Social Enterprises, Subsidization and Market Leadership

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1. Introduction

- **Market Economy**

  - Market Economy relies on the function of market price (invisible hands)

    · Consumers maximize their utilities and producers maximize their profits: the forces of supply and demand allocate resources efficiently

    · However, unregulated market power in imperfect markets and uncontrolled externalities of side effects are real examples of a general phenomenon (market failure)

    · Then, public policy can potentially remedy this market failure and increase economic efficiency, but public policy is also demanded by interest groups and supplied by political institutions, which might be captured by the interest groups organized in the regulated industry (government failure)

1. Introduction

- **Social Economy**

  - Social Economy emerges from the non-market and non-government perspectives since 1990s to overcome market and government failures as a complement of market economy

    · Social enterprises (SEs), Co-operatives (Co-ops), and non-profit organizations (NPOs) has been paid increasingly attention to qualify entrepreneurial initiatives in a number of different industries and sectors to approach less touched problems in market economy

    · SEs have been explained by their social efforts in providing general-interest social services, generated by marketability beyond the tradition fields of NPOs activities

    · Co-ops have included local members to resolve regional imbalance problems such as increasing social values and eliminating social polarization

1. Introduction

- **Social Enterprises**

  - SEs have provided a varied and increasing number of initiatives, including those supplying social services and generating social values, those promoting ethical financing, and those producing goods and services with social goals other than profit, such as the organizations that aim to combat poverty and undernourishment

  - SEs aim to generate social value through the private use and management of human and financial resources that are partially generated by market exchanges

  - Their governance and implications of their performance vary and depend heavily upon market competition and government regulation.

1. Introduction

- **SEs have made amazing breakthroughs not only in developed countries but also in other regions of the world.**

  - Developed countries in the 1980s

    · Western European countries: associative workers group, co-ops

    · USA: profit-generating NPOs, private-public partnership

  - Other regions in the 2000s: East Asia, Latin America, and transitory economies

    · East Asian countries: SE initiatives have started to emerge within civil society organizations in response to structural changes.

  - SEs play a large role in the production and distribution of goods and services in contemporary market economies

1. Introduction: Motivation

- **This research**

  - Investigates a subsidy policy on SE and examines how market competition can affect the role of SE not only for social welfare, but also for the social impact of social activities

  - Examines two different leadership models, social leadership and private leadership

  - Considers rationing policy on SE's production and compare the results between output rationing and market share rationing.

  - Analyzes the strategic incentive of social activities of SE

1. Introduction: Literature on Model Formulation

- **Recent theoretical studies on the efficiency of market competition with CSR (Corporate Social Responsibility) or Commercial NPOs**

- Lambertini and Tampieri (2010, 2011, 2015): in the homogenous products duopoly, the profits and social welfare can be improved when CSR firms consider the consumer welfare and environmental pollution as a social concern.

- Goering (2012, 2014), Brand and Grothe (2015) : in the vertical monopoly, social welfare and profits can be increased when the bargaining powered company can consider the CSR strategically.

- Nakamura (2013, 2014), Kopel (2014): in the horizontal products duopoly, the level of CSR depends on the leadership and competition mode.

- Bian, et al.(2016), Hirose, et al.(2016): in the delegated incentive, the strategic CSR depends on the competition mode and product differentiation.

1. Introduction: Literature on Model Formulation

- **Appropriateness for the objective function of SE**

  - Those firms are commonly assumed to pursue its profit and social concerns such as consumer surplus and/or environmental damage (traditional mixed market approach)

  - European approach (De Fraja and Delbono,1989): public firm competes with private firms and the public firm behaves strategically to maximize social welfare.

  - Asian approach (Matsumura, 1998): partially privatized public firm maximizes the weighted objective function between welfare and its profit

  - However, if we can regard SE as a specific organization not for profit, this formulation in which the profit itself is included in the objective function should be reconsidered.

1. Introduction: Literature on Model Formulation

- **Alternative objective function of SE**

  - Cremer et al. (1989), Estrin and de Meza (1995), and Bennett and Manna (2012) examined that the public firm maximizes output subject to a break-even constraint.

