Three Essays on Inequality in Microeconomics

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Abstract

My dissertation consists of three unrelated essays on inequality in the field of microeconomics. The first essay, coauthored with Naoki Yoshihara, studies the condition of the *emergence* and *persistence* of exploitation as unequal exchange of labor in an intertemporal model of pre-industrial economies. We show that pure workers are exploited in any finite periods if there is positive real profit rate, even though labor allocation among agents tends to be equalized in the limit regardless of the saving behaviors. The so-called Fundamental Marxian Theorem and Profit-Exploitation Correspondence Principle are generalized in the intertemporal setting with exploitation in the whole life, and the Class-Exploitation Correspondence Principle is established with exploitation within period.

The second essay analyzes the effect of technical change on income distribution and profitability by comparing the long-run outcomes defined by uniform profit rate in multisector linear economies. I study three scenarios with (i) fixed real wage; (ii) fixed profit rate; or (iii) fixed wage-profit ratio. I show that the any viable capital-using and labor-saving technical change itself without change in power would bring about a fall in profit rate. Profit rate would not rise unless the technical change is so power-biased against the working-class that the wage-profit ratio can not be maintained. This result conclusively support Marx's argument of falling rate of profit due to rising organic

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composition of capital as an underlying economic force, and provide benchmarks to identify different regimes in the co-evolution of real wage, distribution and profitability.

The third essay explores the levels of inequality on networks in the framework of cooperative games. I establish the connection between the range of inequality and the property of network structure, and characterize the allocation rule that lead to the extreme levels of inequality. Finally, by considering a network formation game in which players can modify the links under any given allocation rule, I explore the network structure supported by equilibrium under different allocation rules and show that it is more likely to form a efficient network under the allocation rule with minimum inequality.