ACES INSTRUCTOR MANUAL

The purpose of the Area Cooperation Economic Simulation (ACES) is to train civic leaders on the influences of regional development.

ACES is a product of Regional Scientists, LLC. www.regionalscientists.com

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Economic and Demographic Models

ACES incorporates several economic models and economic, social, and environmental variables.

ACES is primarily driven by the Harrod-Domar and Solow-Swan models of economic growth used in development economics. In which all forms of capital (real estate, equipment, money and people including knowledge) exist. Capital produces a savings rate that can be invested in more capital to grow the economy including technological progress. Also, some capital results in exports that also grow the economy.

ACES includes a hierarchy of areas according to Central Place Theorem with the Rank-Size Rule and Gravity Model of trade areas. Central Place Theorem suggests there is a central city with the majority of population for a nation. It also postulates a hierarchy of areas (Rank-Size Rule) in which for a Central Place there are two places half the size of the central place, and for each second place city there are two cities half the size of the second place.

Each city or place has a trade area that is calculated by the Gravity Model. The trade area distance of one city to another city equals the distance and their populations.

Economic Cooperation Models

Two "cooperation" models modify economic growth and political stability. First is a model of Game Theory. Game Theory supposes that two people or entities have four choices of cooperation that influence decision outcomes: Win-Win, Win-Lose, Lose-Win and Lose-Lose. Game Theory was originally hypothesized to explain economic behavior. Research on Game Theory applied to biology revealed that plants that cooperate according to Win-Win are more likely to survive and expand habitat. This finding is beyond the symbiotic concept. In ACES, the areas that cooperate according to Win-Win i.e., trade, will increase the growth of their capital stock by exports.

The second model calculates the effects of a good or poor economy and the cooperation with other areas. If the economy grows more people are happy. If the economy declines or remains poor, more people are unhappy. Or, the level of cooperation with other territories affects the percent of happy/unhappy people. The percent of unhappy people causes the rate of insurgency. The higher the percent of unhappy people the greater the probability of insurgency. Higher insurgency diminishes the capital stock and economic growth.

Key Variables Affecting Economic Growth

Two variables have significant influence on economic growth: investments and tax rates.

Investments are divided into different categories with different percent of effects.

- Infrastructure includes roads, bridges, rail, and water/sewer facilities/lines. Poor infrastructure inhibits economic activity. Factories cannot produce and products cannot be transported to markets.

- Food is essential especially for non-industrial economies and investments are required for farming.
- Production includes investments in the production of goods and services such as factories or business services (accounting, etc.).
- Work Force includes investments in training of workers, entrepreneurs or business operators.
- Education is investments in K-university education. Education investments do not have a short-term affect on economic growth but rather a long-term affect as future workers are educated.
- Security investments are in public safety including army and police that maintain public peace. If investments in security are too low, crime, corruption and insurgency grow and disrupt the economy and infrastructure.

Tax rates provide tax revenues to government to make investments. However, high tax rates reduce economic activity and investments in accordance with Laffer Curve.

Key Teaching Points

ACES is suited to teach civic leaders and students interested in regional development. Regional development includes elements different than national development. While ACES can be used to teach national development it is customized for the sub-national regional level including cities.

Participation and Communication

An important aspect of ACES is the learning by participation. At each turn users should get an After Action Report that is discussed with the group. Each user should be asked why they made certain decisions and what were the outcomes. Participation is a learning objective. In the real world civic leaders who discuss and cooperate with other civic leaders and citizens are more likely to succeed in formulating public policy.

Face-to-face communication is a critical factor for the invention of products and services. Internet and tele-conferencing are not as influential as face-to-face communication. Communication researchers claim that the majority of communication is by "body language". Furthermore, a well-operating economy assumes investors have equal access to ubiquitous information. If information is constrained or unavailable investors make poor decisions. If only a few have complete information this is "insider information" punishable by Securities and government ethics laws.

Cooperation

Public policy-making is a team sport. Civic leaders and citizens offer different skills and resources to make public policy. Enabling cooperation among many participants can improve outcomes. However, anti-factions can cause a Win-Lose or Lose-Lose scenarios. When people are engaged in a decision-making process they are more likely to support decisions. Not all people will agree with a decision. Policy-makers must rely on a majority of support.

Anti-cooperation (I win you lose) often has short-term success. But, if repeated, others learn about the anti-cooperative and will not engage or cooperate with the anti-cooperative. Research on business success reveals that building and having trust relationships increases success.

Economics Matter

Free enterprise has been a fundamental aspect of human behavior since the beginning of humanity. A primitive hunter trades caught meat to a stone-maker who makes arrowheads or a farmer trades grain for clothes. History is clear that when free enterprise is constrained or usurped instability and conflicts occur. Many centrally planned economies of the Soviet Union, China, India and Vietnam collapsed and transformed to open free enterprise to empower economic growth.

Knowing economic theories and model clarifies how an economy works. ACES introduces basic economic concepts to improve civil leader policy-making. Civic leaders are from various backgrounds and elected or appointed as public decision-makers but they may not have knowledge of economics affecting their area or city.

Most regional conflicts are the result of poor economic conditions and stimulate crime, insurgency or war over resources. If the economy is not improved, crime and conflict accelerates as people fight for resources to support themselves, their families and friends. Particularly susceptible are young men who are not gainfully employed and have under developed brains. Neurological research found that any man's brain is not fully developed until the age of 25. Young men often become aggressive striving for status and being emotionally immature.

The ACES economic principles should be instructed prior to using ACES. Users will be less frustrated and more adept at decisions for positive results. ACES reinforces learned economic influences on regional areas.