TEACHING PUBLIC FINANCE MANAGEMENT THROUGH SIMULATION

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ABSTRACT

The paper discusses implementation of a simulation game in training programs for students majoring in public administration and equivalent programs, as well as retraining of acting managers, specifically in public finance management. The structure and implementation of a specially designed integrated simulation of regional public finance management is described in details. The paper gives an overview of issues such as skills and techniques that can be acquired during the training session based on the simulation, organization and administering of the simulation and others. KEY WORDS: public finance simulation, public administration simulation.

INTRODUCTION

Since the beginning of 1960's a number of business simulations have been developed in financial management, corporate governance, marketing and others areas. These efforts were primarily made in order to enhance the quality of the learning process and increase applicability of acquired skills and techniques to real managerial practice. Such business simulations are successfully used in MBA, EMBA and other business programs and receive very favorable response from participants. Descriptions and reviews of business simulations, discussions of their use, and evaluations of specific simulations, as well as, for teaching can be found in sources such as Simulation and Gaming: An International Journal, the Guide to Business Gaming and Experiential Learning and the Bernie Keys Library, which contains the proceedings of the Association for Business Simulation and Experiential Learning since its inception in 1974. It would be reasonable to note, that among a number of business simulations used by authors to enhance learning process of different business disciplines, there is a core one: BankExec International – a complex banking management simulation, developed by American Bankers Association (Haley, 2002). The way learning process is designed by game developers is considered by authors as one of successful examples of simulation implementation in teaching business banking disciplines (Haley, 1990). Basically, because it involves several cycles of decision-making in teams, little number of theoretic lectures supporting the game process in contrast to many consultations aimed to solve specific problems, and, finally, detailed analysis of results that culminates in teams' presentations.

The experience from business simulations has not been widely transferred to the Master of Public Administration (MPA) and similar programs to train managers in Public Administration. The issue of improvement in training of acting and future representatives of public sector governance has not been widely discussed. A special study was performed by authors aimed to detect presence and usage of simulations in public administration programs. The study covered leading Russian universities as well as a number of Western institutions that offer various simulation products. There were no simulation products in public finance discovered by the study.

Education in public administration and equivalent programs together with practice itself are much more conservative than education and practice in business administration. In business sector, pushed by the competition, changes happen quickly in comparison to public (state) sector where changes are quite slow and rare. Even in transition economies, such as Russia, speed of changes in "state machinery" is significantly slower than in business sector. Same rule is noticed in business education compared to education of public servants (managers in public administration area). The main disadvantages of existing education in public finance management specifically and public administration generally, at least in Russia, are:

- long term of studying (traditional forms of studying such as lectures are very time-consuming);
- knowledge-based orientation, not skill-based orientation;
- scope of practical management decisions being broken into pieces and separated among a large number of different subjects/courses;
- dominance of "listening", not "practicing";
- rare "update" of educational programs "content";
- lack of available experts and qualified specialist in this area.

BACKGROUND FOR THE START OF SIMULATION DEVELOPMENT

The group that created the simulation has six years of work experience in Russia public finance. This experience includes teaching specialized courses in universities, research, participation in a number of seminars, conferences and their organization, as well as, consulting in public finance area. The base activity the group actively took part in was an initiative carried out by World Bank in collaboration with Ministry of Finance of Russian Federation. It was called "Regional Fiscal Technical Assistance Project" and started in 1999 in six pilot Russian regions. In the Samara region, one of top 10 Russian regions, the project was leaded by the authors. The scope of activities took everything from diagnosis and assessment of the Samara Region's financial system and budgetary

management practices to the development of public finance management concepts for the region. After three years of intensive work with the project a strong belief developed that technology should be used to train qualified specialist for public finance area quickly and effectively. Accordingly, in 2001 the work began on designing a regional public finance simulation. Even considering the authors' quite wide experience with business simulations implementation, a special study of different business simulations was conducted to identify principles and methods that might be used for the development of a new game in public finance management.

