

Hotelling's Law

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Definition

According to a seminal paper by Harold Hotelling (1929), the most profitable location is next to a competitor in the middle of a geographic or product space.

Keywords: agglomeration, linear city, location, principle of minimum differentiation

According to Hotelling's Law, there is an 'undue tendency for competitors to imitate each other in quality of goods, in location, and in other essential ways' (Hotelling, 1929: 41). The law is named after Harold Hotelling (1895–1973) who described the idea in an Economics Journal article, 'Stability in competition' (1929). Hotelling's Law is also referred to as the principle of minimum differentiation or Hotelling's linear city model.

Hotelling's Law explains why retailers and restaurants so often locate near one another. The classic example is ice-cream vendors locating near one another on a beach.

Not only are business locations minimally differentiated, but so too are products and politicians. In two-party elections, 'each party strives to make its platform as much like the other's as possible' (Hotelling, 1929: 54).

At the time Hotelling introduced his model, the prevailing economic thought was that duopoly was fragile, because a small price cut by one firm would capture the entire market. However, this thought was inconsistent with reality, according to Hotelling, because 'some buy from one seller, some from another, in spite of moderate differences of price' (Hotelling, 1929: 41).

Hotelling modelled the way in which firms share the market. He used a simple model in which consumers are evenly dispersed along a line and buy from the nearest firm. The two firms choose to locate at the mid-point of the line. A firm that unilaterally moves away from the mid-point loses market share and profit.

Later, Chamberlin (1933) showed that there is no equilibrium when a third firm is added to the market. If there are three firms clustered at the mid-point, the firm in the middle has an incentive to move away. The basic Hotelling model also fails to account for strategic pricing. D'Aspremont, Gabszewicz and Thisse (1979) showed that when firms choose both price and location, firms move apart to decrease price competition.

Hotelling's model has been enhanced by the inclusion of price competition. While price competition intensifies when firms co-locate, the intensity can be diminished by differentiation of product characteristics (Picone, Ridley and Zandbergen, 2009). In fact, it might be sufficient to differentiate in only one dimension of product space. New hotels often differentiate from incumbents in terms of size (Baum and Haveman, 1997).

While, in Hotelling's model, firms co-locate to attract consumers who travel to the nearest firm, other explanations for co-location emphasize spillovers and other factors. On the supply side, firms co-locate to decrease labour and other input costs (Marshall, 1920), learn from other firms how to improve productivity (Shaver and Flyer, 2000), learn about demand from other firms (Ridley, 2008), and because spinoffs sometimes locate near parent firms. On the demand side, firms co-locate to attract consumers searching for optimal product characteristics, to provide a credible commitment to low prices, to locate near consumers attracted by the marketing or reputation of competitors, to confer legitimacy (Deephouse, 1999), and because consumers are concentrated. For a literature review of agglomeration economies, see Rosenthal and Strange (2004).

Despite shortcomings of the original model, Hotelling's key insights endure. First, businesses tend to locate near rivals, despite price pressures. Second, because of product differentiation, price changes do not necessarily cause a dramatic movement of consumers from one firm to another.

See also clusters and FDI; competition (Cournot/Bertrand); differentiation; industrial economics; oligopoly

Additional index items: agglomeration, differentiation, location

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