

Thoughts on the Knowledge System of the Urban and Rural Planning Discipline

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Abstract. As an applied field, urban and rural planning derives its knowledge base from the core tasks of planning practice. Land-use regulation therefore constitutes the discipline's conceptual and practical core. By clarifying the meaning of land-use regulation, this paper identifies five principal components of the relevant knowledge base: the characteristics and requirements of different land uses; the organization of land uses; the institutional foundations of public regulation; regulatory methods and processes; and the evaluation of regulatory effectiveness. The research domains extending from this core constitute the knowledge domains of urban and rural planning. At the broadest level, they comprise urban and regional studies, planning theory and history, plan-making, and plan implementation; each can be further divided according to its objects and subject matter. Through comparison with other disciplines, especially foundational disciplines, the paper also identifies the distinctive qualities of planning and its knowledge system.

Keywords: urban and rural planning discipline; knowledge system; knowledge domain; land-use regulation

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1 Overview of the Knowledge System of Urban and Rural Planning

A discipline divides a field of science according to its problematic, conceptual framework, theories, and methods ^[1]. Each discipline organizes its own knowledge system around research domains, bringing the many forms of knowledge it encompasses into a relatively coherent whole through intelligible logical relations. A disciplinary knowledge system is always evolving. A "paradigm shift" ^[2] reconstructs the system, while during periods of "normal science" the system is continually supplemented, refined, and iterated. Every discipline possesses core knowledge that clearly distinguishes it from others. This knowledge provides a common foundation for the discipline's various domains, forms its inner core, and serves as the point of origin for further expansion. Any discussion of a disciplinary knowledge system must therefore begin by identifying that core.

Urban and rural planning is an applied discipline whose purpose is to provide a knowledge base for planning practice. Its epistemic core should therefore correspond to the core tasks of planning practice¹ ^[3-4]. Planning is a form of social practice, and practical reasoning runs through the entire planning process. A defining feature of such reasoning is that it must consider institutions, rules, technical consequences, and related factors ^[5], while integrating multidisciplinary knowledge in the resolution of specific problems. The various kinds of knowledge used in practice must consequently be incorporated into the planning discipline and become components of its knowledge system. Earlier discussions of the urban and rural planning knowledge system often treated disciplines or

professions as its basic units - architecture, economics, sociology, public administration, ecology, transport engineering, municipal engineering, and so forth. Yet this approach describes relations among disciplines and professions rather than relations among the forms of knowledge actually used in planning. Every category of knowledge, and even every individual knowledge point, within urban and rural planning may draw on insights from several disciplines rather than from one alone. This is one dimension of planning's integrative character. Planning knowledge cannot therefore be imported mechanically from other disciplines; it must first be reorganized in accordance with planning's own problem domain, concepts, and methodological system. Integrating knowledge from related fields does not mean merging disciplines. It means connecting their different understandings of the same issue at specific knowledge points, so that multiple points organized around the discipline's core collectively form the knowledge system of urban and rural planning.

2 The Core of the Urban and Rural Planning Discipline

Modern urban and rural planning originated in, and still finds its most essential content in, the public regulation of private land use ^[6-7]. Accordingly, for urban and rural planning as an applied discipline, the object of inquiry and epistemic core are land-use regulation grounded in the public interest, while the methodological foundation is a synthesis of public rationality - also described as social or practical rationality ^[8].

The Chinese term for land-use regulation (land use regulation)² is also commonly shortened to "use regulation." In Chinese usage, however, this abbreviation should not be understood as regulation of "use" alone - that is, of land-use designation, function, or type. It refers instead to regulation of the complete mode in which a particular parcel or area is used, including development intensity, spatial form, the facilities required by that mode of use, and the quality of the surrounding environment. In this sense, land-use regulation is substantively the regulation of spatial use anchored in land ^[9].

The object of planning control is land use rather than land as such. Use is human behavior: the many activities that people undertake on the basis of land. Land has natural, legal, and socioeconomic attributes, while land use additionally embodies socioeconomic relations, social practices, and human aspirations ^[10]. Regulating land use therefore requires institutional and organizational arrangements in law, public affairs administration, and collective action. Concrete regulatory action also requires rules and arrangements for allocating different land uses and coordinating their interrelationships. No land use is determined solely by the intrinsic conditions or carrying capacity of the parcel or area in which it is located. It depends on relationships among similar and dissimilar uses across a wider area - in other words, on the surrounding context. Land-use regulation is thus marked by "interconnectedness and complexity," which Levy identifies as a fundamental reason planning is necessary ^[11]. This also explains why the spatial scope of modern urban and rural planning has continually expanded: from regulating individual construction projects within cities, to urban districts, entire cities and rural areas, and, since the 1950s, to regions, nations, and even the European continent ^[12].

