The Geography of Competition. Firms, Prices, and Localization. Miron J. R. (2010). New York: Springer. 456 pages. ISBN: 978-1-4419-5625-5.

This book provides a comprehensive presentation of competitive location theory, which the author defines as the discipline concerned with how competition among firms leads to geographic patterns in market equilibrium. This is achieved by following an ordered line of reasoning. First, the author presents the factors that drive the localization of firms in geographic space. In particular, how prices (those of inputs, output, etc.) affect location is worked out. Second, the impact of localization on local prices is addressed. This is a crucial issue, since the change in prices induced by firms' location choices in turn affects location itself. The last step is to show how welfare (and in some cases income distribution) is ultimately affected by this process. This is achieved through comparison of welfare under autarky with the welfare when shipments are allowed. After an introductory chapter, which I consider an intriguing read for those interested in the methodological and historical aspects of location theory, the content of the book is organized into 11 sections, each devoted to a different subject.

Chapter 2 deals with the problem of a firm (a monopolist) which must decide how to serve two markets, a home market where the firm is located, and a remote one. Production can be concentrated in just one factory (serving the other one through exports) or it can be split between the two geographic areas. The model proves some important features of the space economy: the tendency of production to be concentrated in the larger (home) market; the importance of shipping costs provided that, for high levels of these costs, production is decentralized in the two areas, while for low levels it is concentrated.

Chapter 3 presents the standard transportation problem (labeled by the author the 'Hitchcock-Koopmans problem'). Given a certain number of places, with consumers at each place demanding a fixed amount of output, and a certain number of factories, each with a capacity constraint, the problem entails the minimization of production plus shipping costs under the constraints that demand at each place be satisfied, and capacity at each factory be not exceeded.

Chapter 4 presents a model of a spatial economy with two regions, where market structure is characterized by perfect competition. Hence, consumers and producers are price takers. The chapter focuses on three cases: one where shipping costs are prohibitively high (autarky), one where they are zero (perfect integration), and one where they are neither prohibitive nor zero.

The key diagram here is the price difference curve, which identifies the level of shipments between the two regions for any level of unit shipping costs.

Chapter 5 extends the concept of spatial price equilibrium under perfect competition to an economy where there is a set of *n* places, each with local suppliers and demanders. The author reformulates the spatial price equilibrium problem in terms of maximization of global net social welfare; that is, the sum of consumers' surplus and producers' surplus minus shipping costs. The mathematical framework leads to a quadratic programming problem. Numerical examples provide an evaluation of how global net social welfare reacts to changes in unit shipping costs.

Chapter 6 presents a variant of an important tool of location theory, the Weber-Launhardt model. The aim of this chapter is to determine the optimal location of a producer who buys inputs from suppliers and sells finished goods to consumers. Each supplier has in general a different location across space, which in turn differs from that of consumers. This chapter, thanks to the assumptions that the shipment of inputs and output is costly, addresses two important aspects of competitive location theory. First, it shows that firms' location is influenced not only by where final demand comes from, but also by where intermediate inputs are available. Second, costs of production vary from place to place due to the impact of costs incurred in the shipment of inputs.

Chapter 7 seeks to answer the following important question: how does agglomeration impact on firms' internal organization? The organizational choice concerns whether to outsource the supply of some business services (e.g. repair, shipment) to an external contractor or whether to produce them in-house. The key point consists in showing that it is more efficient to outsource when the number of clients demanding business services is large. In other words, thick local markets allow the emergence of specialized suppliers. Agglomeration effects of this kind have been addressed by many empirical and theoretical papers in the literature. A remark that I would make concerning this chapter is that, contrary to other parts of the book, the literature review is scanty and does not give an exact idea of the amount of work that has been done on this topic.

Chapter 8 looks at the concept of market area. The key point is that the existence of shipping costs limit the geographic extent of a market. The author investigates two distinct settings. In the first one, each firm captures all potential customers within its market area and none outside. In the second, more general, one, some customers residing inside the market area of a certain firm can be expected to purchase from another firm. Both settings are interesting. In the first, the focus is on the elements that shape the boundaries of market areas. In the second, it is proved how

heterogeneity in terms of types of consumers or commodities complicates the concept of market area.

Chapter 9 models a barter economy with uncertainty where farmers choose to live in a smaller market or in a larger market according to the risk-return trade-off associated with each option. In particular, in a larger market a reduction in the risk due to the presence of a bigger number of farmers comes at the price of a reduction in the return from market participation, due to the increase in the incidence of shipping costs (and land rents, in one variant of the model). The model also sheds light on the fact that farmers may sort across regional markets of diverse size according to their own risk-return preference.

Chapter 10 introduces the classic ideas of von Thünen. The author's approach, as elsewhere in the book, is to proceed from a simpler model to a more complex one. He starts from the case in which farmers produce a single crop on a line, then extends the analysis to a setting where space is a rectangular plane, moves on to two crops produced on a line, and finally considers two crops on a plane. This chapter shows how the price of crops and the rent gradient are jointly determined. Moreover, when two crops are produced, it shows the occurrence of localization of agricultural commodities at specific distances from the center according to their bid rent curves.

Chapter 11 adds to the previous chapter by postulating an explicit production function for crops. The case of a Cobb-Douglas function with two inputs (land and labor) is considered. This specification, by allowing substitutability between the two inputs, demonstrates, among other things, that as one moves closer to the city center, labor is used more intensively for each unit of land. Factor prices and commodity prices are all simultaneously determined in this framework.

Chapter 12 depicts a framework where the presence of a centrally located factory, producing a certain commodity, affects the equilibrium of a von Thünen economy. Farms located outside the city center are free to allocate labor to the production of a commodity (the same that can be produced in the factory) or crop. This chapter addresses interesting issues. For example, it shows how the pattern of farm production in terms of the commodity/crop mix changes at different distances from the city center, and it proves how monopoly power exerted by the factory affects the equilibrium variables.

All in all, the author has crafted a carefully written textbook which I recommend both to students in competitive location theory (not necessarily endowed with a strong background in economics), and to practitioners with an interest in the discipline. One of the book's nicest aspects is its detailed discussion of the assumptions at the basis of each model. This gives the author the

chance to assess the usefulness and limits of each approach, and to relate the entire set of models in terms of questions that can (or cannot) be answered in that specific framework.

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