Comparative Advantage and Local Manufacturing in the South and Midwest in 1860: A Comment

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In his paper, Raymond Cohn tries to show that the volume of local manufacturing activity was determined by the quantity of local demand as reflected in local per capita income levels. At first glance, this argument has a great deal of intuitive appeal, but, upon closer examination, it is found to encompass a disturbing element of circularity. If the amount of local manufacturing activity is determined by local per capita income levels, what about agricultural production? What about service output? Could one not argue that per capita levels of all economic activity are likely to be positively correlated with per capita income? Since economic activity generates income, where does this type of reasoning lead us? In its logical extension, we appear to have a circular tautology: the more income, the more economic activity; the more economic activity, the more income; and so forth.

Professor Cohn claims that his results are in line with the theory of comparative advantage; indeed, the paper is titled, "Comparative Advantage and Local Manufacturing in the South and Midwest in 1860." It is difficult for me to appreciate the relationship between Profesor Cohn's results and traditional comparative-advantage arguments. If economic activity is positively associated with per capita income levels, what determines why a region specializes in manufacturing rather than in agriculture or service activities? Professor Cohn's analysis does not permit us to look at these interesting types of questions that can be explored through the theory of comparative advantage.

In addition to these misgivings concerning Profesor Cohn's conceptual framework, I have several specific questions concerning the application of his model. First, the examination of manufacturing activity is restricted to what Cohn calls

"local" manufacturing. This is manufacturing activity geared to local demand and not for export markets. Two variants of local manufacturing are used. Group 1 includes the following: flour and meal; sawed lumber, carriages; tin, copper, and sheet-iron ware; saddlery and harness; bread and crackers; cooperage; printing and publishing; and brick. Group 2 includes group 1 plus the following: sash, doors, and blinds; furniture; leather; pottery and stone ware; marble and stone work; hardware; agricultural implements; and steam engines. An examination of the industrial composition of manufacturing in several of the sample areas used by Cohn (Savannah, Columbia, Vicksburg, and Peoria) suggests that local manufacturing was heavily dominated by flour and meal and sawed lumber.[1] These do not seem to be the types of industries whose activities would vary directly with the level of per capita income. In fact, would we not expect to see diversification away from these types of industries as per capita income rises?

A more serious problem with the Cohn paper results from the use of subregion, per capita income estimates. Cohn recognizes that he has a problem with the accuracy of his subregion income estimates. Nevertheless, these estimates of unknown quality provide the cornerstone for his analysis. The subregion income estimates were derived from an allocation of national and state value added estimates for agriculture, manufacturing, mining, construction, and the various service producing industries to the various subregions. The margin for error in this exercise is extremely large given the problems in estimating value added by state. Even today, we do not have readily available, value added estimates by major industry groups at the state level, and substate data is virtually nonexistent. In recent years, there have been several independent efforts to generate a value added series for the post-World War II period.[2] Currently, the Bureau of Economic Analysis is working on estimates of value added by major sector for three benchmark years (1967, 1972, 1977).[3]

Cohn's results are insignificant until he includes an urban variable (percent of regional population that lived in the nodal city) in his analysis. He speculates that the urban variable is acting as a proxy for regional price differences. This may be true, but the significance of the urban variable might also merely suggest that local manufacturing was more heavily concentrated where population density was greatest. In fact, would we not expect this to be true?

The significance of Cohn's results appear to be particularly sensitive to the mixing of the Midwest and South. Let us assume that there were solid economic reasons such as comparative advantage behind the South's low rate of industrialization and

that the South's per capita income was low because of slave effects. With these conditions, if you mix a relatively high per capita income, industrialized region with a relatively low income, unindustrialized region, do you not almost guarantee that you will find a significant relationship between per capita income and manufacturing activity?[4] Cohn addresses this question by including dummy variables for southern regions in his analysis. He finds no significance for the dummy variables, but he acknowledges that high correlation between the dummy variables and per capita income may indicate multicollinearity and might explain the insignificance of the dummy coefficients.

To provide some insight into the sensitivity of Cohn's analysis to the mixing of the two regions, we can reconstruct the scatter diagrams separately for the two regions.[5] (See the Chart) In the diagrams, I have used the group 2 definition of local manufacturing. We clearly see that the association between per capita income and per capita manufacturing activity is much less marked with the regional separation. For the South, the relationship between per capita income and per capita manufacturing is more inverse than direct. For the Midwest, there is no apparent relationship between per capita manufacturing output and per capita income. There are obviously not enough observations in the Chart to reach any significant conclusions, and we are still dealing with per capita income estimates of questionable accuracy, but Cohn might wish to pursue this approach in his future work.

In his conclusion, Cohn addresses the issue of the role of slavery in southern industrial development and argues that slavery, because of its positive income effects, actually increased the amount of southern manufacturing. Implicit in Cohn's argument is the assumption that the high incomes generated for the planters by slavery would have led to increased demand for local manufactured goods. Given the nature of local manufacturing as outlined above, this seems unlikely.

NOTES

1. For this exercise, we defined the region as the city plus all contiguous counties. The following shares of total local manufacturing (group 2) were contributed by flour and meal and sawed lumber: Savannah, 39.0%; Vicksburg, 37.7%; Peoria, 36.2%; Columbia, 52.4%.

2. See my Gross State Product and Productivity in the Southeast (Chapel Hill: University of North Carolina Press, 1975), for an attempt to estimate value added by major sector

for the southeastern states and a review of other efforts at value added estimation.

3. The Bureau of Economic Analysis project is under the supervision of Daniel Garnick, Ray Grimes, and Edward Trott.

4. Cohn's estimates suggest that midwestern per capita manufacturing output levels (group 2) were approximately 60% greater than southern per capita manufacturing output levels, and midwestern per capita incomes averaged 35% more than southern per capita incomes.

5. In this exercise the South includes Charlotte, Chattanooga, Columbus (Georgia), Dallas, Richmond, Savannah, and Vicksburg. The Midwest includes Columbia, Columbus (Ohio), Detroit, Dubuque, Lafayette, Louisville, Paducah, and Peoria.

Chart

Scatter Diagram for Southern and Midwestern Regions