Land-use regulation is not limited to permits or approvals for individual spatial-use projects. The preparation of plans at every level and of every type already arranges and constrains future land use by delineating zones and parcels and specifying the content and requirements of spatial use. Although a plan cannot be enforced until it has been approved, the complete process of use regulation begins during plan-making. Plan preparation substantively determines concrete modes of land use and the corresponding regulatory content; plan implementation and implementation

management then enforce that regulation. Implementation after plan approval differs markedly from the enforcement of statutes, regulations, and other forms of control. Planned land-use regulation does not require every existing use to conform immediately to the approved plan. Existing uses may continue, but any subsequent change must comply with the approved plan.

Land-use regulation runs through the entire planning process. Whether in plan preparation or implementation management, substantive work is organized around land-use regulation or undertaken in its service. During plan preparation, studies of development strategy, future objectives, regional relations, spatial structure, and related matters are all intended to determine more scientifically and reasonably the need for different land and spatial uses, their distribution and configuration, and the specific spatial-use requirements and controls for each zone and parcel. Conversely, strategies, objectives, regional relations, and spatial structures can ultimately be implemented and realized only through land-use regulation. During implementation management, planning permits for construction projects; approvals for ecological restoration, comprehensive land improvement, and other projects; and oversight of project-related land-use activities and administrative approvals all serve to ensure that the land-use controls established in plans approved through statutory procedures are carried out ^[13]. Externality analysis in plan preparation and implementation management - especially environmental, transport, and community impact assessment - is conducted on the basis of land-use type, intensity, and other modes of use in a specific area or parcel. It also reconfirms the reasonableness and suitability of actual land-use conditions. In brief, every component of the planning process revolves around land-use regulation.

Viewed in relation to neighboring disciplines, the public regulation of land use is closely connected to many fields while retaining a distinctive domain and content of its own. Numerous modern disciplines study land use. Economics approaches it through individual or economic rationality; sociology through social and intergroup relations; and geography through spatial relations. Their principal concern, however, is the condition of land use and the characteristics of its evolution. They offer little substantive theoretical construction concerning the regulation of land use, especially regulation during future development, because such an undertaking conflicts with their disciplinary logics. Law contains specialized fields devoted to land-use regulation, but legal research places greater emphasis on rights relations and procedural matters grounded in land rights and individual entitlements; the functional and structural relations of land use and their formation lie outside its central scope. Urban and rural planning is closely related to these disciplines yet has its own object and domain: the public regulation of land use in order to realize future goals and solve problems arising in the development process.

3 Knowledge Components of Land-Use Regulation

A discipline's core is the central content of its research, the key element that distinguishes it from other disciplines, and the cornerstone of its knowledge system. It identifies the content around which that system is organized. For the planning discipline, the knowledge system is grounded in land-use regulation and brings the various forms of knowledge required by regulation into an ordered and systematic whole. The knowledge content of land-use regulation includes at least the following dimensions, which together establish the foundation of urban and rural planning.

3.1 Characteristics and Requirements of Different Land Uses

Every type of land use accommodates particular human activities or meets particular needs of human survival and development. Each has its own activity characteristics and basic operating

requirements, including location, facilities, site area, soil, geology, and other conditions. Countries and localities generally establish land-use classifications, but these distinguish types primarily for statistical purposes. Planners need more specific knowledge of how different kinds of land are used, what underlying conditions and supporting facilities the activities require, what each land use is, and where it will or should locate in order to meet its intrinsic requirements.

The operation of different land-use activities must also satisfy a range of socioeconomic, legal, regulatory, and specialized management requirements. These include obtaining land-use rights, providing infrastructure, meeting particular transport conditions, and complying during use with requirements for nature and heritage conservation, safety, environmental protection, sanitation, and disease prevention. Such requirements apply not only to development, construction, or restoration projects but also to future actual use - living in a dwelling, cultivating farmland, operating a shop, and so forth. They are the conditions that must be met if spatial-use activities are to continue.