BASIS FOR SIMULATION DEVELOPMENT - PRINCIPLES OF RUSSIAN BUDGETARY SYSTEM

The Russian budgetary system is very young and changing dynamically. Since the collapse of centrally-planned economy and unified budgetary system in 1991, there have been several stages of budgetary reforms. At the present time the Russian budgetary system almost completely reflects the way the national economy is organized, but it is still being modernized and is subject to considerable changes. Due to its history, there is a significant difference between the budgetary system of Russia and other federal countries such as USA, Germany or Brazil, in terms of powers and responsibilities between budgetary system levels, structure of taxation system and public finance management instruments used. Nevertheless, as in every nation built on federal principles there are three levels in the budgetary system of Russia.

- One Federal budget;
- 89 Regional budgets (quite similar to State budgets in USA);
- More than 29000 local (or municipal) budgets.

Consequently, different authorities are responsible for the federal, regional, and municipal budget processes (Figure 1). Also, remaining from the Soviet Union are four main public infrastructures that mostly are in the area of responsibility of public finance, and thus for the most part are financed by the budgetary system, as well as staying part of state property. These areas are education, public health services, social security, and housing and communal services. Today even under the new systems education, medical services and social security are mostly provided free of charge by state (budgetary) organizations and still remain a responsibility of the state. Basically the system operates as follows: businesses pay different taxes and fees to different budgets and several non-budgetary funds and these resources are being used to finance public infrastructures. The fact that some of the most important functions of this system belong to regional budgets was another reason to develop effective training technology for regional level of the budgetary system.
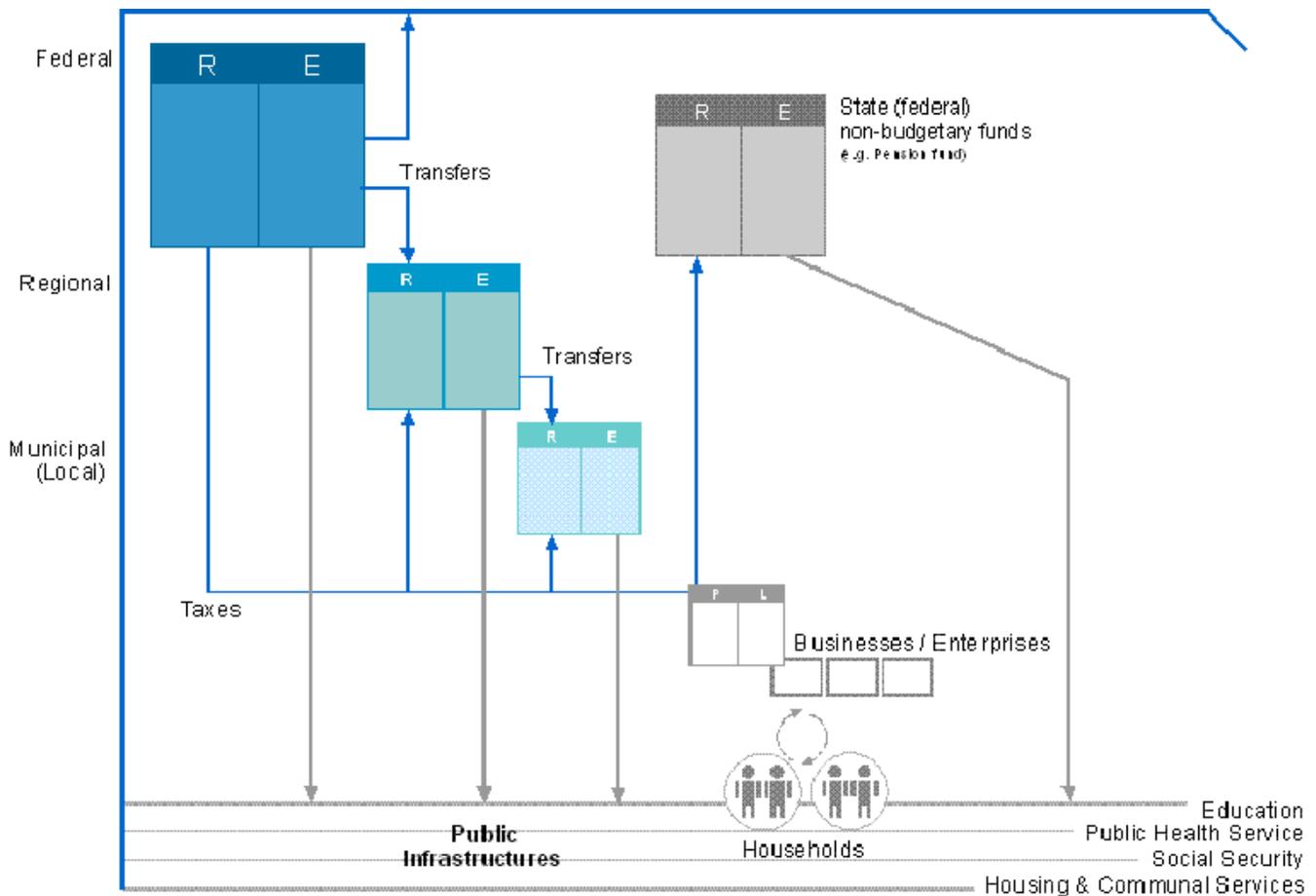
Figure 1. Basic structure of Russian budgetary system

