

**Developments in Business Simulation & Experiential Learning, Volume 27, 2000**  
**SIMULATING GOVERNMENTAL EFFECTS ON ECONOMIC DEVELOPMENT**

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**ABSTRACT**

The purpose of this game is to help students understand the impact of various strategies of government intervention on the dynamic free-market processes stimulating economic development. The game simulates three developing economies. Within the economies, each of the students represents an independent economic entity, able to contribute labor, consume goods, and acquire wealth. In one economy, students are free to act independently, or to collaborate, to invest or save money, to innovate or produce conventional products. In the other two, their activities are constrained by "government" regulations, simulating contrasting strategies of *import substitution* and *export promotion*. In the end, students are evaluated according to the wealth they create. The three simulated economies provide experiential evidence as a basis for discussing the relative merits of different strategies of economic development.

**INTRODUCTION**

In a recent paper, Cannon, Yaprak and Mokra (1999) developed a simulation designed to help students appreciate how the theory of free-market economics explains economic development. This paper adds the effects of the key governmental intervention strategies of *import substitution* and *export promotion*.

A free-market economic system depends on the self-interest of the population, perfect information, a large number of buyers and sellers, and an absence of externalities in order to promote optimal economic development. In fact, none of

these conditions tend to exist in real world economies. This, in turn, provides a rationale for government intervention.

The question is whether the cure is worse than the disease. While government interventions can solve specific, targeted problems, they typically have damaging side-effects as well. Indeed, government interventions can subvert many of the natural market mechanisms that stimulate growth and economic efficiency in a free-market economy. For instance, a government strategy of *import substitution* uses protective tariffs to protect fledgling domestic companies from large foreign competitors. It encourages customers to buy domestic products as a substitute for imports. While the strategy is intended to strengthen domestic competitors, the real effect is often just the opposite. While there are more physical competitors in the industry, using tariffs to create artificially high import prices removes the incentive for domestic companies to make the investments in quality and efficiency that are necessary to be globally competitive.

An alternative approach -- *export promotion* -- provides government support for companies that are trying to become globally competitive. This strategy provides an incentive for domestic companies to become more efficient and globally competitive. However, it also provides an unfair advantage to firms who engage in export marketing over others who choose to focus on the domestic market. This distorts the natural mechanism by which the market system allocates resources to the most customer-responsive firms, focusing their attention on government policy rather than market demand.

## Developments in Business Simulation & Experiential Learning, Volume 27, 2000

Unfortunately, the effects of the various strategies are hard to observe. The principles are abstract. The actual effects on an economy are both broad and typically contaminated by a host of other potential factors. So, how do we teach them to students? The game creates a concrete application that is focused in both time and scope, thus making the principles easier to observe. This, in turn, provides grist for a much richer discussion of the underlying principles.

From a pedagogical perspective, the advisability and type of government intervention provides an important topic for discussion. However, again, the principles are abstract and difficult for students to understand. This paper addresses the problem by incorporating government intervention into Cannon, Yaprak and Mokra's (1999) simulation game, *Progress*. It begins with a review of the underlying theory behind the free-enterprise model, the strategies of *import substitution* and *export promotion*, a review of the *Progress* game, and, finally, the changes designed to simulate the *import substitution* and *export promotion* approaches to development.

### The Free-Enterprise Model

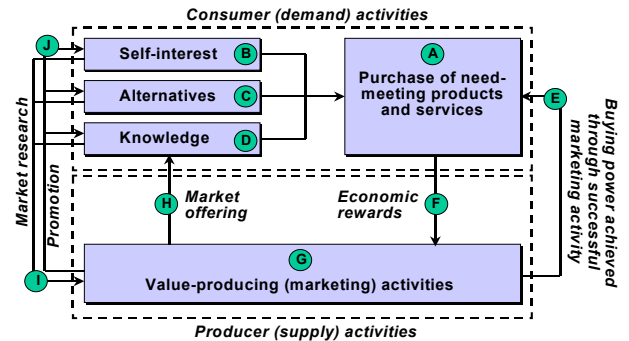
As noted earlier, the basis of the free-enterprise system depends on the validity of three basic assumptions: *consumer self-interest*, *perfect information*, *many buyers and sellers* and *absence of externalities*. Exhibit 1 summarizes the theory of how the developmental process works.