3.2 Organization of Different Land Uses

Different land uses are interdependent and interact to varying degrees, forming particular combinations in response to specific modes of production and everyday life. These combinations are both temporal and spatial. Housing, for example, requires dwellings that meet basic household needs for safety, sanitation, and adequate facilities; an environment protected from pollution and disturbance; access to shops, schools, hospitals, recreation, and places of social interaction; suitable employment opportunities; and workable commuting conditions. In rural society, different agricultural activities require different frequencies of human cultivation and therefore generate particular spatial relationships between settlements and the distribution of crops.

Organizing different land uses means fully considering the externalities generated by each activity while meeting its own needs. Planning is oriented toward future development and the realization of human aspirations, so it must project externalities when arranging land uses. Externalities may be beneficial (positive) or harmful (negative); distinguishing and organizing these effects is crucial to clarifying relations among uses. Externalities arise primarily in the actual human use of land and space. Beyond negative effects such as environmental pollution, both positive and negative externalities are formed mainly through relations among human activities. Connections among these activities are therefore central to understanding land-use relationships.

3.3 Institutional Foundations of Public Regulation

Land-use regulation is one form of public regulation, and every form of public regulation rests on a particular legal-regulatory framework and system of administrative operation. Land-use regulation can be properly understood and conducted only when placed within such an institutional framework. Laws and regulations determine what is regulated and to what degree; the form and process of regulation, and the interactions occurring within that process, are shaped by administrative operation under the legal system. This is a fundamental reason national planning systems differ. The contrast between Britain's land-use regulatory system, based on public ownership of development rights, and the systems of many US cities, based on the police power, clearly illustrates the point ^[14]. Institutional reform of land-use regulation, or changes to its objects and methods, cannot therefore occur in isolation; they must unfold at the legal, administrative, and related levels.

Land use is undertaken by all members of society and by every kind of group and organization. Land-use regulation directly concerns the allocation of land and spatial resources and the

coordination of interests in their use. Prescribing a use for a particular parcel, or adjusting or restricting its mode of use, concretely alters land-use rights and interests. Such action is related to the land system and is itself quasi-legal. Regulatory provisions - especially adjustments and restrictions - must therefore have a legal basis or resolve the legal issues generated by limitation and adjustment, and the regulatory procedure must meet legal requirements.

3.4 Regulatory Methods and Processes

Because land use is a society-wide activity, land-use regulation also involves society as a whole. Law can establish the basic regulatory system and its means of implementation, but multiple choices remain in practice. Detailed plans, planning permission, and implementation oversight may all be specified in detail by statutes and regulations. Yet whether plan-making and implementation adopt a "command and control" approach or a "negotiation and cooperation" approach will impose entirely different requirements on both plan content and execution. Even when different systems prescribe the same result, its substantive meaning and the path to realization may differ completely ^[15].

More importantly, the use of a single parcel is not determined by its own usability but established through interaction with surrounding parcels. Regulatory requirements for any parcel must therefore consider both the impacts and demands of neighboring parcels and the effects that the parcel itself will have on them. Planners must assess the spatial ripple effects generated by these interactions and select appropriate regulatory measures and methods, so that resource allocation and the coordination of interests work together and orderly development is secured across the area. Although all plans involve resource allocation and interest coordination, top-down planning from the national level to the parcel generally emphasizes the implementation of resource allocation, whereas bottom-up planning from the parcel to the national level places greater emphasis on coordinating interests. Their priorities differ, and so do their methods and implementation processes.

3.5 Evaluation of Regulatory Effectiveness

Every arrangement and regulation of land use serves the realization of particular objectives. Whether those objectives are achieved is therefore central to evaluation. More broadly, assessment of whether land-use regulation for a parcel or area is reasonable, effective, or even "good" runs through the entire regulatory process. Without evaluation, regulatory decisions cannot be made. Evaluation in turn requires criteria for judging what is "good" or "poor," as well as methodologies and concrete methods capable of multi-objective, multifactor, and multicriteria assessment ^[3].