OVERVIEW OF REGIONAL PUBLIC FINANCE
MANAGEMENT SIMULATION

The Regional public finance management simulation (Figure 2) is based on general principles of public finance management on a regional level with regard to federal states (countries). In addition, the model strongly reflects the structure of the budgetary system in the Russian Federation. There are instruments in the Russian budgetary sector that are different from those used in USA and other countries, which is why, it is sometimes difficult to find appropriate words in English to discuss several issues of the simulation and the Russian budgetary system.

The simulation is aimed designed to develop skills and techniques that relate to:

- Managing budgetary revenues, tax administering, regional economy regulation and stimulation;
- Managing current budgetary expenditures (operating budgets) and capital investments (capital budgets);
- Determining sources of budget deficit coverage and managing regional debt;
- Managing regional assets (specifically, state property) in collection of non-tax revenues;

- Developing inter-budgetary relations and regulations on the regional level.

The following particular cases and situations of regional public finance management are simulated in the game.

Budgetary revenues, tax administering, state support of regional economy:

- estimating tax revenues for next financial (fiscal) year;
- analyzing regional budget arrears;
- deciding regional tax rates;
- deciding relieves to different industries;
- deciding deferrals of taxes and tax credits;
- deciding budgetary loans and guarantees;
- deciding special tax treatment for small businesses.

Administration and control over budgetary expenditures:

- planning current expenditures (operating budgeting);
- planning capital investments (capital budgeting);

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- determining principles and planned amounts of financing "packages" of target programs (priority financing of specific industries);
- determining principles and planned amounts for specific capital projects;
- analyzing possible deviations from planned balanced budget;
- deciding "protected items" (financed in full under any circumstances)of budget;
- deciding and revising amounts of financing on budget execution phase.

Management of regional state debt:
- formulating and servicing direct debt portfolio;
- accounting and servicing contingent (indirect) debt portfolio;
- considering seasonal factors in revenues collection and covering temporary cash deficits (gaps);

- estimating influence of financial markets condition on possibilities and terms of funds borrowings;
- managing accounts payable (for purchased goods and services).

Management of state regional property:
- setting standards of rental payments and amounts of regional state property sales;
- sale of regional state property (assets).

