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The possibilities of control over the costs, institutional reforms and quality of, social services provision, using databases and methods of statistical process control (SPC)

Briefing note and proposal of support for the Ministry of Finance

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List of abbreviations

DFID	Department for International Development
EU	European Union
FRSSU	Facilitating Reform of Social Services in Ukraine
LISS	Law on Social Services
MoES	Ministry of Education and Science
MoF	Ministry of Finance
MoF	Ministry of Finance
MoFYS	Ministry of Family Youth and Sports
MoH	Ministry of Health
MoI	Ministry of Interior
MoLSP	Ministry of Labour and Social Policy
NGO	Non-Governmental Organisation
PDDT	Policy Development and Dialogue Team
SCoNMA	State Committee on National Migration Affairs
SPC	Statistical Process Control
TA	Technical Assistance
WGILSS	Working Group for the Implementation of the Law on Social Services

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The possibilities of control over the costs, institutional reforms and quality of, social services provision, using data bases and methods of statistical process control (SPC)

Briefing note and proposal of support for the Ministry of Finance

PURPOSE OF THE NOTE:

To share information and begin a discussion with the MoF on:

- potential feedback on the issues in reform – cost, institutional patterns of provision and quality control in social service provision in Ukraine;
- background on the recent similar developments in this area in EU countries;
- resulting draft proposals for potential support in this area for the ministry.

ISSUES:

- **Weakness of data support for policy making in Ukraine**

Inadequacy of data on providers. Recent surveys with representatives of the government and analysis of available data¹ point to significant difficulties in even compiling a comprehensive and current picture of the system of social service provision in Ukraine. In particular, the recent World Bank study² found that the data provided by the key ministries was insufficient to collect an exhaustive list of service providers. This is a weak basis for initiation of reform – as there cannot even be accurate benchmarking against which to measure progress.

Inadequacy of data on clients. The World Bank and DFID studies have also found that the current system of administering social care services focussed on institutions, rather than clients.

This mirrors what is regarded as one the major shortcomings of the Ukrainian delivery of social services too, when set against modern international standards – service delivery is also institutionally driven – often an expensive and inefficient form of service delivery and one that tends to leave potential for contravening Ukraine’s international and domestic constitutional obligations. The institutional dominance of statistics associated with categorisation makes it even more difficult to collect detailed information about the people currently receiving services, and especially omits those who could use them potentially but are currently excluded by the system. So again gains to reforms are difficult to enumerate.

Issues with initiatives of the government. The insufficiency of existing databases on social care provision and utilisation became a popular theme of discussion at all social care forums, including the various inter-governmental working groups such as WGILSS.

A number of ministries – and local government bodies (oblasts) and NGOs - involved in care provision have expressed interest in developing databases related to social services. However, so far, these initiatives have not been consistent and have often lacked a unified vision of the goals, purposes and alternative approaches for such exercises. Moreover, in many cases decisions have not yet been made on how such databases would be supported in future, which raises concerns over their long-term sustainability. Nor typically do they have a financial focus or a strong statistical basis, and so are of limited value to MoF and even to those interested in regulation and implementation of LISS such as MoLSP.

1 *An Introduction to the System of Social Care Services in Ukraine*. A Nechai (prepared for the World Bank Mission in Ukraine). p. 11

2 *ibid*

Issues with initiatives of the international donor community. International donor community (including donors such as DFID, EU and World Bank) expressed appreciation of this problem and could be prepared to consider support to development of pilot databases.

However, in order to utilise these resources effectively, it is important to direct them into: such pilot exercises which would be based on a long-term vision of the future need for data and management systems; and to construct a clear framework, shared by Ukrainian government and the Ministry of Finance (MoF) in particular.

- **Institutionally fragmented social services provision as a factor behind data problems.**

Inter-ministerial scattering. One of the major factors behind difficulties in compiling and managing data in social care in Ukraine is the fact that the social service provision system itself is scattered between a number of governmental agencies.

Based on recent studies³ there are at least six key central bodies who share the responsibility over the system, apart from the Ministry of Finance: the Ministry of Labour and Social Policy (MoLSP); the Ministry of Family, Youth, and Sport (MoFYS); the Ministry of Education and Science (MoES), the Ministry of Health (MoH); the Ministry of Interior (MoI), and the State Committee on National Migration Affairs (SCoNMA).

Social service providers are also subordinated simultaneously (for a range of regulatory concerns) to the respective Ministries as well as the local authorities; (but also for their resources to MoF and the Oblasts, and local government structures through and from which the social service providers are funded – see below) This administrative and financial scattering yields inevitable unfunded mandates that bring the law and social service provision into disrepute, but also makes it especially difficult to develop joint approaches for:

- data collection and management;
- coordinated management, audit and monitoring and evaluation (which in a modern sense is very limited); and
- especially policy development for reform and of processes and gains from change – evaluation of reform.

Fragmentation of approaches to service provision. Fragmentation of responsibility over policy development results in a wide disparity of non-coordinated approaches to social service aims, regulation, administration and oversight, as practiced by various ministries.

Databases for social policy process could not be effective if they were based on such a fragmented picture, and would gain significantly from a more unified or coordinated vision.