In this discussion, we will speak of "people" rather than customers or companies. This reflects the notion that economic theory ultimately applies to individual decision-makers, represented in the *Progress* game by the individual student participants. They market the product of their labor, just as companies do. They also purchase on the same basis.

In Exhibit 1, demand consists of people who are willing and able to purchase need-meeting products and services (Box A). Their willingness depends on their belief that the purchase will be in

their self-interest (Box B), given alternatives available (Box C), and their knowledge of the alternatives (Box D). Their ability to purchase depends on their buying power, which, in turn, depends on the degree to which they have been successful in the marketplace (Arrow E).

**EXHIBIT 1:  
AN UNDERLYING MODEL OF FREE-MARKET DYNAMICS**



Notice how supply interacts with demand. Supply depends on marketing success (Arrow E), and marketing success depends on the economic rewards resulting from people's purchase decisions (Arrow F). In order to achieve these rewards, people anticipate the factors that are likely to drive market response (Arrow I). They use them to organize value-producing marketing activities (Box G), ultimately expressed in market offerings (Arrow H). These are supported by promotional efforts (Arrow J) designed to enhance the attractiveness of the offerings by stimulating people's self-interest, enhancing their knowledge of the alternatives, and/or creating imagery that enhances the nature of the offerings themselves.

The more value people produce, the greater the rewards they will receive. The greater the rewards they receive, the more buying power they have, and hence, the more potential they have for meeting their own needs in the marketplace. This, of course, is nothing more than the operation of Adam Smith's classic "invisible hand," where the combined self-interest of buyers and sellers acts in concert to maximize societal satisfaction. Self-interest leads people to want more

## Developments in Business Simulation & Experiential Learning, Volume 27, 2000

need-satisfying buying power. The way to get this is to address the needs of others. Having obtained the buying power through addressing the needs of others, others will be more attentive to your needs. And so the process cycles, systematically focusing marketing effort where it will produce the greatest effect. The cycle is what stimulates economic growth. The more need-meeting goods and services people produce, the greater the wealth of society. The greater the wealth, the greater the stimulus for creating new need-meeting marketing innovations.

The *Progress* game simulates this process by allowing players use or sell labor and products to create wealth, and ultimately, create satisfaction through the consumption of products.

### Simulating Government Intervention

Simulating the effects of government intervention in the *Progress* game is as simple as establishing governments and giving them power to tax and create legislation. In order to simulate the effect of *import substitution* and *export trade promotion*, we recommend creating three "countries" -- one representing an unregulated "free-market" system, one to represent a society using *import substitution*, and one to represent a society using *export promotion*.

### Creating a "Developing Economy"

As a rule, *export promotion*, and particularly *import substitution*, are used as policies designed to help underdeveloped, or developing, countries progress. In order to simulate this effect, the exercise should start with a single country, *Freedonia*. One way to do this is to play the initial phase of the game in three-person teams. The phase continues until *Freedonia* has developed fledgling companies, with some initial capital development and specialization of labor. Then, once *Freedonia* has had time to develop, the second two "countries," *Isolationia* and *Exportonia*, can be created by taking two of the people from each *Freedonia* teams.

### A Policy of Import Substitution

After creating the *import substitution* "country," *Isolationia*, the game administrator must establish a player or players to form the government. The government is free to establish any laws or regulations it deems necessary to implement a policy of *import substitution*. In order to ensure a maximum effort for success, government performance in the game will be measured by the relative success of the economy, as measured by growth in the total number of *sats* generated by the economy by the end of the game.

