling quota traceability, revenue tracking,

and accountability[9]. Coupled with high-resolution remote sensing, drones, and IoT soil sensors, a dynamic monitoring platform can be built to issue a quarterly "Farmland Health Index" capturing geomorphological change, soil quality, and intensity of use. The index would be linked to quota lock-up periods and subsequent occupation approvals, compelling both sending and receiving regions to maintain farmland quality jointly.

5.2.4 Optimize governance structure: upgrade "profits to farmers" into "co-governance of rights and interests"

In an agricultural operating system, cooperation hinges on interest. Only when benefits match inputs will partnerships remain stable and tight. A modern agricultural governance structure therefore requires a reasonable and equitable benefit-sharing mechanism—true "co-governance of rights and interests." [10]

Funding level. Establish tripartite escrow accounts—county natural-resources bureau + village collective + third-party auditor. Disbursements must receive dual two-thirds approvals from the villagers' assembly or council to ensure transparency. Institutional level. Introduce a "farmer-observer" mechanism so farmer representatives take part throughout deal review, reclamation tenders, and acceptance meetings, minimizing "imposed reclamation" risks. Performance level. Make the proportion of profits spent on public goods, industrial support, and social security part of rural-revitalization evaluations, tying it to fiscal rewards and cadre performance to avoid a "one-off cash-out" that leaves public services hollow once the money is spent. The result is durable institutions, lasting farmer benefits, and long-term farmland protection.

Through a combination of "hard legal constraints, soft financial backing, genuine technical traceability, and governance-driven co-management," Chongqing's Land Ticket system can shift from a "quota-driven" to a "sustainable-development" model—keeping the logical chain intact while remedying economic shortfalls, and laying a solid foundation for expansion to larger regions.

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