

Fall 2002
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MID TERM EXAM

(Answer all questions, equal weight)

1). The recent improvements in the telecommunications industry are often argued to have changed the relationship between workers and firms. In particular, two ideas have been advanced:

Workers will commute less often because of working at home.

Workers will need to engage in less personal contact with other workers (in either their own firm or other firms) to achieve the same productivity.

Carefully argue how each of these two changes will impact the long-run location pattern of firms within metropolitan areas. Use a polycentric city model (city with subcenters) to illustrate your arguments.

2). The widespread use of minimum-lot-size zoning in US communities has two very different theoretical explanations. Carefully discuss each.

Evaluate this policy, using each theory, from the point of view of economic efficiency only. Do not consider issues of equity or redistribution.

3). In the most simple bottleneck congestion model, with a fixed total volume of traffic, explain in detail: what the efficient pattern of travel is, what kind of toll is necessary to sustain this pattern, and why the toll is necessary. [Complicated Math is not necessary, intuition will suffice].

4). Ghettos housing lower income residents exist within the center cities of most major U.S. metropolitan areas. Review the several different theories that have been proposed to explain why lower income residents tend to cluster together into ghetto neighborhoods. In particular:

Distinguish between those theories that involve externalities and those that do not.

What do the externality theories suggest are likely to be market inefficiencies?

What does each theory say about the location of Ghettos within metropolitan areas?

3). A metropolitan area is contemplating a uniform (flat rate) tax on all urban land. Agricultural land beyond the fringe would be exempt. Explain and diagram what this tax would do in the long run to land use within this metropolitan area, when density and all other factors are variable.

An alternative proposal is advanced to tax central land more than peripheral. Proponents argue that land taxes should be highest right at the center and zero for urban land at the fringe. Rates would be set so that the revenue raised with this land tax would be the same as with the flat rate. What effect does this tax have on land use within the metropolis over the long run. [demonstrate answers with proofs or diagrams]

4). In a private land market, households and individuals choose their own density of development, based largely on the market price of land. Explain why this decision is likely to be inefficient from the perspective of all the city's residents. What is the solution? What would "efficient" cities look like (in comparison to those generated by a private market).

3). Assume for the moment that the new central expressway in Boston will significantly reduce the cost (per mile) of traveling in and out of Boston as opposed to traveling in/out/around in the suburbs. Use a 2-center model (city and suburb or "edge city") to analyze the impact of this change. Consider the effect on:

- The employment base and wages at the center and suburbs.
- Land rents (house prices) at the center and suburbs.

[demonstrate answers with diagrams and careful logical arguments]

4). In an ideal world, with no limits to the ability of governments to monitor consumers and charge taxes, how should the use of the automobile be priced? Carefully describe how such prices are determined and how they might vary over time and location.

If the monitoring of driving, or the collection of fees for driving is difficult or impossible, give at least 3 alternative policies which can partially achieve the same objective as the correct pricing of driving.

With each of these alternatives, carefully describe what distortions or differences in behavior might result from the policy - relative to what would prevail with full driving charges. Which would you advocate and why?