

Models of Regional Growth: Past, Present and Future

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Preliminaries

- What are the key long-run drivers of growth?
 - Need to establish (causal) linkages between variables for both policy purposes and to understand the processes underlying growth
- Micro-aspects of spatial economic growth
 - “... the ultimate actors are not regions but households, establishments and firms and how these interact”
Cheshire and Malecki (2004)
 - relative importance of external spillovers
- Is regional growth ‘competitive’ or ‘generative’
 - *competitive*: the growth of one region is always at the expense of another
 - *generative*: regional and urban economic analysis must be spatial

The Past...

- Neoclassical model

$$\ln \frac{y_{T,i}}{y_{0,i}} = \alpha + \beta \ln y_{0,i} + \varepsilon_i$$

- It assumes all regions are converging versus non-convergence;
- Even if all regions are converging, this may not be to a single steady-state value.
- The β -convergence model can only test for ‘catch-up
- The model ignores any spillovers between regions

“... regional growth is dependent on attracting and keeping capital and labour – to become ‘sticky’ places (Markusen 1996) – and making them more productive. This process does not necessarily result in a tidy equilibrium growth path, as the neo-classical model assumes... or in convergence of growth rates. Instead, shocks, disequilibrium and divergent growth remain recurrent features of the real world”

- Kaldorian model

$$\dot{M} = \pi(\dot{Y})$$

$$\dot{X} = \varepsilon(\bar{\dot{Z}})$$

$$\dot{M} = \dot{X}$$

$$\dot{Y} = \frac{\varepsilon \dot{Z}}{\pi} = \frac{\dot{X}}{\pi}$$

$$\dot{\rho} = \bar{a} + b\dot{Y}$$

Verdoorn relationship

$$\varepsilon = \theta \dot{\rho}$$

Income-elasticity of demand depends on labour productivity

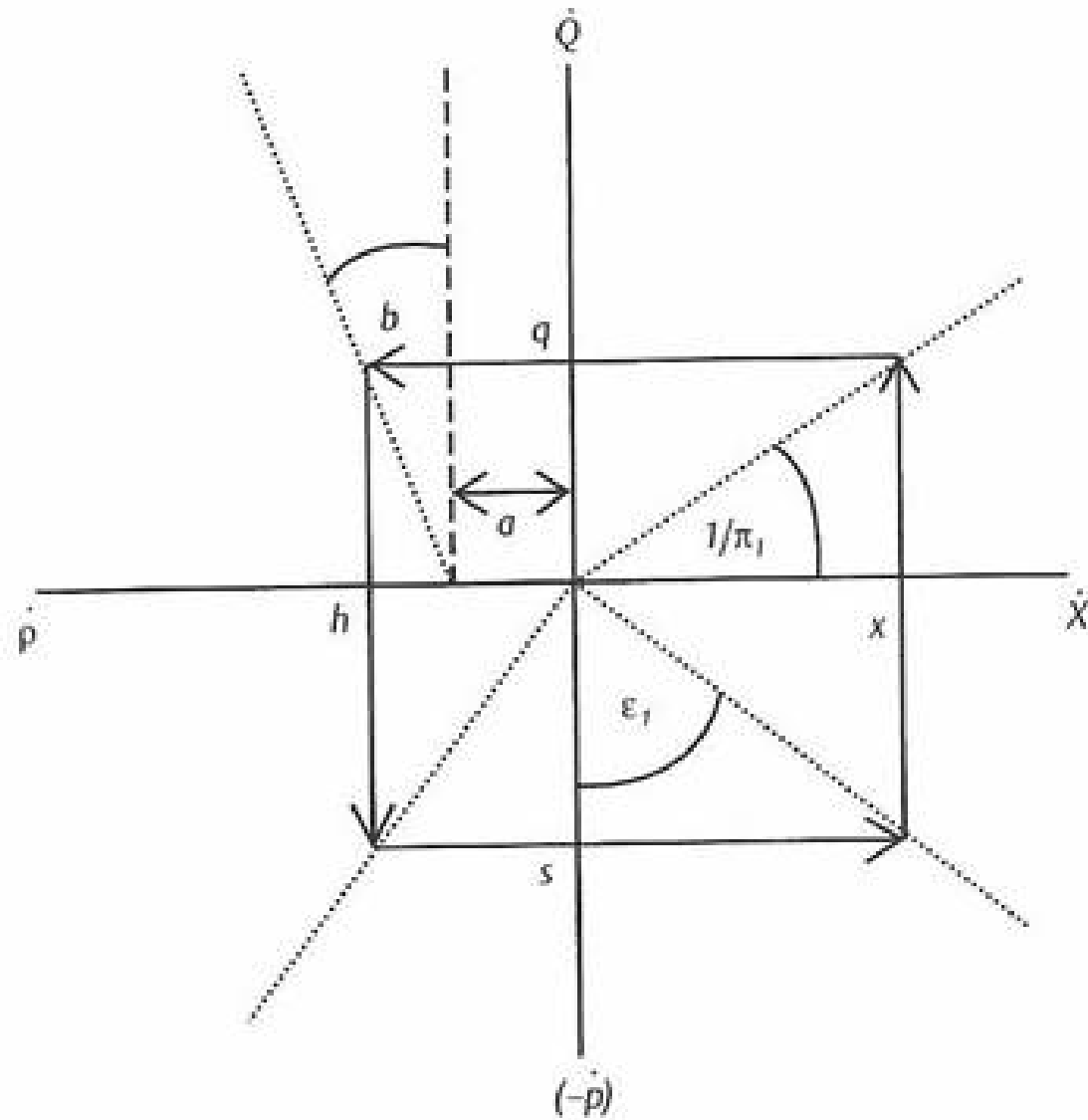


Fig. 6.12 Steady-state regional growth

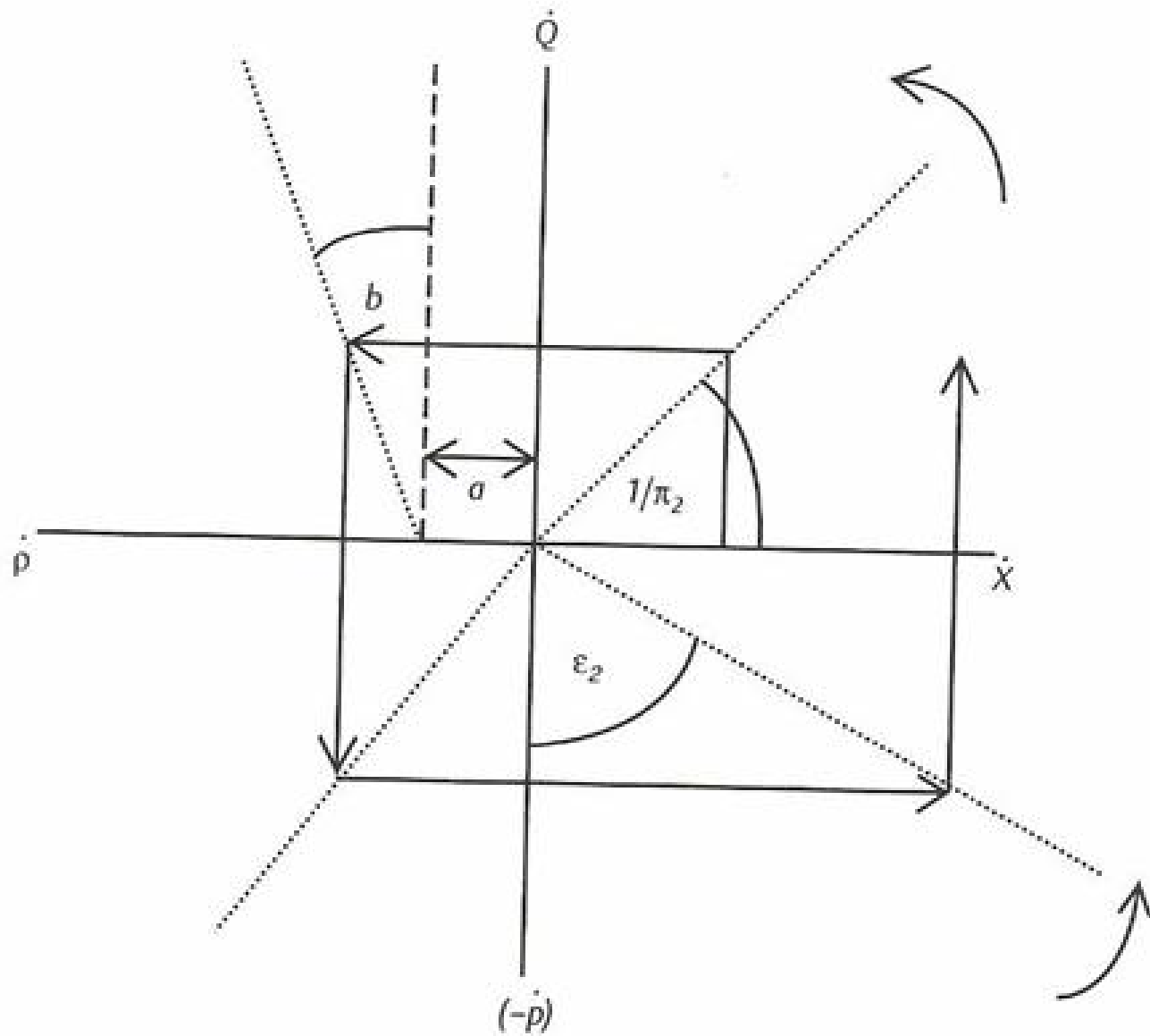


Fig. 6.13 Cumulative regional growth

The Present...

- Neoclassical model: new estimation techniques

$$\ln \frac{y_{T,i}}{y_{0,i}} = \alpha + \beta W \ln y_{0,i} + \varepsilon_i \quad \text{Spatial lag model}$$

- **NEG** and agglomeration economies
 - MAR-spillovers – specialisation (industry)
 - Jacobian spillovers – diversification (urban)
- Regional growth in a knowledge-based economy
 - Knowledge embodied in intangible assets
 - Absorptive capacity

• Regional innovation systems

- “A *regional* innovation system is typically ... composed of economic (e.g. firms, private research institutes), institutional (e.g. education institutions, government departments, chambers of commerce), technological (e.g. technology transfer agencies) and social sub-systems, which interact continuously with each other and operate as a system. The focus is thus on the relationships and flows between the various actors and parts of the innovation system” (Cook, 1997, p. 362)
- “Of all the spatial concepts developed within the last two decades, none has proved more elusive yet aroused more interest than that of growth poles... unfortunately it has never lived up to its promise. Despite a voluminous, interpretive literature, it remains cloudy and ill-defined” (Richardson, 1978, p.164)

The Future...

- Micro-level analysis and firm heterogeneity
 - regions have ‘long tails’ of inefficient plants
 - how plants/firms break down barriers to growth
 - the factors that determine which plants experience productivity improvements
 - whether this leads to increased market shares
 - the scale and causes of plant entry and exit
 - all of this suggests more research is needed at the micro-level that considers the role of intangible assets
 - need to be able to measure spillovers more exactly
 - spillovers from FDI
 - Leading to clusters?

- Knowledge production functions
 - requires both access to relevant data
 - ARD, BERD, CIS
 - estimate the link between the R&D capital stock and productivity,
 - using a ‘knowledge production function’ approach
 - the ‘two faces of R&D’ approach
 - appropriate panel data techniques can be used
 - dynamic GMM approach, which allows for endogeneity and panel effects
 - industry and spatial interactions can be incorporated explicitly as spillover impacts
 - need to research the interaction between productivity and exporting at the spatial level