The effectiveness of land-use regulation is evaluated in relation to specified socioeconomic objectives, including resource allocation, coordination of interests, and operational efficiency. Such evaluation examines the socioeconomic effects produced after plan implementation and the role played by land-use regulation in that process. It can reveal patterns or problems in the suitability of land-use allocation and organization and in the effectiveness of planning control. The resulting knowledge supports ex ante evaluation when regulatory elements are set during plan-making and when implementation requirements for specific projects are specified through planning permission. It also provides basic directions for reforming and improving plan content, plan-making methods, implementation-management institutions, and the planning system as a whole.

4 Knowledge Domains of the Planning Discipline

Taking land-use regulation as the foundation, and considering both the scope of academic research in urban and rural planning and the content of planning practice, the discipline can be broadly divided into four major domains: urban and regional studies, planning theory and history,

plan-making, and plan implementation. Each domain has its own objects of inquiry and core content, and each organizes secondary knowledge domains around the shared core of land-use regulation [3, 16-18].

4.1 Urban and Regional Studies

This domain takes the phenomena and problems of urban and regional development as its objects of inquiry and seeks to reveal the characteristics and regularities of that development. Land use and land-use regulation both unfold within the development of cities and regions and serve their future development; regulation cannot therefore be separated from urban and regional research.

Urban and regional studies are shared by many disciplines, whose findings can provide planning with knowledge about cities, regions, development, and governance. Each discipline, however, has its own foundation and conceptual-theoretical system, and its findings illuminate only one aspect of a phenomenon or problem. Because knowledge is not fully commensurable across disciplines, practice-oriented urban and rural planning must appropriately translate interdisciplinary knowledge before applying it. This translation is an important component of planning research on cities and regions. Planning research also focuses more specifically on how its core concern - land-use regulation - changes through the socioeconomic development of cities and regions. It examines changes in the characteristics and requirements of land use and its organization, as well as changes in the conditions and social demand for land-use regulation, thereby providing a knowledge base for planning practice.

4.2 Planning Theory and History

This domain takes urban and rural planning itself as its object. It studies the substance and processes of planning, the development of planning practice and the discipline, and the theoretical and historical experience that guides concrete modes and methods of practice. Theory and history are central to every discipline: they establish and clarify its core and boundaries, shape its self-understanding, and identify traditions in its research content and methods.

Planning theory provides systematic rational understandings of "what planning is," "what planning does," and "how planning is done." It comprehensively articulates the scope, approaches, methods, and procedures through which the future development of cities and regions is arranged and regulated. Planning history examines the evolution of planning institutions, theories, and methods; how contemporary planning disciplines and practices came into being; and the successes, failures, experiences, and lessons of particular institutions and methods under different historical conditions.

Urban and rural planning centered on land-use regulation operates during urban and rural development and within particular socioeconomic and political institutions. Research in planning theory and history must therefore attend not only to the evolution of planning itself but, more importantly, to planning as a form of public affairs closely connected with other public affairs, urban and rural development, and related socioeconomic factors. It must remain focused on the discipline's core domain while integrating knowledge and methods from multiple disciplines.

4.3 Plan-Making

Plan preparation is a major component of planning practice. It combines urban and regional research, planning theory and history, current conditions, and visions of future development; coordinates the spatial elements of cities and regions; and establishes an action program for future

development. This requires applying diverse forms of knowledge in concrete practice and providing guidance and a basis for plan implementation and management.

Planning manages changes in land use under the guidance of objectives: it must create conditions that promote changes aligned with those objectives while constraining and controlling changes that are not. The objectives concern socioeconomic development; land use consists of human activities; and land itself has economic, social, and legal attributes. Regulating land-use change is therefore substantively an adjustment of socioeconomic relations. Because future development is uncertain, planning must provide a relatively stable basis for people's decisions about the future. Plan-making is consequently a process of policy and institutional design and determination.

Planning systems contain many kinds of plans, each intended to solve different problems and achieve different objectives. Plans at different levels operate at different spatial scales and entail different spatial problems and regulatory powers. Sectoral plans have different objects and professional standards. Plans serving different functions vary in the demands they place on comprehensiveness, strategy, implementation, and operability. Research into the knowledge required for these different plan types has therefore generated numerous knowledge domains. Together, they constitute the specific content of urban and rural planning and supply different approaches and methods for land-use regulation.

