

CHAPTER 5

CONCLUDING REMARK

Before the current version, there have been several experimental models developed with an aim to explain why an agent can purchase less of market inputs. The very first one adopts the Becker's model of rational addiction which wisdom is considered a productivity enhancing capital for religion commodity. The model is assumed for simplicity to be two-period dynamic. The transition function of capital which is dependent to current capital and religion commodity is constant returns to scale. As wisdom grows, the relative shadow price of religion commodity is lower. Numerical results show the negative trend between the amount of secular commodity and wisdom.

Later model can be considered the antecedent of the current one. Some variations from the above are added. Instead of treating wisdom as a productivity enhancing capital for religion commodity, wisdom helps managing the secular production. A decision of an agent to participate religion is driven by the future benefits of the investment in religion and their preferences. With higher wisdom, an agent invests more of religion due to the fact that their marginal benefits of the investment are influenced by wisdom.

In order to solve the problem in closed form solutions, there must be some further assumptions to avoid the FOC equations being nonlinear or polynomial functions. However, both power and simplicity of the model have to compromise with each other. There are some restrictions lying in consequences of an attempt to simplify the model.

For the model prototype, quasilinear preferences specification, Cobb-Douglas production function, and constant returns of the form $P_2 = P_1 + t_{R,1}$ are applied¹. This leads to the results that show the independence of market input and wisdom due to the form of quasilinear being too trivial. To make things even worse, the 1st-period religion time relates to wisdom in the opposite direction. This may result from the fact

¹ $U(t_R, S) = \log S + bt_R = a \log x + (1-a) \log P + bt_R$

that the form $P_2 = P_1 + t_{R,1}$ shows some degree of substitution between P_1 and $t_{R,1}$. Thus an improvement is to 1) switch the functional form of the law of motion to be $P_{t+1} = P_t \left(1 + P_t e^{-t_{R,t}}\right)^{-\alpha}$ which P_1 and $t_{R,1}$ are more complementary², and 2) change preferences specification to be log Cobb-Douglas³ to relate market inputs variable to wisdom. Although it yields better results concerning the positive relationships between P_1 and $t_{R,1}$, the FOCs become nonlinear. Therefore, to obtain closed form solutions, the transition function is altered to be exponential specification as in the current model. The exponential form $P_2 = \exp(P_1 \cdot t_{R,1})$ not only simplifies the solutions but also is feasible due to the fact that wisdom variable is not isolated from religion commodity variable after plugging the form into the utility function, leading to the positive trend between P_1 and $t_{R,1}$.

Even though this model succeeds in demonstrating why initial wisdom capital encourages an investment in future wisdom as well as why it is capable of abating the amount of life-time secular purchased goods or service x , there are some limitations. The adoption of log Cobb Douglas utility specification with an aim to ease the calculation turns to reduce the degree of interactions among variables. For example, with substitution of the secular Cobb-Douglas commodity into the log Cobb-Douglas utility function, wisdom capital variable is separated from market inputs variable. This implies that wisdom capital loses its power to enhance the productivity and consequently makes the optimal levels of market inputs lessen more.

Furthermore, this log Cobb-Douglas specification possesses high degree of substitution between S_2 and R_2 commodities. Therefore, as the investment returns from period 1 raise S_2 , t_{R_2} drops inevitably. This makes the model be unable to explain why the elderly with more wisdom participate more of religion.

Nevertheless, apart from the utility specification, the fact that t_{R_2} decreases may result from the disappearance of the investment incentive. At the first period, an agent invests in religion partly with an eye to yield higher future utility. On the contrary, at

² where $0 < \alpha < 1$

³ $U(t_R, x) = a(1-b)\log x + (1-a)(1-b)\log P + b\log t_R$

the terminal period, the benefits from religious participation vanish. One method to broaden the model is to include the afterlife utility, which was introduced by Azzi and Ehrenberg (1975) in the economics of religion. Afterlife utility is treated to be dependent to the amount of wisdom capital after the terminal period. Its existence would encourage an agent to invest in religion at their terminal period, consequently resulting in a rise of religion time.