Inter-budgetary relations:
- determining and setting standard values of deductions from regional taxes to municipal budgets;
- determining the size (amount) of the Fund of financial support to municipalities (FFSM);
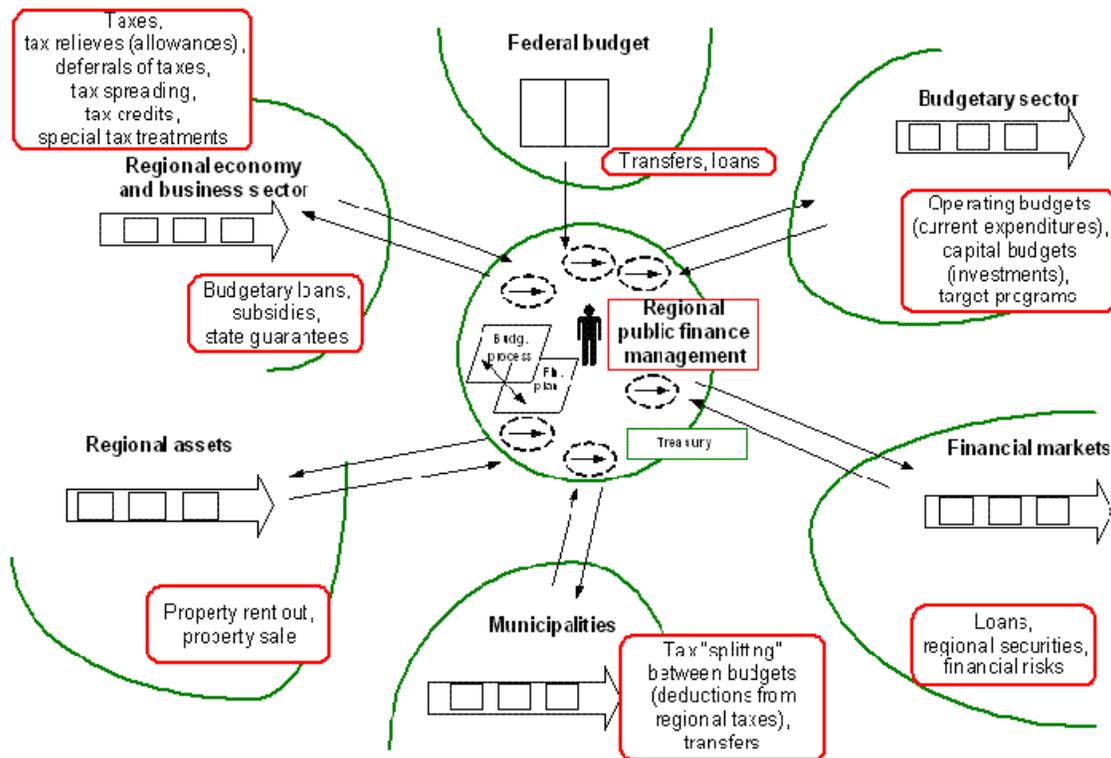- determining the proportional shares of FFSM distribution (aligning provisions and incentive provisions).

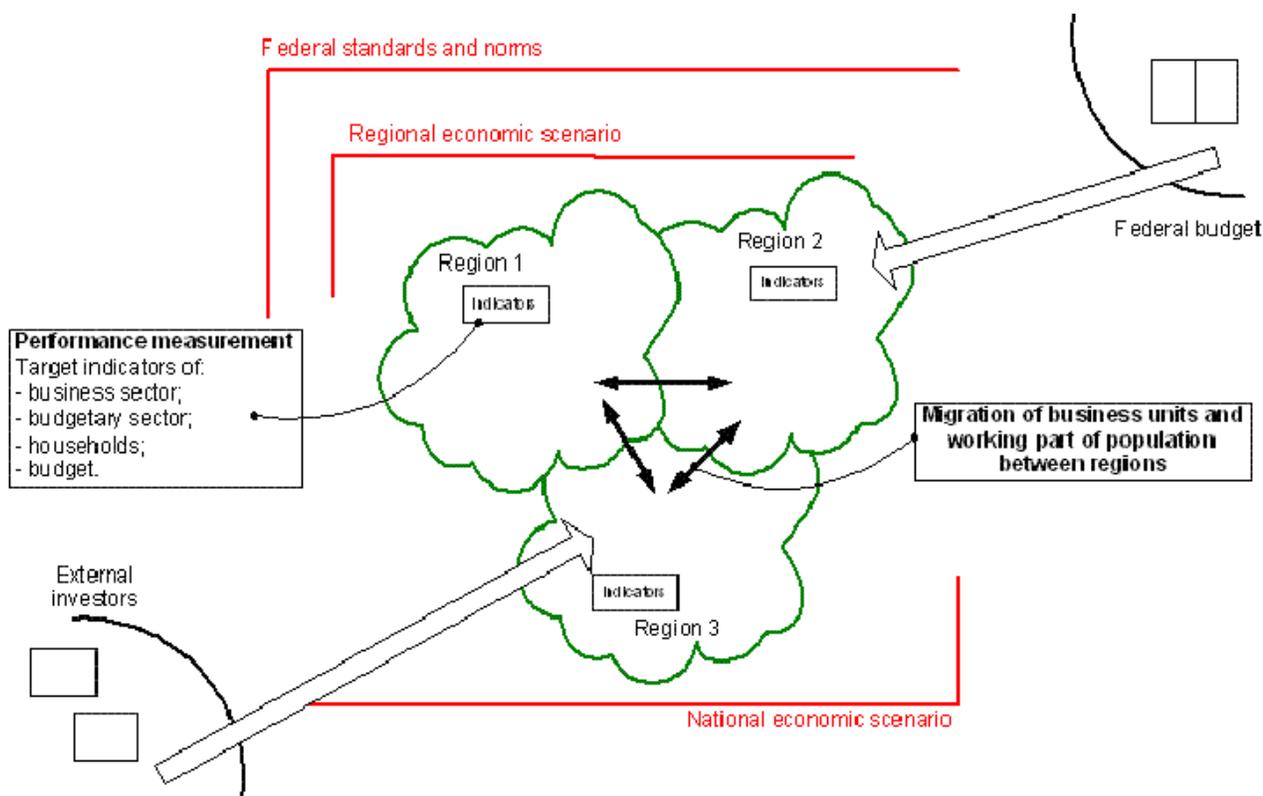**Figure 2. Aspects of public finance management on regional level**

