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## Some Reflections on the Agrar-Policy in the Last Stage of the Tokugawa Period

(continued)

—Okai Rentei (1751~1826) and  
Aizawa Seishi (1782~1863)—

by Takao Shimazaki

In this article, I surveyed the characters of political and economic thought, especially the Agrar-Policy, of *Okai Rentei* and *Aizawa Seishi*. They were much influenced by *Fujita Yukoku* (1774~1826) (*Mita Gakkai Zasshi*, Vol. 52, No. 5, May, 1959), their Agrar-Policy was also rather conservative. I pointed out the characters of their thoughts.

### Estimation of the Steel Production Function in Japan

by Gyoichi Iwata

1. The purpose of this study is to examine the possibility of obtaining the technological structure of iron-production as a stable relation in a manageable form including a few variables. It will serve as the first step to clarify the firms' behaviors of investment and labor demand in the Japanese iron industry.

2. Investment behavior can be regarded as a selection among different kinds of techniques. Therefore, it will be important for the analysis of the investment behaviors to represent the whole possible techniques by a single production function. We shall be able to do it by means of the production function of familiar labor-capital substitution type. However, the following problem will arise. How should we measure capital? The method of measuring capital in money term (which was done by P. H. Douglas) has some difficulties as follow. It is difficult to measure the value of old equipments and the rate of depreciation is considered not to correspond to the actual decrease in

capital value. In this estimation, we try to avoid this difficulty of measuring stocks, by using gross investment instead of capital value. The production function will be estimated as the relation among inter-temporal changes of inputs and the gross investment (I).

3. There are problems of utilization, which exist between two different variables, stock (capital) and flow (labor, output). In order to solve this problems, I measure the production function as the relation among productive capacity (Q), labor and material (L and M) at normal utilization, and capital in and out of operation.

4. The cross-section analyses of steel production process are adopted. Samples consist of some 13 firms. In order to get the autonomous and stable relation, we need to measure the production function process by process. Pig iron production process and rolling process are not studied here because the former has too small samples (firms) and the latter has too various kinds of final products.

5. Two alternative models are adopted. Model 1 is labor-capital substitution type, but in Model 2 material term is added.

6. As the result of the estimation of Model 2, we have obtained the structural parameters as follow:

$$\frac{Q}{Q_0} = \left(\frac{L}{L_0}\right)^{0.41} \left(\frac{M}{M_0}\right)^{0.74} e^{0.029 + 0.044 \frac{I}{Q_0} V}; \quad e \equiv 2.712,$$

where V is random disturbance and the suffix 0 denotes the variables of the previous period.