ECON 224, Prof. Hogendorn

Problem Set 9

1. Package delivery can be thought of as having three industry segments. There are warehouses that ship the packages (sometimes these are wholesalers like book publishers, sometimes they are retailers like Amazon). Then there are long distance transportation providers that move the packages, and finally there are local delivery companies that maintain a network to get packages to residences and small businesses.

   For the most part, in the USA, long-distance package transport and local delivery are vertically integrated (think Fedex and UPS) and the warehouses are a separate set of shippers owned by various companies (but of course Amazon is very much thinking of getting into delivery via drones.) But for this problem, let's think of each segment as separate. As usual in this type of setting, the size of the market relative to the costs is greatest for warehouses, middle for long-distant transport, and least for local delivery. Hence, there is more potential for competition among warehouses, middle among long-distance transporters, and least for local delivery.

   (a) Draw a supply and demand diagram of the warehouse industry, assuming it is perfectly competitive. On an adjacent diagram, show the marginal and average cost curves of two warehouses, one which makes zero economic profit and one which is more efficient than the rest and earns a rent as a result.

   (b) Draw a demand curve and constant marginal cost curve diagram of the long-distance transport industry. Assuming this

industry is a fairly tight oligopoly, show the maximum, minimum, and range of prices that might emerge in oligopoly equilibrium.

(c) Draw a demand curve and constant marginal cost curve diagram of the local delivery industry. Add an average cost curve and describe why this industry is a normative natural monopoly. Is it a positive natural monopoly.

(d) Suppose there is a monopoly in local delivery and the monopolist seeks to buy a long-distance transport firm. Is there a potential antitrust argument to prevent the this vertical merger?

(e) Suppose there is a warehouse firm that owns a local delivery service, but a new, disruptive, and much better service enters the market (maybe it's the drones). Is the warehouse better or worse off? (Hint: it depends.)