

COMMENTS ON

“The Optimal Size of the Military in a Post-Castro Cuba” by Seiglie

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It was professor Simon, the Nobel laureate, who once said that satisficing is more often than not a far more attainable goal than optimizing. This was a recognition of how difficult it is to find optimal solutions of problems in the real world. This is what makes Professor Seiglie’s effort even the more remarkable and worthy of consideration. It tackles the highest degree of difficulty possible. It is a very ambitious enterprise on a very complex arena.

The work of Seiglie, to begin with, contributes a mathematical model of how a society collectively defends its national interest. Herein lies a lot of its merit. All reasonable mathematical models are referential frameworks within which to organize thought. At the very least, they stimulate discussion of the subject matter in exposing their construct to criticism which is very easy to do. Let no one doubt that Professor Seiglie has made a significant contribution on this count alone and possibly much more.

When such models are sound, they have valuable explanatory power and general law and principle may be derived from them. Decision makers are wise to use such models. It is often practice or experimentation that lends models their validity and one may hope that Professor Seiglie’s work will be some day subjected to such practice or experimentation. Continued development of this fundamental piece of work is a must to all those concerned with helping Cuba achieve a successful transition to democracy.

COMMENTARY

As a defense analyst, my experience has taught me that safeguarding the national interest or matters of national security are a very dynamic process subject to many random events in time almost demanding a stochastic approach to their analysis. Alliances, for example, are transient phenomena that vary with time and circumstances. If Professor Seiglie is not willing to call his model static, at the very least he is assuming some kind of stationarity or even yet a world in steady-state. This detracts somewhat from the amount of realism his work may offer.

Of fundamental importance in optimization work is establishing the criterion for what is considered best. In this context, the cornerstone of defense planning is a proper assessment and estimation of what constitutes the threat to the nation. This requires assembling the proper knowledge and expertise to keep the National Command Authorities, most of which represent the citizenry, properly informed. In national defense matters hardly ever is the citizen the decision maker. Properly informed representatives of the citizenry are the actual decision makers. This is because in a Republic, as opposed to a pure Democracy, the whole is much more than the sum of its parts or constituents. This is why I have to challenge Professor Seiglie’s criteria for optimization as insufficient or incomplete. I quote: “In this paper, the criteria that I use is one where the level of the military sector is determined by the preferences of the median voter. In other words, I assume that a representative Democra-

cy will exist in Cuba after Castro and that the decisive individual is the median voter.”

A Republic, yes, but a pure Democracy, that is, a nation run on plebiscite, no. In matters of national security and of the supreme interest of the nation the responsibility entrusted to the representatives of the citizenry takes over and the individual voters seem to get lost. War, for example, is declared by the representatives and not the citizenry. The pressure to “dodge the draft,” for example, sometimes surpasses the best interests of the collective. This is why the preferences of the median voter although having bearing and impact appear insufficient.

The author goes on to mention: “Military spending is therefore a derived demand for an underlying commodity which is the increase in expected utility resulting from the higher probability of being able to consume one’s wealth at a future period in time.” I seriously doubt whether voter output reflects any such well defined, conceptual or intuitive, utility function in matters of national defense.

Two other assumptions must not go unchallenged. One is that the economy of the Cuban nation will be in steady-state. We know it takes only trend to introduce non-linearity to a time series. True that sometimes one can extract trends and seasonality from a time series in order to isolate its stationary components but this is not the same as declaring the original time series stationary. This assumption definitely weakens the model. Another assumption is that “preferences take a particular functional form which generates military expenditure functions which are linear.” No justification is given for this assumption nor is its sense of realism discussed.

To the author’s credit, however, it must be stated that if one is willing to accept the imperfect premises of this model, if one wants to analyze the information they contain, then the author’s construct can be viewed as one possessing a lot of internal consistency and well defined logical relations that do have bearing on national defense issues. The effort is a rational contribution shedding some light on matters that have previously been found very obscure and complex.

The optimization problem formulated by the author falls in the category of non-linear programming. He maximizes a non-linear utility objective function subject to one linear equality constraint. He fails to inform the reader that his non-linear program is convex (for a certain range of the parameter alpha) which is the key element in his claim of optimality. The Karuch-Kuhn-Tucker first order necessary conditions for optimality used to solve the optimization problem happen to be sufficient, as well, for global optimality, when the program is convex. Not using the term “necessary and sufficient first order conditions for global optimality” is a real disservice to the reader. The author also owes the reader an explanation as to why he does not incorporate into his formulation of the optimization problem non-negativity constraints of his two basic decision variables, namely consumption and the total amount of military capability produced by Cuba, and of the consequences of this.

As a result of the optimization, the author obtains two basic formulas, one for the total amount of military capability produced by Cuba (equation 10) and the other for the military expenditure function for Cuba (equation 11). The latter is derived from the former after some substitutions and one more assumption about the savings rate. The author successfully lends validity and credibility to the internal consistency of his model and the character of the basic relations used by demonstrating how the proper (read common sensical) monotonicity relationships exist between the dependent and independent variables of his equation 10. When it comes to equation 11, the same monotonicity relationships and many more now acquire the character of propositions. The model yields a lot of information about relationships among variables or quantities with real meaning that had previously remained unknown or unexplored. All the relationships, mathematically established, appear logical or supportable by common sense. Herein lies the fundamental merit of this work.

The author then uses equation 11 to embark on a quantification exercise. This requires estimating parameter and variable values for the right hand side of equation 11. This raises two questions: the first is

how good and accurate are these estimates? The second is, even if the estimates are good, does the result have any value exogenous to the framework of the model? More specifically, may the result be accepted as universally valid in the real world?

In the first count, estimating the parameters, one must give the author the benefit of the doubt. His work appears professional indeed. The use of equation 11 is then a function of how valid and realistic are the different scenarios used to obtain or generate values of military expenditures for Cuba. But even if the scenarios are valid and realistic, the model may be at a very early stage of development to offer any more than broad guidelines. Certainly not deadly accurate realistic figures. Nevertheless, this elegant piece of work breaks new ground and permits the comparison of various alternative scenarios albeit within a limited framework. Only test, experimentation, and time can be the final arbiter of the adequacy of the model.

The author concludes: "Cuba would have to be the subject of fairly widespread hostilities by members of the international community to justify a post-Castro Cuba having any significant military, if as I suggest, it proposes to ally itself with the U.S. (as is currently the case for NATO member countries or for that matter Puerto Rico)." The author has established his case for this conclusion but the subject remains open to debate.

CONCLUSION

This work of Professor Carlos Seiglie will enrich the already extensive library of the Association for the Study of the Cuban Economy (ASCE) which will someday help restore sanity to the emergent institutions of the second Republic of Cuba. It rates very high in innovative thinking in an area of crucial importance to almost every nation. It would not surprise me at all if even the Pentagon shows an interest in this crucial development.