The only guideline the government has beyond the mandate to grow the economy is to implement a policy of *import substitution*. The instructions are as follows:

*"Your task will be to stimulate growth in your newly independent country of Isolationia. To do this, you have chosen to implement a policy of import substitution. That is, you will encourage people in your country to buy from domestic suppliers, thus strengthening the local economy and creating firms that are strong enough to compete effectively in the global market. There are no established procedures for doing this. You are free to tax, to create laws, or to otherwise manage the activities of participants in your economy as you see fit in order to implement this strategy. People within your country are also free to engage in trade with other countries, as long as the overall government policy is to encourage people to 'buy domestic.'"*

As is the case with the original *Progress* game, there are no "winners" in the competitive sense. Rather, the game should illustrate how business success is not a zero-sum game. However, the purpose of the exercise is to provide a basis for discussing the relative merits of *free-market* versus *import-substitution* and *export-promotion* economies. As with individual players in the game, successful trade among the "countries" is also a non-zero-sum game. The relative success of each of the three strategies can be seen in the growth of *sats*. Of course, this implies a com-

## Developments in Business Simulation & Experiential Learning, Volume 27, 2000

parison, and hence, the possibility of competition. Competition is natural. But the focus of the game should be on absolute success, not on "beating the competition" (the other countries).

If competition occurs between countries -- as it probably will -- it parallels the kind of misguided nationalism we find in the real world. This provides a good opportunity to enrich the debriefing process by discussing the role of nationalism in the economic development process.

### A Policy of Export Promotion

Instructions for the *export promotion* government are similar to those for *import substitution*. After establishing the new "country," the game administrator must establish a player or players to form the government. Again, the government is free to establish any laws or regulations it deems necessary to implement its established policy, in this case, *export promotion*. Again, government performance in the game will be measured by the relative success of the economy.

The guidelines for the *export trade promotion* government are as follows:

*"Your task will be to stimulate growth in your newly independent country of Exportonia. To do this, you have chosen to implement a policy of export promotion. That is, you will seek to encourage people in your country to engage in export trade, thus creating an inflow of external funds to help your country develop. There are no established procedures for doing this. You are free to tax, to create laws, or to otherwise manage the activities of participants in your economy as you see fit in order to implement this strategy. People in your country are free to engage in trade with other people inside your country, as long as the overall government policy is to encourage people to engage in export trade."*

As with the case of *Isolationia*, *Exportonia's* success should not come at the expense of the

other countries. Economic growth is a non-zero-sum game. The relative success of *Exportonia's* economy, if it is superior, should reflect the superiority of *export promotion* over *import substitution*, not the success of the players who simulate the two governments. However, regardless of the approach the players actually take, the results should provide useful grist for discussion.

## DISCUSSION

Central to the discussion of this exercise is the fact that the underlying assumptions behind the free-enterprise system fail on all fronts. The failings may be seen as a basis for government intervention. This provides a good framework for evaluating the strategies of *import substitution* and *export promotion*. Both of the strategies tend to be aimed at the problem -- or symptom -- of underdevelopment, not its underlying causes. The debriefing process provides a good opportunity to evaluate the two strategies against a more rigorous economic framework. If the underlying assumptions of the free-enterprise fail, what might be done to correct them?

### Failures in Self-Interest

The assumption of self-interest maintains that, given adequate information and the availability of meaningful alternatives, people will make decisions that will maximize their personal satisfaction. This does not preclude working for the satisfaction of others. Indeed, one of the defining characteristics of humans is their ability to gain personal satisfaction from helping others, even at considerable personal cost or discomfort. However, self-interest does preclude making self-destructive decisions, such as unhealthy living and failure to save or otherwise plan for future problems.

A moment's reflection suggests that we are all irrational, according to this definition. We overeat, fail to exercise, spend now at the expense of long-term investment or retirement planning, neglect social relationships that offer potential for great long-term satisfaction, and so forth. In-

## Developments in Business Simulation & Experiential Learning, Volume 27, 2000

deed, these are behaviors that invalidate the free-enterprise model. For instance, if people fail to care for their health when young, and fail to save for medical expenses when old, they will suffer, and society will not maximize its satisfaction. Cannon and Yaprak (1997) support this intuitive argument. They suggest that irrationality not only exists, but that a careful study of the way people make decisions would lead us to expect it. The central concept is that people tend to be governed by what March and Simon (1958) refer to as “bounded rationality.” Natural limitations in the way people process information constrain them to consideration of a relatively few alternatives and evaluative criteria at a time. They are “rational” in the way they consider these alternatives, but “irrational” in that many attractive alternatives and criteria simply do not get considered.

