

Hotelling's Law

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Abstract (< 100 words):

According to Hotelling's Law, competitors tend to imitate each other in business location, product characteristics, and other ways. Hotelling's Law is illustrated with two firms co-locating at the mid-point of a line. The co-location may be in terms of business location or product characteristics. A common critique of Hotelling's model is that it omits strategic pricing which pushes firms apart. Nevertheless, Hotelling's key insights remain: firms frequently choose to locate near competitors, and small price changes do not drive all consumers to one firm.

Definition (< 60 words):

According to a seminal paper by Harold Hotelling (1929), the most-profitable location is in the middle next to a competitor.

Cross-references:

- differentiation
- industrial economics

Keywords (index terms):

- 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). The law is named after Harold Hotelling (1895-1973) who described the idea in "Stability in Competition". 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, page 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, page 41).

Hotelling modeled 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.

However, when a third firm is added to the model there is no equilibrium (Chamberlin 1933). If there are three firms clustered at the mid-point, the firm in the middle has an incentive to move to the outside. The simple model also fails to account for strategic pricing. When firms choose both price and location, firms move apart to decrease price competition (D'Aspremont et al., 1979).

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 et al. 2009). In fact, it may be sufficient to differentiate in only one dimension of product space. New hotels often enter at similar price points but different sizes relative to those around them (Baum 1997).

While in Hotelling's model firms co-locate to attract consumers with transportation costs, competing explanations emphasize spillovers and other factors driving co-location. On the supply side, firms co-locate to decrease labor 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 some shortcomings of the original model, Hotelling's key insights endure. First, businesses tend to locate near rivals, despite price pressures. Second, in many sectors, competition is local and small price changes do not necessarily cause a dramatic movement of consumers from one firm to another.

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