  - This formulation is general enough to cover a wide range of managerial delegations such as employment level.

  - We adopt their approach on the objective function of SE under a break-even constraint

  - We also emphasize the social value created from social activity of SE as a positive externality of market activities in the objective function.

2. The Model

- Mixed oligopoly market: $n + 1$ firms (one SE and n PEs)

- Linear demand function: $P = A - Q$, where $Q = q_0 + \sum_{i=1}^{n} q_i, \quad i = 1, 2 \ldots n.$

- Cost function of SE: $c(q_i) = cq_i^2$, but PEs have zero cost: efficient

- Government subsidy on SE: sq_0

- The Profits of SE and PEs

$$\pi_0 = (A - q_0 - \sum_{i=1}^{n} q_i)q_0 - cq_0^2 + sq_0$$

$$\pi_i = (A - q_0 - \sum_{i=1}^{n} q_i)q_i, \quad i = 1, 2 \ldots n$$

2. The Model

- **The objective function of SE**

  $G = CS + bq_0, \quad s.t \quad \pi_0 \geq 0$ and $2AC > b > 0$

  - where CS is consumer surplus and b is the marginal social value of SE's activity

  - SE is constrained by the non-negative profit constraint, under the subsidy policy (sustainability condition of SE)

- **Total social welfare**

  $W = CS + bq_0 + \pi_0 + \sum_{i=1}^{n} \pi_i - sq_0$

2. The Model: The First-Best

The social optimum as a Benchmark

- SE can exist in the market economy at the social optimum

- SE cannot be sustainable without government subsidy policy

- The appropriate output subsidy program is required.

$$q_0 = \frac{b}{2c}, \quad q_i = \frac{2Ac-b}{2cn}, \text{ and } Q = A \quad \text{where} \quad q_0 \overset{>}{\underset{<}{=}} q_i, \text{ if } b \overset{>}{\underset{<}{=}} \frac{2Ac}{1+n}.$$

$$\pi_0 = -\frac{b^2}{4c} < 0 \text{ and } \pi_i = 0.$$

$$W^{SO} = \frac{b^2 + 2A^2c}{4c}.$$

3. Subsidization and Market Leadership

3.1 Social Leadership by Social Enterprise

$$s^S = \frac{b(1+n)(1+c+cn)-Ac(1+2n)}{1+2c(1+n)^2} \gtrless 0 \text{ if } b \gtrless \frac{Ac(1+2n)}{(1+n)(1+c+cn)}$$

$$q_0^S = \frac{A+b(1+n)^2}{1+2c(1+n)^2}, q_i^S = \frac{(2Ac-b)(1+n)}{1+2c(1+n)^2}, \text{ and } Q^S = \frac{b(1+n)+A(1+2cn(1+n))}{1+2c(1+n)^2}$$

$$p^S = \frac{(2Ac-b)(1+n)}{1+2c(1+n)^2}$$

$$\pi_i^S = \frac{(2Ac-b)^2(1+n)^2}{(1+2c(1+n)^2)^2}$$

$$W^S = \frac{2Ab+b^2(1+n)^2+A^2(1+2cn(2+n))}{2+4c(1+n)^2}$$

3. Subsidization and Market Leadership

3.2 Private Leadership by Private Enterprises

$$s^P = \frac{b(1+c)(1+n)(c+n+cn)-Ac(c+2(1+c)n)}{2n^2+2c^2(1+n)^2+c(1+2n)^2} \gtreqless 0 \ \text{ if } \ b \gtreqless \frac{Ac(c+2n+2cn)}{(1+c)(1+n)(c+n+cn)}$$

$$q_0^P = \frac{Ac^2+b(c+n+cn)^2}{c(2n^2+2c^2(1+n)^2+c(1+2n)^2)}, \ \ q_i^P = \frac{(1+c)(2Ac-b)(c+n+cn)}{c(2n^2+2c^2(1+n)^2+c(1+2n)^2)}, \text{ and } Q^P = \frac{(A+b)c+(1+c)(b+2Ac)n+2A(1+c)^2n^2}{2n^2+2c^2(1+n)^2+c(1+2n)^2}$$

