



Adam Smith's division of labor and structural changes

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Abstract

This paper considers two different cases of division of labor: (i) the subdivision of different operations in order to produce a particular product in a given firm or plant; (ii) the specialization of firms in the same industry. Division of labor of the former type is limited by demand for output of a particular firm or plant, while division of labor of the latter type is limited by demand for the industry as a whole. It is argued that, in the case of an industry producing a homogenous product, an increase in the scale of production of any particular firm is likely to be associated with changes in the internal division of labor. In the case of inter-firm division of labor, decreasing unit costs may result from lateral disintegration. Finally, in the case of an industry producing a composite commodity (that is, a commodity composed of many different sub-commodities), firms', disequilibrium behavior may lead to concentration of each firm to fewer sub-commodities, in the anticipation of the entry of new firms, or as a result of it. © 2000 Elsevier Science B.V. All rights reserved.

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1. Two different kinds of the divisions of labor

Structural changes may be defined as changes in the composition, i.e. in the relative weights of significant components of systems (Ishikawa, 1987; Pasinetti and Scazzieri, 1987). Adam Smith's division of labor, which is limited by the extent of the market, causes such changes in the structure of firms and that of industries.

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Smith gives two different kinds of illustrations of the divisions of labor; one is concerned with the subdivision of different operations to produce a given product, the extent of which is limited by the demand for output of a firm or a plant, while the other is concerned with an inter-firm division of labor or the specialization of firms in the same industry, the extent of which is limited by the demand for the industry as a whole.

The illustration of the former division of labor is drawn from the pin making example in the *Wealth of Nations*:

“The trade of the pin-maker; a workman not educated to this business, nor acquainted with the use of the machinery employed in it, could scarce, perhaps, with his utmost industry, make one pin in a day, and certainly could not make twenty. But in the way in which this business is now carried on, not only the whole work is a peculiar trade, but it is divided into a number of branches, of which the greater part are likewise peculiar trade. One man draws out wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head; to make the head requires two or three distinct operations, to put it on, is a peculiar business, to whiten the pin is another; it is even a trade by itself to put them into the paper; and the important business of making a pin is, in this manner, divided into about eighteen distinct operations, which, in some manufactories, are all performed by distinct hands, though in others the same man will sometimes perform two or three of them. I have seen a small manufactory of this kind where ten men only were employed,... Those ten persons could make among them upwards of 48 000 pins in a day. Each person, therefore, ... might be considered as making 4800 pins in a day.” (Smith, 1976, pp. 14–15).

Then Smith describes the effect of the latter division of labor in nail making in the following extract:

“A smith who has been accustomed to make nails, but whose sole or principal business has not been that of a nailer, can seldom with his utmost diligence make more than 800 or 1000 nails in a day. I have seen several boys under 20 years-of-age who had never exercised any other trade but that of making of nails, and who, when they exerted themselves, could make, each of them, upward of 2300 nails in a day.” (Smith, 1976, p. 18).

In Section 2 we summarize and extend our previous considerations (Negishi, 1989, pp. 89–95) on the division of labor of the first kind (e.g. Smith’s subdivision of operations in pin making). Then, Sections 3 and 4 are devoted to division of labor of the second kind (e.g. Smith’s smith who specializes in nail making). Finally, Section 5 concludes the paper.

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