Figure 3. Structure of the simulation

STRUCTURE OF THE SIMULATION

Teams of participants are responsible for public finance management of virtual regions and act as leaders of Regional administrations' financial departments (Figure 3). At the start of the game all regions have equal financial and economic conditions. As a result of implementation of teams' strategies in the course of the game financial and economic conditions of regions can vary significantly. Along with short-term operating decisions teams have to carefully consider long-term strategies of capital investments into public infrastructures development. Such policies can help reach the best values of the target indicators. Teams act considering the changing economic situation and federal norms and standards that are being set by game organizers by means of scenarios and rules.

Teams compete with each other for:

- attraction of external investments into regional economy;
- attraction of labor;
- regional markets of goods and services for businesses operating in regions.

Team performance measure**s** and the ranking system are based on current and estimated values of "target indicators".

GAME PROCESS ADMINISTRATION

The simulation is based on a complex computer model that processes teams' decisions, calculates results, and makes evaluation using a specific set of parameters (Figure 4). A significant number of parameter changes are incorporated into the game model scenarios. Game scenarios incorporate different situations and cases similar to those that public finance managers face in their real practice. They are prepared and put into the computer model by game developers. To increase the diversity of game situations and cases a random factor was introduced in the computer model.
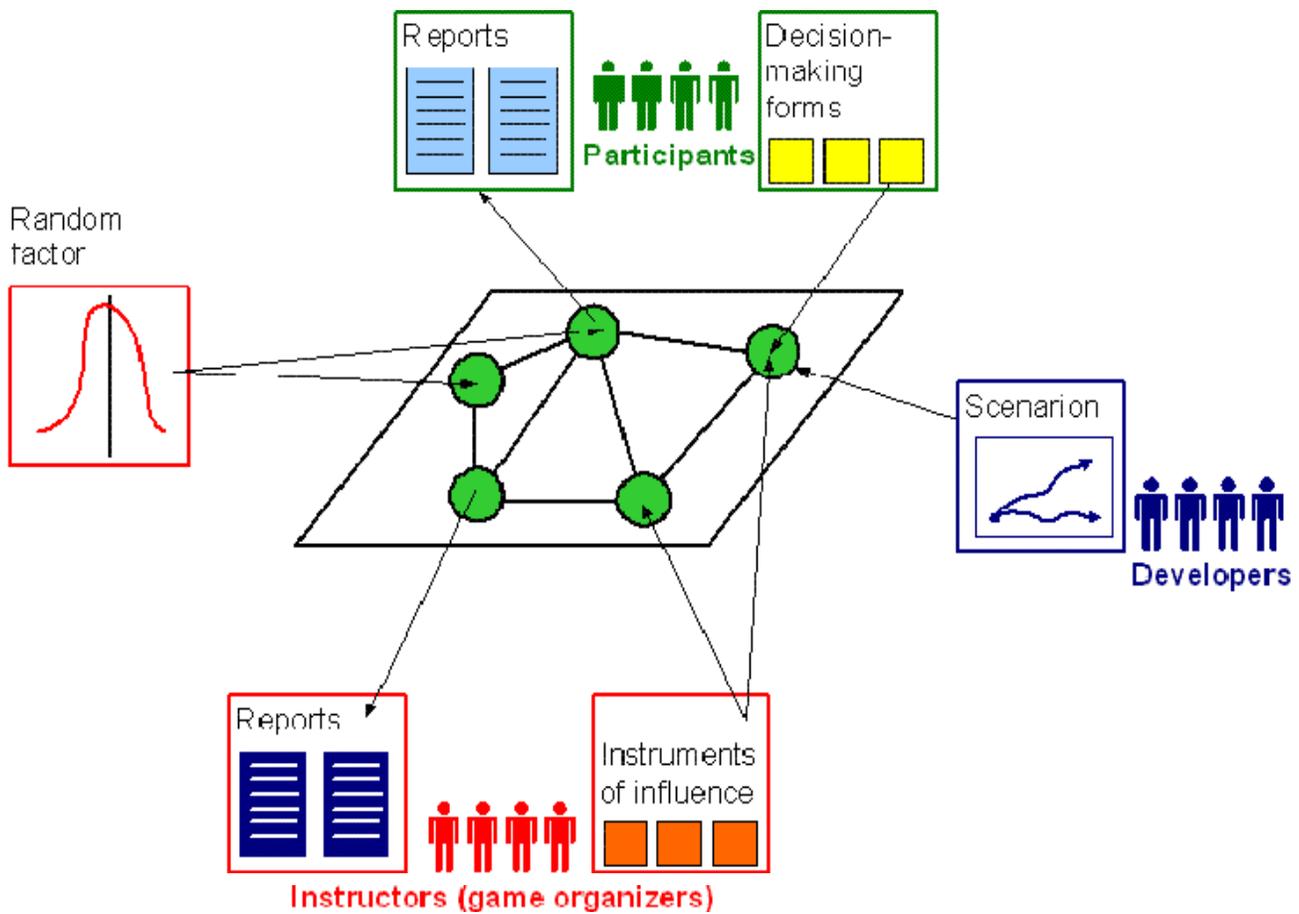
Figure 4. Game process administering