4.4 Plan Implementation

Plan implementation is the process through which planning objectives, principles, and specific content are realized, and it is the key domain in which urban and rural planning exerts its effects. Implementation is a social undertaking involving people from all sectors and occupations. Professional planning knowledge must therefore focus more closely on the interfaces between the planning system and the socioeconomic system. A central research task is to determine how spatial-use activities can better comply with plans approved through statutory procedures and achieve their objectives - or, stated differently, how land-use regulation can be effectively enforced. Research in this domain has the attributes of social inquiry and also provides a knowledge base for plan-making.

Implementation management is one component of plan implementation. It mainly includes organizing implementation, issuing planning permits and approvals, and supervising implementation. These tasks guide, correct, and control land-use activities so that planning objectives are actually realized. Research must therefore examine the needs of different land-use activities, the processes through which concrete activities are carried out, the critical points at which planning intervention occurs, and the procedures of implementation management. Its findings must ultimately be embedded in laws and regulations, institutional mechanisms, and concrete regulatory methods.

5 Distinctive Characteristics of the Planning Discipline and Its Knowledge System

As an applied discipline, urban and rural planning provides a knowledge base for planning practice. The qualities of planning itself therefore determine those of the discipline. Whether the subject is urban and rural planning or territorial spatial planning, and whether it is considered as a discipline or as practical work, the core is always "planning." Planning is the human capacity and activity of purposefully arranging future affairs: the conscious organization of future action under the guidance of future objectives. It is thus a future-oriented and goal-directed practical activity, as well as collective action operating through a social institution. These qualities distinguish planning from other disciplines, especially foundational ones, in at least the following respects.

(1) Foundational disciplines and the principal fields of natural and social science generally seek to "understand the world" and construct their methodologies accordingly. Planning begins from the purpose of "changing the world" because it is the human capacity and activity of organizing future affairs. It must therefore realize what Friedmann called the movement "from knowledge to action"^[8]. The central task of the planning discipline is to establish a knowledge framework through which knowledge gained from understanding the world can be put into action.

(2) A knowledge framework that moves from knowledge to action requires theoretical reasoning, but even more importantly practical reasoning. Theoretical reasoning seeks causal relationships among the specific factors that produce phenomena or problems, and therefore studies those relationships by excluding other factors or holding them constant. This is a mode of thought characteristic of foundational disciplines^[5]. Planning, however, is a social practice conducted in concrete social settings under the influence of institutions, policies, and social interactions. These factors cannot simply be excluded or fixed; they must be actively mobilized if problems are to be solved more effectively. Planning research must therefore build frameworks that integrate institutions, policies, and social interaction with planning knowledge and processes^[19]. Much planning research must maintain a practical mode of reasoning, and its mode of knowledge production differs from that of foundational science^[20].

(3) Like other disciplines, and especially foundational ones, planning studies past and present facts in order to identify characteristics or regularities of development and change. More importantly, however, it studies future affairs. Knowledge of the future requires prediction and judgment based on insight, together with the projection and application of developmental tendencies or planning scenarios. Such knowledge cannot be derived solely from observed facts, nor can it be verified immediately. Even the outcome of plan implementation cannot straightforwardly validate a research finding, because planning is substantively a process of deliberate human control whose outcomes are produced through sustained adjustment over a long period.

(4) Planning is collective action. This means not only that it affects the interests of everyone within the planning area, but, more fundamentally, that its content consists of the land and spatial uses of everyone in that area. Plans are realized through the practical activities of different industries, social groups, and individuals, each of whom has distinct aspirations, preferences, and decision-making logics. Research must therefore address how to respond to, organize, and integrate the actions of different groups and individuals and how to coordinate divergent actions. Related research on institutions, policy, and public governance is equally indispensable.

(5) The central content of planning is the management of change in land and spatial use. This management intervenes in spatial-use behavior and the logic underlying that behavior; market intervention is only one form of such intervention. Planning exists because change occurs: where there is no change, or no need for change, planning is unnecessary. Planning must therefore both catalyze and control change. Change is the movement of the object itself and an expression of human intention; as collective action, planning is even more directly the realization of collective will. Planning research is consequently more normative^[20], while plan content must rest more strongly on negotiation and cooperation and is therefore more political. This is an inherent requirement of planning research in a governance context^[17, 21].