**EXHIBIT 2:  
AN UNDERLYING MODEL OF FREE-MARKET DYNAMICS**

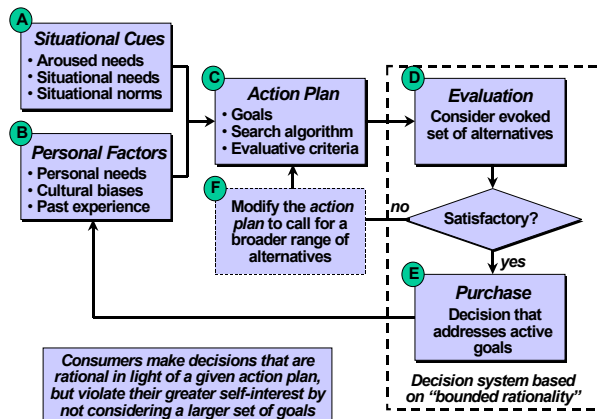


Exhibit 2 describes the process. It suggests that people develop a kind of psychological *action plan* (Box C) to govern their thinking in a given situation. The selection of the plan depends on both the demands of situation (Box A) and the personal needs of the individual (Box B). The bias toward short-term thinking is not inevitable, but likely, since a key factor in defining a situation is short-term need arousal (Box A). Similarly, situational needs and norms tend to address immediate problems, not necessarily long-term welfare.

Box B reflects the role of personal factors, as re-

flected through personal needs, cultural biases and past experience. Given the uncertainties of life, people develop behavioral rules of thumb based on what they see around them. For instance, a person whose needs are typically not met will tend to have personal experiences that are shaped by a focus on short-term problem-solving, generally at the expense of long-term planning. When most people share the same deprivation, their collective experience tends to shape a culture that focuses on short-term thinking. We see this in many developing countries, where people seem ready to sacrifice the potential for long-term prosperity in return for a bribe or other personal benefit that is socially destructive. Of course, long-term social destruction is also destructive to the lifestyles of the individuals living within the society.

The *action plan* (Box C) governs the goals people seek to pursue in any given situation, along with the search algorithm through which they seek to identify alternatives. It also determines the criteria by which consumers evaluate the alternatives.

Box D represents the actual problem-solving process. People evaluate the alternatives, using the selected action plan, as long as this seems to work (Box E). If it doesn't work, they seek to modify the plan so that it does (Box F).

The key to the process seems to be situational and personal factors. While these can be influenced by experience, the process is a slow one. Bad habits persist for a long time, both individually and collectively. The implications are that society might want to offset or mold their effects by utilizing the tools suggested in Boxes A and B. For instance, education provides a good intervention. People can learn that effective business decisions require long-term thinking (“situational needs” in Box A). Similarly, they can learn that long-term thinking is one of the things good executives should do (“situational norms” in Box A). Case histories can be used to show that long-term thinking is generally a good way to get what you want (“personal needs” in Box

## Developments in Business Simulation & Experiential Learning, Volume 27, 2000

B), generating a kind of vicarious experience to support this connection ("past experience" in Box B). The long-term effect of these efforts can actually shift the way people tend to look at business problems ("cultural biases" in Box B).

These kinds of interventions might be framed as a type of *export promotion* (but not as *import substitution*). However, they are designed to correct deficiencies in the underlying assumptions of the free-enterprise system. This is different from subsidies, or other direct interventions, designed to promote export trade. As noted earlier, these potentially damage an economy by shifting resources to exporters at the expense of companies who might employ them more efficiently in the domestic market. These are key points to address in the debriefing process of the game.

### Failures of Perfect Information

Perhaps the most obvious failing of any economy is in the lack of information available to decision-makers. This involves everything from information regarding who is providing what kinds of products and services to a knowledge of what customers need and how they will respond to a particular market offering. Information provides another natural place for government intervention. In the real world, information services, infrastructure investment in the Internet, and so forth all constitute sources of improved market information.

