

CHAPTER 1

Introduction

ECONOMISTS' interest in the location of economic activity has waxed and waned over the last two centuries, as Fujita and Thisse (2000) illustrate in their excellent monograph.

Policy makers' interest in the subject, by contrast, has never wavered. US President Alexander Hamilton advocated high tariffs as a means of shifting industrial production from Great Britain to the United States in the late 18th century. Throughout the 19th century, the captured-markets aspect of the global colonial system was viewed as essential to keeping and promoting industrial activity in Europe. In the mid-20th century, the European Union's founding treaty explicitly cited the reduction of economic inequality between regions and of the backwardness of less-favoured regions as a key goal of European integration. At the end of the 20th century, US presidential candidate Ross Perot argued against the US–Mexico free trade agreement, stating that it would result in a great 'sucking sound' of industrial jobs going south. The early 21st century sees Japanese policy makers wringing their hands over the 'hollowing out' of the Japanese economy, and the US Congress handing out billions of dollars to rural America. The amount and nature of the economic activity located within their districts is inevitably a prime concern for policy makers.

Given policy makers' intense and persistent interest, it strikes us as odd that the decade-old renaissance of location theory—what is usually called the 'new' economic geography—has been accompanied by so little policy analysis. The monograph, *The Spatial Economy*, by Fujita et al. (1999) all but ignores policy, and Peter Neary's excellent overview (Neary 2001) mentions not a single article that uses the new framework to analyse policy issues. This is also the case for Ottaviano and Puga (1998).

Our book's prime objective is to illustrate some of the new insights that economic geography models can provide for theoretical policy analysis. To limit the project to a manageable size, we focus on trade policy, tax policy, and regional policy. Much of this involves de novo analysis, but we also pull together insights from the existing literature. We wish to stress that our book only scratches the surface of what seems to be a very rich vein. Indeed, we had to abandon several promising lines of research in order to finish the book in a timely manner. The final chapter discusses these 'unfinished chapters' and provides our conjectures on the sort of policy insights that future researchers may uncover.

To keep this introduction brief, we limit it to four tasks. It explains the logic of our book's structure, provides a readers' guide, briefly surveys recent empirical evidence on economic geography models, and then acknowledges the help we have had in writing this book.

1.1 LOGIC OF THE BOOK'S STRUCTURE

The book is in five parts.

1.1.1 Part I: Analytically Tractable Model

Part I presents and thoroughly studies the positive aspects of the models we employ in our policy analysis.

Why devote so much space to the positive aspects of new economic geography models when this is the subject of the excellent Fujita–Krugman–Venables (FKV for short) monograph? The FKV book deals almost exclusively with the so-called core–periphery model. This model—introduced by Paul Krugman in a 1991 *Journal of Political Economy* article—has the unfortunate feature of being astoundingly difficult to work with analytically. None of the interesting endogenous variables can be expressed as explicit functions of the things that the model tells us are important—trade costs, scale economies, market size, etc. Particularly annoying is the fact that the core–periphery (CP) model does not afford a closed-form solution for the principal focus of the whole literature—the spatial distribution of industry. This has forced researchers to illustrate general points with a gallery of numerical examples. While the resulting gallery is beautiful and illuminating, it is less than fully satisfactory from a theorist's perspective; one simply cannot be certain that the gallery is complete.

Since the goal of our book is to illustrate new insights into public policy—and insights are best illustrated with logic—Part I presents a sequence of 'new economic geography' models that are analytically tractable. These models are not widely known, so we devote a good deal of space to presenting, motivating and studying their basic properties. The rest of the book uses these models to illustrate policy insights.

Before turning to the tractable models, however, the first substantive chapter, Chapter 2, presents the CP model in detail. Our particular aim here is to establish a definitive list of its key features: a list against which we benchmark the more analytically amenable models presented in subsequent chapters. Given the pivotal role of the CP model, appendices to Chapter 2 also provide analytic proofs of all the CP model's key features (these proofs emerged after FKV was published).

The next six chapters cover a range of models that display agglomeration forces but are, nonetheless, amenable to paper-and-pencil reasoning. The first is the most tractable, what we call the footloose capital model (FC model for short). The FC model, however, pays for its tractability by abandoning many of the CP model's most remarkable features, including, for example, catastrophic agglomeration. The next chapter presents the model that most closely mirrors the CP model's features. This model, the footloose entrepreneur model (FE model for short), turns out to be identical to the CP model at a very deep level, but despite this, it involves little of the CP model's obduracy.

While the models of Chapters 3 and 4 can be thought of as modifications of the CP model, Chapter 5 introduces a family of models that is based on an alternative

framework, one that does not depend upon the many peculiar assumptions of the CP model (Dixit–Stiglitz, iceberg trade costs, etc.). These models, what we call the linear models, are entirely solvable, and they display most of the CP model’s key features.