Notes

1. To distinguish the planning discipline from planning practice, this article uses "planning" or "planning practice" specifically for professional practice and operational work. Whenever the academic field is intended, the term "planning discipline" is used explicitly.
2. In recent years, Chinese scholarship in law, political science, and economics has increasingly rendered the English term regulation as *guizhi* (规制), rather than *guanzhi* (管制), to reflect the shift toward governance-oriented regulatory administration. Examples include the Chinese edition of *The Oxford Handbook of Regulation* (Shanghai: SDX Joint Publishing Company, 2017). Consequently, a substantial body of Chinese literature uses *tudi shiyong guizhi* (土地使用规制) or *yongtu guizhi* (用途规制) as equivalents of *tudi shiyong guanzhi* (土地使用管制). In this English translation, these terms are rendered as "land-use regulation" or "use regulation" according to context.

References

- [1] Urban Planning Society of China. *A Disciplinary History of Urban and Rural Planning in China* [M]. Beijing: China Science and Technology Press, 2018.
- [2] Kuhn, T. S. *The Structure of Scientific Revolutions* [M]. Translated by Zhang Butian. Beijing: Peking University Press, 2022.
- [3] Urban Planning Society of China. *Technical Roadmap for the Urban and Rural Planning Discipline* [M]. Beijing: China Science and Technology Press, 2020.
- [4] Sun, S. W. Future Development Directions of China's Urban and Rural Planning Discipline [J]. *City Planning Review*, 2021(2): 23-35.
- [5] Xu, C. F. *Theoretical Thinking and Engineering Thinking: Overreach and Demarcation between Two Modes of Thought* [M]. Shanghai: Shanghai People's Publishing House, 2002.
- [6] Ward, S. V. *Planning and Urban Change* [M]. 2nd ed. London: Sage Publications Ltd., 2004.
- [7] Ratcliffe, J., Stubbs, M., and Keeping, M. *Urban Planning and Real Estate Development* [M]. 3rd ed. London and New York: Routledge, 2009.
- [8] Friedmann, J. *Planning in the Public Domain: From Knowledge to Action* [M]. Princeton: Princeton University Press, 1987.
- [9] Tewdwr-Jones, M. *Spatial Planning and Governance: Understanding UK Planning* [M]. Basingstoke and New York: Palgrave Macmillan, 2012.
- [10] Sun, S. W. *The Philosophy of Urban Planning* [M]. Beijing: China Architecture & Building Press, 2007.
- [11] Levy, J. M. *Contemporary Urban Planning* [M]. 5th ed. Translated by Sun Jingqiu. Beijing: China Renmin University Press, 2003.
- [12] Sun, S. W. From Urban and Rural Planning to Territorial Spatial Planning [J]. *Urban Planning Forum*, 2020(4): 11-17.
- [13] Sun, S. W. Foundational Research on the Implementation and Supervision System for Territorial Spatial Planning [J]. *Urban Planning Forum*, 2024(2): 12-17.
- [14] Cullingworth, B., and Caves, R. W. *Planning in the USA: Policies, Issues, and Processes* [M]. 4th ed. London and New York: Routledge, 2014.
- [15] Baldwin, R., Cave, M., and Lodge, M. *The Oxford Handbook of Regulation* [M]. Translated by Song Hualin. Shanghai: SDX Joint Publishing Company, 2017.
- [16] Duan, J., and Li, Z. M. Professional Identity and the Knowledge Domains of Disciplinary Development in Urban Planning: Revisiting the Ontological Question of the Urban Planning Discipline [J]. *Urban Planning Forum*, 2005(6): 59-63.

- [17] Weber, R., and Crane, R., eds. The Oxford Handbook of Urban Planning [M]. New York: Oxford University Press, 2012.
- [18] Zhao, W. M., Zhao, M., Mao, Q. Z., et al. Academic Reflections on Establishing Urban and Rural Planning as a First-Level Discipline and on Its Disciplinary Development [J]. City Planning Review, 2010(6): 46-54.
- [19] Ward, S. V. Planning the Twentieth-Century City: The Advanced Capitalist World [M]. Chichester: John Wiley & Sons, Ltd., 2002.
- [20] Gibbons, M., Limoges, C., et al. The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies [M]. Translated by Chen Hongjie. Beijing: Peking University Press, 2011.
- [21] Phelps, N. A. The Urban Planning Imagination [M]. Cambridge and Medford, MA: Polity Press, 2021.

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