Product Differentiation Reading

Tirole, 1988, Ch. 2

- "Too Many or Too Few Products?"
  - [Continue here, then re-read Dixit and Stiglitz, 1977, and identify apparently examinable insights]
  - "Too many" or "too few" depends on the type of intervention one has in mind. A hypothetical social planner's choice may be constrained, for example, by the condition that firms must generate non-negative profits (such a constraint may arise where lump-sum subsidies are impractical). Alternatively, the hypothetical social planner may have to take imperfect post-entry competition as a given.
  - Nonappropriability of Social Surplus
    - A firm that creates a new product generally cannot capture all the gross (of fixed costs) surplus generated by the product. The monopolist would not produce such a product if fixed cost exceeded gross profit. The social planner would prefer that such a product be produced if the sum of gross profit and consumer surplus exceeded the fixed cost.
    - "There is a tendency to have too few products under monopoly because the monopoly cannot capture the net consumer surplus."
    - The monopoly can capture the entirety of net potential surplus under perfect price discrimination. Therefore, under perfect price discrimination, the product is produced (net profits are positive) iff it is socially optimal (net social surplus is positive).
  - Multiproduct Monopoly and Overprovision of Diversity
    - Suppose that a monopolist can produce two goods which are substitutes. By increasing the price of one good, the monopolist can increase demand for the other such that the second good is profitable to produce (where it would not be if the first were priced competitively).
    - For example, in Hotelling's Linear City, suppose that a monopolist can either sell at $x = 0$ or at both $x = 0$ and $x = 1$. Given linear transport costs, and unit transport cost t. If fixed cost of entry f is such that $\frac{t}{4} < f < \frac{t}{2}$, the monopolist sells at more locations than is socially optimal. There is overprovision of product diversity.

Tirole, 1988, Ch. 7

- Introduction
  - "Prices can often be adjusted faster than product characteristics can. To formalize this we will assume that [...] products are chosen first and prices second."
  - One interpretation of the spatial differentiation model is that "consumers have heterogenous tastes which lie on a continuum". For instance, a consumer's location may represent the degree of "sweetness" he most prefers in candy, such that each consumer incurs a utility loss from consuming a product either more or less sweet than he prefers, proportionate to how much more or less sweet the product is.
  - Principle of differentiation: "firms generally do not want to locate at the same place in the product space" because "two firms producing perfect substitutes face unbridled price competition."
- Spatial Competition
  - Hotelling Model
    - [Deferred to lecture notes]
  - Salop Model
    - [Deferred to lecture notes]
  - "Maximal or Minimal Differentiation?"
    - "There exist forces that oppose maximal product differentiation, and even forces that oppose any product differentiation. These can be put into three categories."
    - "Be where the demand is".
      - A trivial and extreme example is obtained by extending the linear city such that firms choose location within the interval $[-1, 2]$, where no consumers are located in the intervals $[-1, 0]$ and $[1, 2]$. Firms choose positions $0, 1$ and are not forced to the extremes. This example is extreme, more plausibly, the consumers are distributed according to a normal distribution, such that there is a positive direct effect of reducing differentiation hence locating closer to the mean of the normal distribution.
    - "Positive externalities between firms".

      - Cost externalities include common installations and trade centers. Locating near competitors may reduce search costs for consumers, hence increasing aggregate (and individual firm) demand.
      - "In a world with at least some amount of product differentiation other than location [such as to soften price competition] consumers find it convenient to search next door if they do not find their preferred item in a given shop."
    - "Absence of price competition".
      - "In some instances, there may exist legal or technical reasons why the scope of price competition is limited. For instance, the prices of airline tickets in the U.S. (before deregulation) was determined exogenously. Consumer prices may be determined by resale-price-maintenance agreements imposed by manufacturers on retailers. The incentive to differentiate products decreases when firms do not compete in prices."
      - [See Hotelling Model with Fixed Prices]
- Monopolistic Competition
  - Under monopolistic competition, each firm faces downward-sloping demand, each firm makes no profit, and a price change by one firm has only a negligible effect on the demand of any other firm.
  - The latter condition is not entirely realistic because, except in a few cases, products tend to have direct neighbours in the product space, i.e. each product competes directly with a few others (or when they do not, as in the case of monopoly, the second condition is unrealistic).
  - It has been argued that monopolistic competition yields excessive differentiation, i.e. there are too many firms (collectively) producing too many different products such that each firm produces too little output and fails to exhaust economies of scale.
  - If firms enjoy economies of scale (decreasing average costs) up to some minimum efficient scale, under monopolistic competition, each firm produces quantity given by the point of tangency between its residual demand curve and average cost curve.
    - If the two curves do not intersect, then there is no profitable quantity and the firm exits the market. If the two curves intersect at multiple points, there is some quantity which yields positive profits, entry occurs to drive down residual demand until the zero profit condition is satisfied.
    - If the two curves meet at exactly one point (the point of tangency), only at this point does the firm have non-negative profits.
  - Given downward-sloping demand, the point of tangency necessarily fails to coincide with the minimum efficient scale which minimises average costs (assuming continuous cost and demand curves).
  - "Actually, this reasoning is flawed. If no other firm produces the same good (the other goods are different from that of firm i), the introduction of this good can be justified even if its production does not exhaust economies of scale."
  - "In general there are two effects operating in opposite directions."
    - Nonappropriability of social surplus: a firm cannot generally capture the whole consumer surplus associated with the introduction of a good. [See discussion in notes on Tirole, 1988, Ch. 2] Introduction of a product has a positive externality on consumers.
    - Business stealing: by introducing a product, a firm steals consumers from other firms. The rivals who have a positive margin lose profit from these diverted customers. Introduction of a product has a negative externality on other firms.
    - "More definite conclusions can be obtained only for specific models."
- Advertising and Informational Product Differentiation
  - Search Goods
  - Experience Goods
- Dixit-Stiglitz-Spence Model

Dixit and Stiglitz, 1977

- Apparently Examinable Insights
  - [None, apparently]

Shaked and Sutton, 1982

- [Deferred to lecture notes]

Schmalensee, 1978

- [Deferred to lecture notes]

Salop, 1979

- [Deferred to lecture notes]

Hausman, 1997

Anderson et al., 1992