Teams make their decisions based on almost 40 reports reflecting condition of economic and social sectors, regional budget and debt, regional state property, municipal finance and so forth. Teams' decisions are put into approximately 20 special decision-making forms. According to the game schedule these forms are passed to instructors and entered into the computer program. From special instructor's reports, game organizers can monitor teams' decisions and alter limits for teams' decision values, as well as, change individual game rules. These activities help to keep track of what's happening in the game and control the game process.

GAME SCENARIOS

The simulated region is represented by:
- economy diversified by industries and territories which also includes a number of largest tax payers;
- budgetary sector (5 budget industries) and special State Regional Road Fund;
- complex of regional state property;
- 10 municipalities - 4 urban municipalities and 6 rural municipalities mainly specialized on agriculture;
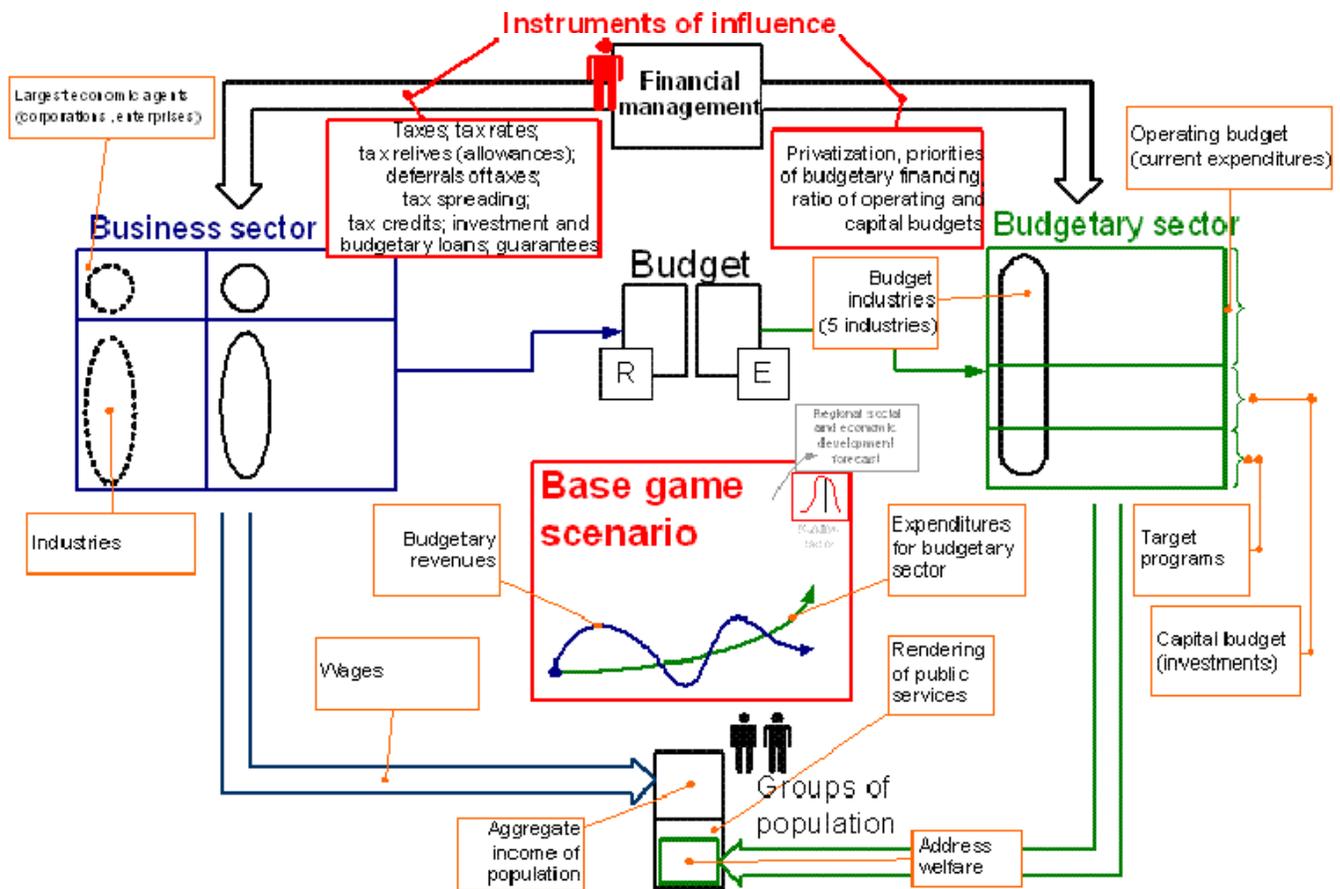- all main groups of population.

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Figure 5. Game scenario

The base game scenario has a very strong impact on the simulation process. The game scenario is represented in the simulation as change dynamics (time set) of different regional economic, financial and budgetary indices. Estimating possible changes of scenario indices is one of the problems teams are required to solve. A middle-term social and economic development forecast distributed to teams every period before the start of budget preparation (planning) for next financial year is a source of necessary information. The random factor increases the complexity of the simulation because of the formation of cases and events series for every fiscal year (e.g. list of capital investment projects or regional target programs). Random events help make the simulation more realistic. Transfers from the Federal budget in the simulation serve to play a role of an instrument for stabilizing the budgetary system and smoothing the differences in budgetary securing between regions.

