



National physical education and sports sector progress forecast using federal statistical report forms processed by modern it toolkit

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Abstract

Objective of the study was to offer an IT toolkit to facilitate the management decision-making in the national physical education and sports offices at every governmental level using the standard Statistical Report Forms.

Methods and structure of the study. We collected and analyzed for the purposes of the study Statistical Report Forms 1-FK, 3-AFK and 5-FK for 2015-2020 issued by the relevant municipal, regional and federal agencies – to analyze the reported socio-economic indicators versus the Sports Life Norm Project benchmarks (interim and final) [3]. The reported statistics were processed by a set of mathematical analysis and progress forecast tools using Sportstat Automated Information System (AIS) with Statistica mathematical statistics software toolkit. The Sportstat AIS processed the physical education and sports progress database for 2015-2020 available in the socio-economic section of the Statistical Report Forms, versus the Sports Life Norm Federal Project progress forecast and actual progress data. Our experts selected, for the purposes of the study, about 100 physical education and sports progress indicators from the 1-physical education, 3-adaptive physical education and 5-physical education Statistical Report Forms for the study period, to find their group correlations plus correlations with the socio-economic indicators for a few economic, health, business and other relevant sectors.

Results and conclusion. The IT toolkit with an automated statistical data collection and processing capacity to facilitate the management decision-making in the national physical education and sports offices at every governmental level using the standard Statistical Report Forms offers good benefits for the efforts to objectively rate the regional physical education and sports situations and forecast potential progress based on the relevant progress indicators with their time variations and contributions to the progress goals. The IT toolkit offers an algorithm to select the key progress indicators for every region and province; forecast the local physical education and sports progress knowing the actual variation ranges of the key indicators; and take well-grounded management decisions.

Keywords: *progress forecast, analysis, 1-physical education, 3-adaptive physical education, 5-physical education Statistical Report Forms.*

Background. A prime goal of the Sports Life Norm Federal Project being implemented as a component of the National Demography Project is to "create popular physical education and sports facilitating provisions including an improved access to and supply of the physical education and sport service infrastructure and sports reserve training services" and thereby increase the habitually sporting population to 55% of the total by 2024, "with the special efforts to motivate people and advance the physical education and sport services in every population group including corporate physical edu-

cation and sport service systems". Progress on the way to this goal is rated by a set of the relevant progress criteria including the physical fitness tests. Regional physical education and sports progress is known to depend on the local socio-economic situations and successes of the ongoing regional development projects and programs [4]. One of the key goals of the physical education and sports development initiatives is to forecast the short- and long-term sector progresses and outline the top-priority initiatives need to be implemented (knowing the labor intensities and claimed resources), with



forecasts and analyses of their contributions to the physical education and sport sector progress and final results.

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Methods and structure of the study. We collected and analyzed for the purposes of the study Statistical Report Forms 1-FK, 3-AFK and 5-FK for 2015-2020 issued by the relevant municipal, regional and federal agencies – to analyze the reported socio-economic indicators versus the Sports Life Norm Project benchmarks (interim and final) [3]. The reported statistics were processed by a set of mathematical analysis and progress forecast tools using Sportstat Automated Information System (AIS) with Statistica mathematical statistics software toolkit. The Sportstat AIS processed the physical education and sports progress database for 2015-2020 available in the socio-economic section of the Statistical Report Forms, versus the Sports Life Norm Federal Project progress forecast and actual progress data. Our experts selected, for the purposes of the study, about 100 physical education and sports progress indicators from the 1-physical education, 3-adaptive physical education and 5-physical education Statistical Report Forms for the study period, to find their group correlations plus correlations with the socio-economic indicators for a few economic, health, business and other relevant sectors.

Results and discussion. Our correlation analysis showed the relevant physical education and sports establishments (sport clubs, facilities and businesses, fitness clubs, etc.) being pivotal for the regional physical education and sports progress initiatives on the whole and the habitually sporting population growth goals in particular, with special benefits for the relevant physical education and sports jobs creation aspect. We also found the local growths of the habitually sporting populations being in high correlation with the physical education and sports service personnel – as underlined by the physical education and sports Sector Progress Strategy for the period up to 2030 – that requires the number of trainers and other sports specialists being increased and their qualifications and labor efficiencies improved “for success of the habitually sporting population growth goals” [1].

Our analysis also found a direct correlation between the healthy lifestyle growth and numbers of

the physical education and sports service institutions and businesses. It should be emphasized, however, that growths in numbers of the sports facilities in some regions failed to secure the habitually sporting population growth; whilst in other regions the habitually sporting population progress was ensured mostly by the physical education and sports personnel increasing efforts. Further Statistical Report Forms analysis found that these efforts still need to be complemented by prudent and focused physical education and sports infrastructure development initiatives.

The statistical data analysis found the following correlations of the target/ other physical education and sports progress indicators:

- Healthy lifestyle growth rates were found correlated with the numbers of physical education and sports establishments and businesses and physical education and sports personnel/ payroll data;
- Target physical education and sports assets were found correlated with the design service capacities of the physical education and sports facilities and actual local popular demands for the physical education and sports facilities – versus the actual habitually sporting population statistics;
- Physical education and sports sector funding was found correlated with the relevant actual physical education and sports finance disbursement statistics – dominated by the payroll of the full-time physical education and sports personnel and the sports assets operation, maintenance, construction, rehabilitation, procurement and other relevant costs.

It should be emphasized that the actual contributions of the above correlations and indicators in the regional/ provincial statistics were found to vary in a wide range. The habitually sporting population growth forecast for the period up to 2030 based on the actual 2015-2020 physical education and sports progress statistics showed that a special priority should be given to the local physical education and sports facilities accessible for the active communities, conditional on efficient theoretical and practical support from the physical education and sport service personnel – instructors, practitioners, trainers, coaches, etc. It should be mentioned that in 2021-2030 most of the regions will need to expand their popular physical education and sports service ranges and physical education and sports assets due to the growing popular demand for the physical education and sports infrastructure and services.

We offer the following statistical data processing algorithm to rate the physical education and sports



progress versus the project benchmarks, select the region/ province-specific progress criteria and forecast the physical education and sports progresses within the relevant realistic variation ranges:

1) Calculate correlations between the physical education and sports progress indicators reported by the 1-physical education, 3-adaptive physical education and 5-physical education Statistical Report Forms and the relevant socio-economic progress rates (regional health, business, economic and other statistics);

2) Select the progress indicators showing the highest (both positive and negative) correlations;

3) Analyze the causes and effects of these correlations to find the key/ most informative progress indicators;

4) Find the permissible (achievable) variation ranges for the selected indicators with account of the relevant labor intensity rates and resources claimed by the regional physical education and sports progress initiatives;

5) Make forecasts of the regional physical education and sports progresses based on the actual variation statistics;

6) Select of the key physical education and sports progress indicators with account of the realistic implementation scenarios;

7) Make a progress function using the above selected key indicators;

8) Rate the interim physical education and sports progress versus the project benchmarks using the selected key indicators;

9) Find the best solution to attain the physical education and sports progress benchmarks; and

10) Take a management decision.

Conclusion. The IT toolkit with an automated statistical data collection and processing capacity to facilitate the management decision-making in

the national physical education and sports offices at every governmental level using the standard Statistical Report Forms offers good benefits for the efforts to objectively rate the regional physical education and sports situations and forecast potential progress based on the relevant progress indicators with their time variations and contributions to the progress goals. The IT toolkit offers an algorithm to select the key progress indicators for every region and province; forecast the local physical education and sports progress knowing the actual variation ranges of the key indicators; and take well-grounded management decisions.

References

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