$$p^P = \frac{(2Ac-b)(c+n+cn)}{2n^2+2c^2(1+n)^2+c(1+2n)^2}$$

$$\pi_i^P = \frac{(1+c)(b-2Ac)^2(c+n+cn)^2}{c(2n^2+2c^2(1+n)^2+c(1+2n)^2)^2}$$

$$W^P = \frac{2Abc^2+b^2(c+n+cn)^2+A^2c(c+4c(1+c)n+2(1+c)^2n^2)}{2c(2n^2+2c^2(1+n)^2+c(1+2n)^2)}$$

3. Subsidization and Market Leadership

3.3 Comparisons

> **Proposition 1:** *SE's output in social leadership is higher than that in private leadership, while PE's output in social leadership is lower than that in private leadership. However, total market outputs in social leadership are lower than those in private leadership*

- Irrespective of the levels of marginal social value, marginal production cost of social enterprise, and the number of private firms, SE provides higher output in social leadership and PE provide higher output private leadership at sustainable market equilibrium.

3. Subsidization and Market Leadership

Proposition 2: *The optimal subsidy rate in social leadership is lower than that in private leadership.*

- The optimal subsidy rate depends on neither the degree of market competition between SE and PEs nor the marginal production cost of SE, but depends on the market leadership role.

- SE produces less output in private leadership than social leadership, and thus the government should set higher subsidy rate for SE under higher marker competition (or weaker sustainability) to increase output, contribution to social value, and total social welfare in private leadership

3. Subsidization and Market Leadership

> **Proposition 3:** *The total social welfare in social leadership is lower than that in private leadership.*

- The total social welfare does neither depend on the degree of market competition between SE and PEs nor the marginal production cost of SE, but depends on the market leadership role.

- When market competition supports market equilibrium of positive outputs of SE and PEs, total social welfare in private leadership are greater than that in social leadership.

4.Policy Discussions

- An alternative policy for SE under market competition system is to consider a regulatory policy of rationing on SE to support its sustainability.
- Korean case: how much government should provide a rationing on the market share of SE, of which range lies between 5% and 7% of the total market share.
- We examine two rationing policies on SE to support its sustainability: output-based rationing vs. market share-based rationing.
- We also examine the strategic incentives on social activities of SF under subsidy policy.

4.Policy Discussions: Output rationing

4.1 Rationing Policy: output vs. market share

(1) The optimal output rationing on SE:

$$q_0^A = \frac{b}{2c}, \; q_i^A = \frac{2Ac-b}{2c(1+n)}, \; Q^A = \frac{b+2Acn}{2c(1+n)}$$

$$\pi_0^A = \frac{b(2Ac-b(1+c+cn))}{4c^2(1+n)}, \; \pi_i^A = \frac{(b-2Ac)^2}{4c^2(1+n)^2}$$

$$W^A = \frac{4Abc+4A^2c^2n(2+n)+b^2(-1+2c(1+n)^2)}{8c^2(1+n)^2}$$

4.Policy Discussions: Output rationing

Proposition 4: *Total social welfare in social leadership is higher than that in the optimal output rationing policy.*

- Direct rationing policy is an inferior policy than indirect subsidy policy in social leadership (or even worse than private leadership).

- In output rationing policy, there might also be higher subsidization on SE.

4.Policy Discussions: Market share rationing

(2) The optimal market share rationing on SE:

$$q_0^m = \frac{bnA}{2cA(1+n)-b}, \quad q_i^m = \frac{A(2Ac-b)}{2cA(1+n)-b}, \quad Q^m = \frac{2A^2cn}{2cA(1+n)-b}$$

$$\pi_0^m = \frac{A^2bn(-b+2Ac-bcn)}{(b-2Ac(1+n))^2}, \quad \pi_i^m = \frac{A^2(b-2Ac)^2}{(b-2Ac(1+n))^2}$$

$$W^m = \frac{A(b^2+2A^2c)n(-b+Ac(2+n))}{(b-2Ac(1+n))^2}$$

4.Policy Discussions: Market share rationing

Proposition 5: *Total social welfare in social leadership is higher than that in the optimal market share rationing policy.*

- Direct rationing policy is also an inferior policy than subsidy policy in social leadership (or even worse than private leadership).

