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AMENITIES AND PROPERTY VALUES IN A MODEL OF AN URBAN AREA

A reply

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The preceding comment by Cobb, Barkume, and Shapiro (1978) mentions two sets of issues raised in Polinsky and Shavell (P–S) (1976). The first concerns the prediction and interpretation of property value changes resulting from amenity changes. They briefly restate some of our original observations about these issues and clarify a few points.

The second set of issues, which is the primary focus of their comment, concerns the identification of preferences for amenities from the property value equation. They claim to show that preferences for amenities – specifically, the marginal rates of substitution between amenities and other goods – 'can always be predicted in the P–S model regardless of whether the urban area is characterized as "open" or "closed" and irrespective of the functional form which best represents the urban resident's preferences for housing, amenities and nonhousing good.' They conclude from this that 'the P–S distinction between "open" and "closed" cities is not necessarily important for measuring amenity benefits.'

Before responding to Cobb, Barkume, and Shapiro (C–B–S), it will be useful to examine their claim in somewhat simpler terms. Consider identical individuals in locational equilibrium. Although they have the same level of utility their consumption of land, amenities, and other goods generally differs by location. Given enough variation in the consumption bundles, the entire indifference surface corresponding to the *existing* level of utility could be determined. Obviously, from the indifference surface, marginal rates of substitution or compensated demand curves could easily be calculated. Note that no assumption has been necessary yet about the functional form describing preferences or about whether the city is open or closed. This, in essence, is the C–B–S claim, although they do not emphasize that the marginal rates of substitution can only be determined at the existing level of utility.

With the above qualification, we agree with C–B–S's claim. However, it should be mentioned that the part of this claim regarding the functional form

was established some time ago by Freeman (1974) and Small (1975). And the part of this claim regarding intercity mobility was stated explicitly in P–S.[1]

We disagree with their conclusion that the distinction between open and closed cities is therefore irrelevant to measuring amenity benefits. If a city was closed rather than open, a change in amenities would lead to a change in the level of utility in the new locational equilibrium – intercity migration would not compete away the benefits of improved amenities. Thus, even if the indifference surface corresponding to the original level of utility were completely identified, it would not be sufficient to derive a measure of benefits *without some further assumption about the structure of preferences.*[2] In P–S we examined the problem when, for example, individuals were assumed to have Cobb–Douglas utility functions.[3] It was shown that this utility function could be identified from the property value equation regardless of whether the city was open or closed. Therefore, intercity mobility is relevant not for identifying preferences per se, but for deciding whether it is sufficient to rely on the existing marginal rates of substitution or whether it is necessary to impose further restrictions on the structure of preferences.

[1]For example, on p. 127 we said: 'The problem of identifying the demand for amenities in a closed city is equivalent to that in an open city.'

[2]C–B–S acknowledge this in a footnote but do not seem to recognise the importance of this for their conclusion.

[3]Other possibilities have been explored theoretically by Freeman (1974) and empirically by Polinsky and Rubinfeld (1977).

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