Retail Space Demand and Supply: An Integrative Model

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Retail space participants such as developers, owners, property managers, and lenders operate in an evolving and increasingly competitive marketplace. To construct new retail space or to expand existing space, investors must commit large amounts of capital in an uncertain demand and supply environment. Over the past decade, dynamic demand and supply movements have surprised market professionals and government regulators along with academicians.

A large number of studies have estimated demand and supply elasticities for single- and multi-family housing. However, very little research has examined the demand and supply of commercial real estate. This is surprising given the relevance of market elasticity estimates to developers, lenders, and others involved in the commercial market.

This paper is unique in developing an integrated model of retail space demand and supply that explains how prices and quantities are determined in the commercial market. A number of studies have focused on the economic and demographic determinants of demand and supply but have ignored the role of prices, or rents. An extensive review of these studies can be found in Eppli and Benjamin (1994). The studies, however, are silent on the role of prices and rents, because none of the models include price variables in the analyses.

In order to focus more closely on the role of prices and rents, we posit a supply and demand model for retail space. The demand for space is derived from the demand for retail goods and services. Demand is determined by the rental price of retail space and the level of retail sales. Sales, in turn, are determined by relative prices, incomes, and demographic factors. The supply of retail space is influenced by the rental price of space and the relative cost of producing it. To estimate the model of retail space demand and supply, we use data from 17 metropolitan statistical areas (MSAs) for the years 1985-92.

The demand model shows that a 1 percent change in the rental price of space results in a -0.40 percent change in demand for retail space. Therefore, the demand for retail space is inelastic with respect to rental price changes.

The estimated demand model also suggests that retail sales are very important in shaping the demand for shopping space. The retail sales coefficient of 1.02 is close to 1.0, indicating that changes in sales create approximately proportional changes in retail space demand.

The estimated supply model confirms that the supply of space responds to variations in price, land availability, land-use regulation, and the cost of capital. The price elasticity of supply is estimated to be 3.2, indicating that the supply of retail space is very elastic.

The implications of the study are examined in detail by means of a sensitivity analysis. The analysis reveals that a ten-percent autonomous increase in demand is associated with only a 2.7 percent rise in rents, but an 8.9 percent increase in quantity. This result clearly reveals the effect of the high supply elasticity, and it suggests that rents can be expected to show only small increases even in rapidly growing areas. In contrast, the 10 percent increase in demand generates a strong supply response, with the quantity of space rising 8.9 percent. On the supply side, a 10-percent jump in supply generates only a -2.6 percent fall in rents and a 1.1 percent rise in space.

The sensitivity analysis clearly identifies the risks to shopping center developers. Developers who respond to a positive demand shift by building new shopping space should recognize that rents will not increase appreciably after the demand shift. However, the demand shift may induce a substantial increase in quantity supplied, and any subsequent fall in demand may materially increase vacant space. On the supply

side, moderate supply shifts do not decrease rents substantially and raise quantities supplied only marginally.