- In market share rationing policy, there might be higher subsidization on SE.

4.Policy Discussions: Comparisons

Proposition 6: *In market share rationing policy, SE's output and total market output are lower than in output rationing policy. The total social welfare is also lower than that in output rationing policy.*

- Output rationing policy is a superior policy than market share rationing policy not only from the viewpoint of social value but total social welfare.

4.Policy Discussions: Strategic Incentives

4.2 Strategic Incentives on Social Activities

- If the subsidy program heavily supports the survival of SE, it will have a strategic incentive to put more efforts on its social activities.

  - If it is high-powered incentive subsidy, SE would increase the social value created from the increased output of SE, but might reduce the total social welfare deprived from the decreased output of PEs

  - If it is low-powered incentive subsidy, SE will not only decrease the social value but also the total social welfare.

4.Policy Discussions: Strategic Incentives

- To examine the strategic incentives on social activities of SE under the subsidy program and its welfare consequences, we will endogenize the social value and social cost as a function of social activities.

 - The objective function of SE: $G^S = \text{CS} + b(a_0)q_0 - d(a_0)$.

$\cdot \frac{\text{d}G^S}{\text{d}a_0} = b'[\frac{\partial q_0}{\partial b}(Q + b) + Q \sum_{i=1}^{n} \frac{\partial q_i}{\partial b} + q_0] - d' = 0 \rightarrow a_0^*$

$\cdot \frac{\text{d}W}{\text{d}a_0}\Big|_{a_0^*} = b'\left[\frac{\partial q_0}{\partial b}(A - 2Q - 2cq_0) + \sum_{i=1}^{n} \frac{\partial q_i}{\partial b}(A - Q + q_i)\right] < 0 \implies \boldsymbol{a_0^* > a_0^{SO}}$

4.Policy Discussions: Strategic Incentives

Proposition 7: *When subsidy policy supports the sustainability of SE, its social activities are always higher than the social optimum.*

- SE has strategic incentive of over-fulfilling on social activities because it aims to promote consumer surplus and social value only, but neglects its profitability and other PEs' profitability as well.

- Therefore, it is important to improve SE's profitability under the subsidy policy on supporting SE's sustainability.

5. Conclusion

- The recent emergence of SE requires the economic analysis on the relationship between market leadership and subsidization policy

  - There is a trade-off between social leadership and private leadership.

  - Private leadership is better from the viewpoint of total social welfare, whereas social leadership is better when we consider the social impact of social activities and government financial budget.

5. Conclusion

- The appropriateness of an alternative rationing policy on SE's production

  - Both output rationing and market share rationing are inferior policies than subsidization policy in social leadership (or even worse than private leadership).

  - However, if the government has to fulfill a rationing policy for some political/informational reasons, even though it is less attractive than a subsidy policy, an output rationing will be a better alternative.

5. Conclusion

- The strategic incentive of social activities of SE

  - There is over-incentive of SE on social activities and thus, it is important to improve SE's profitability under the subsidy policy for supporting SE's sustainability.

  - The government should investigate and monitor the moral hazard problem under asymmetric information where profit-seeking pseudo-SE wastes or abuses through its pseudo-social activities to obtain higher subsidy from the government.

5. Conclusion : Future research

- Incentive mechanism under asymmetric information to reduce the strategic over-incentive of social activities of SE

- Endogenous role choice between different leaderships in a product differentiated social economy

- Practical and innovative objectives of SE, including those generating social values (such as to combat poverty and undernourishment) and those promoting ethical economy (such as micro-credit and fair trade)

- Different organizations in social economy (such as coops) and their organizational structures

Thank you for listening