

Exercise 5: A Production Club Model

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There are two types of people, skilled and unskilled. The measures of these types are λ_s and λ_u . People maximize the expected value of a continuous utility function $u(c) - v(h)$ where c is consumption and h is hours workweek length. Each person has time endowment 1 and all own $\underline{k} > 0$ units of capital. Consumption and leisure are non-negative.

There is a plant technology with output, $c = h f(k, u, s)$, where h is the hours the plant is operated, u is the number of unskilled workers, and s the number of skilled workers. If a plant is operated h hours, all workers must work at least h hours.

1. Represent this environment as an economy in the sense of *The Theory of Value*. Don't make the commodity space unnecessarily large.
2. Verify that the second welfare theorem applies. (See Stokey and Lucas Chapter 15.)
3. Specify the social planner's problem that maximizes the weighted average of the two types utilities. Let the weights be μ_s and μ_u .