GAME ORGANIZATION AND SCHEDULE

One game period is equal to one quarter of a year. One game cycle is equal to four game periods or one fiscal (financial) year. During one fiscal year teams perform budget execution for the current fiscal year and budget preparation for the next fiscal year. Budget preparation for the next fiscal year is performed in the last two quarters (two periods) of the preceding (current) year (Figure 6). Teams' decisions become regional budget law and are represented by budgeted amounts with indicated recipients of budgetary funds.
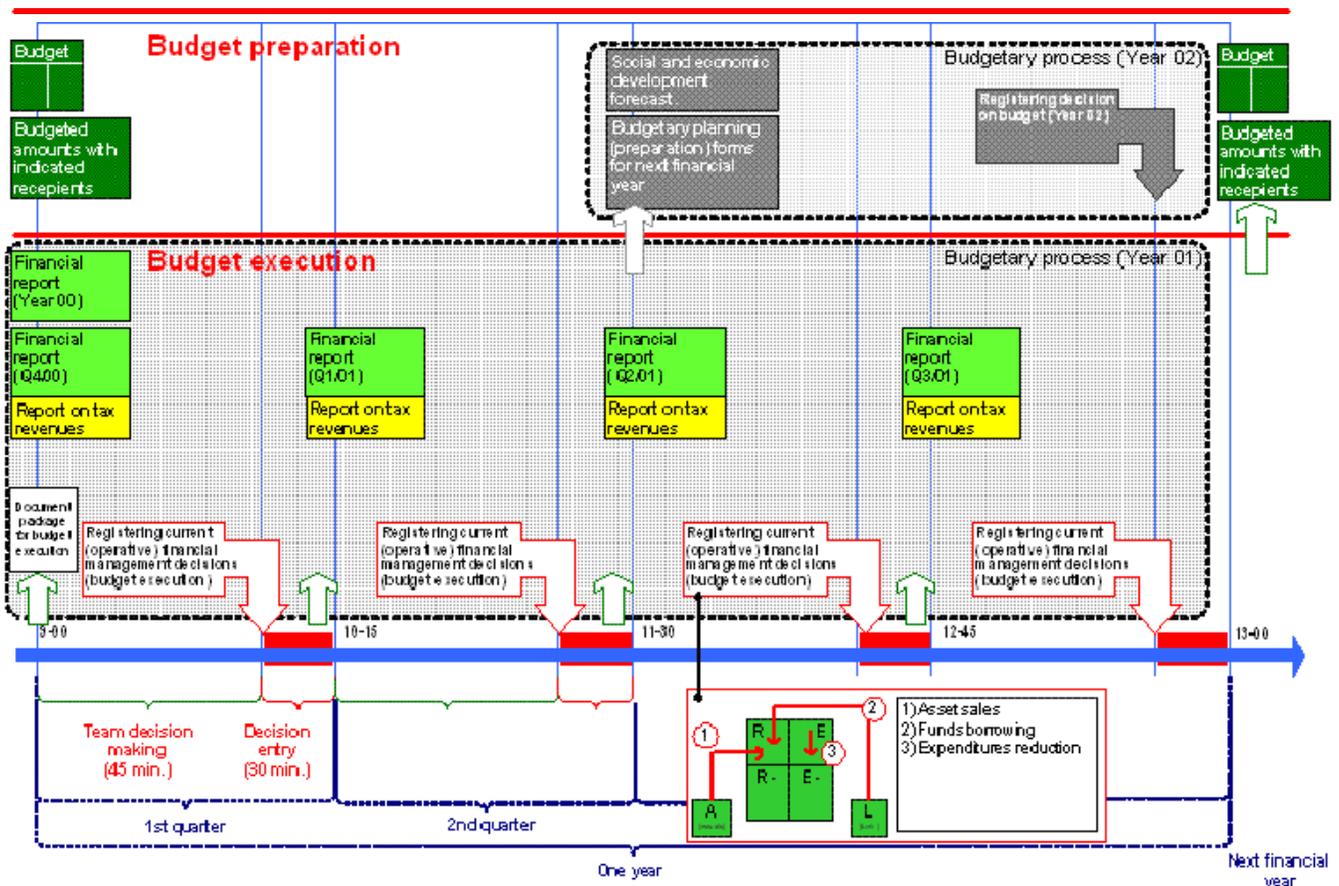
Figure 6. Structure of typical game period

The structure of the training session for the simulation is very flexible. Typically short and intensive training session lasts for five days (Figure 7). Usually, during first part of the first day teams get acquainted with the instruments of the simulation and the game process and ask any questions about the model and various game procedures. During the general tutorial that follows the trial period of the game, teams analyze how the computer model responses to their decisions; then the first real period of the game starts. In the next three days teams are involved in intensive decision-making and evening discussions of different public finance management issues. During one day teams make decision for two fiscal years. The length of the training session usually allows teams time to prepare and execute 6 to 8 regional budgets (8 years is equal to two Governor election periods in Russia). The last day is dedicated to analysis of activities teams performed in the course of game. Teams analyze experience they gained in the past four days and make presentation about their strategies and activities to the panel of judges The winner determination criteria are a specific set of indicators that reflect condition of regional economy, budgetary sector, budget and debt, amount of rendered public services (services provided at the cost of budget). There are almost 150 indicators calculated by the computer model that reflect the main aspect of managing a regional tax base and public finance. Weighting factors used for determining the value of the final complex performance index (FCPI) are under control of game organizers and depend on goals of the training session. The winner is determined based on the FCPI that evaluates the quality of public finance management. In determining the winner instructors can also consider how carefully teams followed their strategies, how they organized their teamwork and how thoroughly they analyzed situation in simulated regional budgetary system.

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