

The exogenous change of utility function on service growth

Jianhua Li

Peking University

The growth of service is the most important feature of modern economic growth and the impulsive force of economic structure change. It is a well-known observation that tertiarization is the tendency of developed countries over the last fifty years countries. So I

The economy is populated by an infinitely lived representative household of constant size. The utility function of representative household is that:

$$\sum_{t=0}^{\infty} \beta^t u(c_{a,t}, c_t), \beta \in (0,1) \quad (1)$$

$$u(c_{a,t}, c_t) = a \ln(c_{a,t}) + (1-a) \ln(c_t), a \in [0,1] \quad (2)$$

$$c_t = [bc_{m,t}^\rho + (1-b)(c_{s,t} + \bar{s})^\rho]^{1-\rho}, \bar{s} > 0, b \in (0,1), \rho < 1 \quad (3)$$

$c_{a,t}$ denotes the consumption of agriculture goods. $c_{m,t}$ denotes the consumption of manufacture goods. $c_{s,t}$ denotes the consumption of service. b denotes the preference of consumption of service. \bar{s} denotes service which is not buy from market, but is provided by each other in the household. The important meaning of the utility function is that the income elasticity of demand of service is greater than 1. when income increase, the consumption of service grow faster than income.

Equation (3) is a CES function. Under the condition $\rho < 1$, at a certain level of utility, manufacture goods and service can be substitute for each other. When $\rho \rightarrow -\infty$, it is more and more difficult for manufacture goods and service to substitute for each other. When $\rho \rightarrow 1$, it is more and more easily for manufacture goods and service to substitute for each other.

Growth service is influenced by change of exogenous variables of utility function. Exogenous variables are including preference, elasticity of substitution, and share of market service consumption. Preference for service is stronger, households consume much service, and share of service grows much. Jiang (2011) think that service can be divided into two kinds. One is service can be standardized, and the other is service can not be standardized. Service can be standardized is substituted easily by manufacture, such as information, communication, and finance, etc. Service can not be standardized is difficult to be substituted by manufacture, such as medical, education, and culture, etc. the share of latter is larger, and the share of service is larger. The share of market service is larger, households buy much service from market, and service grows much.

Macroeconomic policy should focus on the exogenous change of utility function in China. In recent 30 years, income of household grows rapidly. However the change of utility function with income is not continuous. Because the income elasticity of demand of agriculture, manufacture and service is different, so the share of demand changes with income growth. The reason of recent problem, such as medical care, education, and housing, is that supply can not rapidly adjust to sharp exogenous change of utility function.