In the game, the "government" players will probably discover the need for information -- most obviously, information about who has what to sell at what price, but also information regarding future possibilities and trends, the strategic positions of various companies, and so forth. Of course, the information has value for the players, and hence, their self-interest should drive them to pay for it. However, as we have seen, short-term thinking, lack of experience, and cultural biases can all militate against the spontaneous investment in information. This is true in the game, as well. As Exhibit 5 suggests, players will likely engage in a kind of "satisfying" be-

havior, engaging in transactions that are convenient and that are consistent with their cultural norms, rather than maximizing their utility. For instance, experience in the *Progress* game suggests that players will often seek to be "managers" rather than selling their labor, even when the economics of the situation make selling labor more attractive. They will likely stick with established sales and supply relationships, as long as they are satisfactory, rather than seeking to optimize the system.

One of the things a government might do is take actions that will increase the amount of information available to the students playing the game. In the debriefing session, discussing the role of information and how it was or was not used will be very important in helping students understand the lessons of economic growth. More important will be a discussion of the various means by which information can be delivered to the market place. Theory would suggest that the best way would be to market it, so that companies come to recognize its value and begin to demand it.

### Failures in the Number of Buyers and Sellers

Both the *Progress* game and this governmental modification begin with each player acting as both a buyer and seller. There are, however, significant economies of scale available that drive players to combine their efforts. Economies of scale that motivate coordinated activity can also lead to unhealthy constraints of trade. Indeed, one of the economic arguments people provide in support of *import substitution* is the need to foster new domestic business development by protecting it from the domination of global firms who enjoy greater economies of scale.

In the process of debriefing, issues of monopoly can play a prominent role in understanding what has really happened. For instance, notwithstanding the theoretical rationale for *import substitution*, the effect is generally to decrease the competition, giving domestic firms monopolistic, or at least oligopolistic, powers. As the game con-

## Developments in Business Simulation & Experiential Learning, Volume 27, 2000

tinues, and the companies grow and mature, the larger companies will inevitably end up cooperating with each other in ways that utilize their distinctive competencies. This will provide an opportunity to discuss how modern forms of joint-venture management and unbundling of services can provide economies of scale without creating monopolistic structures.

### The Problem of Externalities

Externalities consist of situations where the decisions of one economic unit affect the welfare of another who has not participated in the decision. When these situations occur, they provide a justification for government involvement to counteract the effects of the externality. For instance, if someone invests in the development of Internet technology, and the economy grows as a result, everyone benefits, whether or not they use the Internet. This, then, suggests that they should bear part of the expense.

This is the rationale provided for getting government involved in the business of economic development. If everyone in the society benefits, they should pay (through their tax money and the activities of their governmental representatives). If we argue that any failure in the fundamental economic assumptions behind the free-enterprise system hurts everyone in a society, this provides a rationale for government becoming involved in addressing these failures. This argument should play a prominent role in debriefing the game.

### SUMMARY AND CONCLUSIONS

In the initial presentation of the *Progress* game, Cannon, Yaprak and Mokra (1999) suggested that one of its major benefits is that it can be easily modified to simulate other economic effects, one of which was government effects. This paper addresses that possibility. It provides direct and immediate experience with the impact government activities can have on a simulated economy. While it does not simulate every possible effect, it provides the grist for some very pro-

ductive discussions of what might happen in a real economy as a result of various types of government intervention. Students who have just completed the game will typically have an easy time imagining various different scenarios that would otherwise seem abstract and irrelevant.

Again, the promise of the game is to provide a laboratory for simulating a host of economic effects, only one of which is government intervention. Hopefully, the future will bring additional modifications that can be used to sensitize students to specific issues, including everything from various types of government strategy (such as the two addressed here) to social issues, such as cultural biases and issues of diversity.

Even more important, we hope the future will bring reports of actual classroom testing. The nature of a simulation is never fully understood until it has been tested in a variety of different educational and laboratory settings. *Progress* was designed to elicit different patterns of activity with different types of students. If this was true of the basic game, it is even more true of the government modification.

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