FROM STATIONARY EQUILIBRIUM TO BALANCED ECONOMIC GROWTH

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In contemporary regional economics, traditional models based on diminishing or constant returns to scale are losing relevance in the context of digitalization and the expansion of innovation clusters. Instead, increasing returns to scale—driven by network effects, knowledge accumulation, and technological integration—are becoming increasingly prominent, fundamentally altering the dynamics of capital accumulation and employment. This paper proposes a dynamic model incorporating an endogenous innovation structure and technology-driven labor substitution, through which we analyze the conditions for the emergence of stable equilibria and balanced growth paths.

The model captures the interplay between capital accumulation—driven by investment and eroded by depreciation—and employment dynamics, shaped by job creation fueled by economic output and job displacement induced by technological advancement.

A key finding is that the long-term trajectory of regional economic development is critically determined by the type of returns to scale in the production function. Under diminishing returns, the economy converges to a stable stationary equilibrium. Under constant returns, the stationary state disappears, but a balanced growth path emerges, sustaining proportional growth of capital, labor, and output. Under increasing returns, however, the equilibrium becomes a saddle point—mathematically existent but inherently unstable—making institutional support and targeted investments in human capital essential for “launching” a positive, self-sustaining growth trajectory. Achieving such a trajectory requires not merely capital investment, but systemic governance of the innovation ecosystem. This implies a fundamental shift in economic policy: away from passive investment stimulation toward the active construction of resilient innovation chains, where science, technology, and human capital cease to be auxiliary inputs and become the central drivers of long-term stability and dynamic equilibrium.