Chapter 6 continues expanding the CP family by introducing a model—the ‘constructed capital’ or CC model—that is almost as easy to work with as the FC model but which displays more of the CP model’s features. We then go on, in Chapter 7, to present CP-like economic geography models that allow for endogenous growth, and, in Chapter 8, to introduce tractable models that include ‘vertical linkages’ (input–output relationships among firms).

1.1.2 Part II: Welfare

Part II of our book turns to general welfare and policy issues. The aim here is to extract some insights concerning policy that can be clearly demonstrated without reference to specific models.

1.1.3 Parts III, IV and V: Trade, Tax and Regional Policies

Parts III, IV and V form the ‘meat’ of our book. They deal with trade policy, tax policy, and regional policy, respectively.

1.2 READERS’ GUIDE

Readers who are thoroughly familiar with the CP model may consider skipping most of Chapter 2 with the possible exception of the third section (which summarizes the key properties of the CP model). Readers who are less familiar with the CP model should find that Chapter 2 provides a complete and accessible presentation of this classic model.

All readers should find it profitable to work through Chapters 3 and 4 before turning to the policy analysis. These present the two models—what we call the footloose capital (FC) model and footloose entrepreneur (FE) model—with which the bulk of our policy analysis is conducted. Moreover, most of the other models presented in Part I are best thought of as extensions/modifications of the FC or FE models. Readers mainly interested in policy analysis may want to postpone reading the other Part I chapters until they are called upon in particular policy chapters.

Part II presents analysis that may be too abstract for those impatient to get to the new policy insights, but we suspect that it will prove useful for readers who wish to apply economic geography models to new policy issues.

The last three parts may be read in any order without loss of continuity. Moreover, these chapters provide nutshell summaries of the models employed as well as detailed references to the relevant Part I chapters.

1.3 EMPIRICAL EVIDENCE

In early 2002, we asked colleagues around the world to comment on the proposed outline for this book. By far the most frequent comment we received was: “Where are the empirics?”

Right at the start of this project in 2000, we quite intentionally left empirical work off the agenda. There are good reasons for this. First and foremost is the fact that this is not our comparative advantage. The world does need a monograph that provides a concise, insightful and penetrating presentation of empirical methods and results in the field, but it probably does not need one from us. Second, the empirical literature, which had barely begun to emerge in 2000, is now unfolding at a rapid pace. New data sets and empirical methodologies appear continually. It may, therefore, be premature for even the right set of authors to write a synthetic treatment.

Nevertheless, we do think it important to argue that the models we employ and the forces they emphasize are empirically relevant. We therefore turn to a brief synopsis of the most relevant empirical evidence.

To many, casual empiricism provides the most convincing evidence of agglomeration forces. Exhibit A is the concentration of economic activity in the face of congestion costs. Two-bedroom houses in Palo Alto, California, routinely change hands for hundreds of thousands of dollars while houses in northern Wisconsin can be had for a song. Despite the high cost of living and office space, Silicon Valley remains attractive to both firms and workers while economic activity in northern Wisconsin languishes. The fact that most of the world’s economic activity is organized around cities of various sizes suggests that powerful agglomeration forces are ubiquitous.

A second line of informal evidence comes from the examination of the assumptions. Agglomeration forces will arise in almost any model that allows for economies of scale, imperfect competition and trade costs. Add in labour, capital and/or firm mobility and one gets circular causality. Given that real-world firms are not atomistic, many industrial firms are huge despite the obvious difficulties of communication and decision making in large organizations. This suggests that internal scale economies are important. Industrial firms also seem to be price setters, or so it seems given the frequency with which one observes anti-trust complaints and blocked mergers. The third and fourth elements, transport costs and factor or firm mobility, are equally evident to any observer. This sort of ‘evidence’ is completely unconvincing to one set of economists although it is the only sort of evidence that really matters to another. To address the former set, we now turn to econometric studies.

Davis and Weinstein (1998, 1999) find econometric evidence that one agglomeration force—the so-called home market effect—is in operation. Haaland et al. (1999) find evidence that circular causality plays a statistically significant role in explaining the location of European industry. Midelfart-Knarvik and Steen (1999) find direct econometric evidence that backward and forward linkages are operating in certain Norwegian industries. Redding and Venables (2000)

estimate an economic geography model using cross-country data and find clear support for the presence of agglomeration forces. Midelfart-Knarvik et al. (2000) find that agglomeration forces are important in explaining the location and spatial evolution of European industry. Overman and Puga (2002) present evidence that agglomeration forces are responsible for the geographical clustering of unemployment in Europe. Finally, Hanson (1998) shows that factor rewards follow a spatial gradient that suggests the presence of pecuniary externalities of a type that is usually associated with agglomeration forces.

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While we have checked the equations carefully for errors, some surely remain. We will post errors that we find to <http://heiwww.unige.ch/~baldwin> and we invite readers to alert us to any errors they find.

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