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THE TRANSIT-ORIENTED MEGALOPOLIS: RAIL TRANSIT TECHNOLOGIES, URBAN REGENERATION PROGRAMS & LAND VALUE REDISTRIBUTIONS IN TOKYO

INTRODUCTION
In the global economy, joint development typology regions have formed as a result of rail transit systems and upgrading local development regulations to attract urban dwellers, encourage live-work commerce, and amplify the economic productivity of adjacent land use. This study focuses on the potential of value capture practices to recover the capital costs of mega-transit investments and land use deregulation, and the role of these practices in making major rail transit systems a catalyst for local economic development around regional transit centers through public-private partnerships. Respectfully today in Tokyo is one of the most advanced cases of the transit-oriented megapolises model. This paper explores the capitalization effects of rail transit investments and joint development arrangements in the Tokyo Megalopolis Region, with special attention to:

- the ability of rail transit investments with joint development arrangements to regenerate local economic development in post-industrial megapolises regions;
- the relation of joint development typology regions to the agglomeration benefits of joint development arrangements;
- the potential of joint development typology regions as mega-transit investments and joint development arrangements within a mega-territory;
- the potential of joint development typology regions as a new spatial order to produce innovative business services and consume creative social lifestyles.

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JOINT DEVELOPMENT TYPOLOGY

Multi-level modeling (MLM) is a powerful tool for analyzing observations nested within certain groups. The Tokyo Megalopolis Region’s land market models are assumed to have a two-level structure and formulated as the following linear mixed-effects model function:

\[
\text{Logit}(y_{ij}) = \beta_0 + \sum \beta_k X_{kj} + \epsilon_{ij}
\]

Where:
- \( y_{ij} \) is land use type adjusted by the Customer Price Index (CPI) in 2007 (JPY/m²);
- \( \beta_k \) is a parameter coefficient for attribute \( k \);
- \( \epsilon_{ij} \) is an error term for individual observation \( i \) within group \( j \);
- \( X_{kj} \) is a value of the attribute \( k \) for observation \( j \).

Notes: FAR (Floor Area Ratio); SDA (Strategic Development Area); OFFC (Office); RETL (Retail and Restaurant); FCTY (Factory); SKPR (Skilled Professional); MNGR (Manager); ADMN (Administrator); SALE (Sales Worker); SVLB (Service Worker); TRCM (Transportation and Communication Worker); FCLB (Factory Labor); MAG (Modal Accessibility Gap); HC (High-rise Commercial); LC (Large-scale Commercial); HSR (High speed rail).

EMPIRICAL RESULTS

- The ability of the new SRT terminal, MRT extensions, and high-rise office property rebulidings to stimulate local economic development is considerable in central Tokyo; on the other hand, the ability of the new CRT extension and automobile-dependent commercial property developments was insignificant in outer regions.

- The considerable capitalization effects show the potential of value capture practices to recover the capital costs of the new SRT terminal and MRT extensions in central Tokyo; separately, the qualitative capitalization effects suggest the difficulty of value capture applications to recover the capital costs of the new CRT extensions in outer Tokyo for the long term.

- The economic impacts of mega-transit investments and joint development arrangements were multidiagnostic. The existing railway stations and highways were found to be in central Tokyo to the renewing railway terminal areas in central Tokyo and within each of the new CRT and existing CRT station areas of urban neighborhood type already developed with dynamism.

- The redeveloping effects of rail transit investments and joint development arrangements should not be simply discussed as a zero-sum game. In the context of Japan’s growing economy and shrinking population, Tokyo’s land value indexes should not suggest a new spatial order to produce innovative business services and consume creative social lifestyles in a transit-oriented manner for global competitiveness and local livability.

RAIL TRANSIT INVESTMENTS & JOINT DEVELOPMENT ARRANGEMENTS

IN THE TOKYO MEGALOPOLIS REGION, 2000-2007

CAPITALIZATION EFFECTS

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Legend
- RAIL TRANSIT DEPOT
- RAIL TRANSIT STATION
- NEW PRED STATION
- HIGH-SPEED NETWORK
- LOW-SPEED NETWORK
- CORE AREA
- MEGALOPOLIS
- PARTNERSHIP/FIGURE