Review of COMPETITION, COMMITMENT, AND WELFARE by Kotaro Suzumura

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Oligopoly is a tangled subject, full of special cases and ungeneralizable results which have long has caused grief to dissertation advisors trying to dissuade enthusiastic students from spending years on trivial extensions, and to referees reading extensions that get past the advisors' filter. Yet oligopoly is deeply important, and is particularly appropriate as the topic for a book such as this, which can cover more cases and offer more synthesis than journal editors permit.

Suzumura has two themes: the number of firms under free entry, and the amount of cost-reducing R & D. He uses a homogeneous-good Cournot model throughout, moving methodically from a fixed number of firms to free entry and comparing laissez-faire equilibria with two kinds of social optima, depending on whether the government controls output or just entry. He pays attention to details such as the integer problem, general equilibrium effects, alternative government policy instruments, and firms with heterogeneous cost functions.

Whether the number of firms is excessive under laissez faire is an old and important question that has no definite answer when goods are heterogeneous— the monopolistic competition question— but does have an answer here. Too many firms enter. Suzumura assumes that firms incur a fixed cost and that marginal cost curves slope upwards, quite general assumptions, though, oddly enough, he does not allow the usual specification of constant marginal cost. The social tradeoff in adding an entrant is between a lower price, which reduces the triangle loss, and the new fixed cost. the triangle is second-order, the cost, first-order, and so we find that there is too much entry.

The second theme is cost-reducing R&D. Here, the model assumes a flat marginal cost curve, and R&D in a first period that reduces the cost level in the second period. The social tradeoffs are complicated, because the researching firm imposes positive and negative pecuniary externalities on consumers and competitors, but Suzumura finds a tendency towards excessive R&D and entry.

The models used are more general than in most oligopoly models, but inevitably have their own limitations. An explicit limitation which turns out not to matter is that equilibria are symmetric, involving identical behavior by identical firms. This is not innocuous in a strategic context, as we know from the battle of the sexes or wars of attrition. It is harmless here, though, because an unnoted byproduct of the author's analysis of heterogeneous costs is that the results survive in a homogeneous model even if firms are not

constrained to behave alike.

A more serious problem is dependence on the Cournot model. The Cournot model is useful because we think that the market price ought to fall with the number of firms and be between the monopoly and perfectly competitive levels, and Cournot behavior generates that outcome in a simple way. In dealing with finer points such as the optimality of laissez faire, however, one does not want to press Cournot too far. The crucial questions, which are begged by the Cournot model, is how much the price falls with more firms and lower costs. The flat marginal cost curves assumed in the R&D models are important for the same reason. If R&D could twist down the marginal cost curve non-uniformly, then its effect on even the Cournot price would be much harder to generalize. Clear results would probably not exist. Some analysis of this would have been more useful than the chapter extending the model from partial to general equilibrium.

One worries about robustness in this context because the mathematical theorems are actually relevant to policy. Governments decry excessive competition, and try to restrict entry, though they at the same time encourage R&D. Economists in theoretical industrial organization nowadays are properly hesitant about making policy recommendations, because even without the complications of government incentives, the effects of policies on social welfare often go in both directions. Consequently, we often avoid linking our models to reality. Suzumura has taken the better path of trying to talk about policy as well as theory, and his book includes excellent discussions of anti-competitive laws and collaborative R&D in Japan, in all their institutional detail. He is fully aware that whatever the social merits of entry restriction, in practice the policy is most likely to be motivated by the self-interest of incumbent firms and politicians. Even if the government is benevolent, there remains, as Suzumura points out, the problem of Hayekian information aggregation. Laissez faire allows entry of firms with lower costs, whereas the book's model of entry with heterogeneous costs assumes that entrants are equally likely in all cost categories. This may be a fertile area for future research, both empirical and theoretical.

My criticisms are the standard ones, and perhaps the best is the enemy of the good. This book's modelling provides a rigorous benchmark of Cournot firms and ideal government for us to try to extend our intuitionto more general cases, and so scholarly a book is unlikely to be seized upon by unscrupulous rentseekers. Mr. Suzumura is to be commended for a mix-

ture of modelling, case study, and synthesis that is all too rare in industrial organization, and his book should be an inspiration for the rest of us.

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