- **Complexities and inconsistencies of the funding systems as a factor behind data problems.**

Further detrimental complexity – from an efficiency and effectiveness view point – is introduced into social service delivery by the structure and nature of funding patterns and systems.

Infrastructure-based transfer formula. The current transfer formula is largely based on infrastructure-based indicators and not on the indicators of relative demand for service, or often sometimes even, levels of utilisation. This does not create incentives for the key spending units (ministries and local administrations) to invest in the creation and maintenance of new services, that might be more efficient let alone lead them to be interested in creation of databases with wider sets of indicators that are likely to throw into high relief inefficiencies of funding and which might further capture shortcoming and inequalities – inequities, too – in the quality of service provision.

³ *Preliminary Assessment of Public Expenditure Management from the Reform of Social Services in Ukraine*, by FRSSU project; *An Introduction to the System of Social Care Services in Ukraine*. A Nechai (prepared for the World Bank Mission in Ukraine).

Lack of clarity with delegation of responsibilities. The current model of expenditure decentralisation in Ukraine lacks a clear vision of the concept of sharing responsibilities for service provision between the levels of government and certainly does not elide responsibility with funding in a pure sense for budgetary purposes.

Although the actual spending is made from the local and regional budgets, these levels of government lack:

- sufficient capacity and authority to make regulatory decisions in social service policy or strategy: as well as
- sufficient control over their revenues sources (which limits their capacity to administer independent spending decisions and to spend consistently and to local priorities).

This lack of clarity – and what is perceived as the inevitability that local government has to live with this state of affairs - is another powerful disincentive for all the spending units to invest in overarching financial and quality control instruments and to develop appropriate databases that highlight the very problem that they are today making compromises over to keep local budgets solvent.

Lack of acknowledgement of deep set demographic trends in financial planning. Demographic trends play a key role in defining the changes in patterns of social service consumption (needs and demands) and thus have strong long-term financial implications for the budgets covering such services⁴.

The current system of financial planning for social service provision – and indeed social policy implementation as a whole - in Ukraine does not actively utilise data on demographic developments. As a result, there is:

- very limited awareness in law or prospective law drafts of the potentially profound impact of demography; nor
- pressure on policy makers to streamline collection and management of data in a manner sensitive to developing policy responses to demographic trends; nor
- even more remotely overt or implicit consideration of the resource financial and budgetary implications of these demographic changes.

BACKGROUND: TRENDS IN UTILISING DATABASES FOR SOCIAL POLICY

• Growing role of “evidence-based” approaches to policies and reforms

The concept of “evidence-based policy making” becomes increasingly popular in the EU countries, in order to formulate responses to and to anticipate these issues and challenges.

It represents a growing concern over the need to increase the quality of:

- the government policy making; and
- the government’s control over levels and effectiveness of expenditure

The “quality of policy making and implementation” in this context, means that the capacity of policy makers to resist the short-term pressures and institutional inertia, and to give a proper role to objective, strategic goals of the policy initiatives is limited. In other words, it means building policy based on “evidence”: that is, based on realistic information about the actual needs of the people, actual factors which influence policy implementation and its actual outcomes. Therefore, evidence-based policy making in the EU places significant attention to rigorous techniques for data collection and management. And then subsequently in draft policy preparation to empirical projection of trends to support white paper conclusions, and on to cross sectoral approaches and consultation of policy proposals with stakeholders and the wider population.

• Databases as evidence for social policy development

⁴ *Demography, Social Statistics and Financial Trends*, by FRSSU project, Resource Paper 3.

There are a wide range of arguments that social policy makers and practitioners (at various levels of government) should be armed with complete and reliable lists of the institutions that provide social services and of current and potential service users, as well as with the data of basic aspects of the provision of these services provision from the perspective of providers and users.

A lot of these arguments rest on the opinion that the maintenance of such databases contributes to greater transparency and predictability of the service provision process, results in considerable reduction of bureaucratic troubles and delays, as well as providing authorities with important information about the tendencies in the use of services, which allows to make better cash flow forecasts and to take more adequate decisions.

The present tendency in Ukraine for the development of numbers of diverse non linked date bases, for example, MoLSP is developing data bases on vulnerable children and potential beneficiaries of services with no referenc to other lin minsitres or MoF, in unchanged, will lead to high cost and ineffective datastets that do not contribute either to policy development nor enhancement of operational efficiency.

- **Distinguishing between long-term and short-term issues in database management**

Given that databases of this type contain private information and include large amounts of data, the rationale for creating them is associated with a number of questions, which can be divided into two groups.

1. **Strategic.** The first group refers to the need for clarifying to what extent centralised collection of such information is necessary, how it can be used, and whether these tasks justify the costs and risks associated with launching and maintaining a database.

2. **Tactical.** The second group of questions includes the questions of minimisation of these costs and risks, maximum security of private information (for example, due to a clear distribution of rights to access to a database for different institutions), and effective distribution of roles in creating and applying this tool. This briefing has been prepared as a contribution to the discussion on the first, strategic group of questions.

- **Using databases for “statistical process control”**

One important purpose to which European countries increasingly applies databases with indicators of social service provision is to manage the process of policy implementation with a specific statistical technique known as “*statistical process control*” or *SPC*. *SPC* became so popular in social policy management in developed service provision systems because it is simple and effective, and requires only very basic computer skills and availability of the necessary databases.

SPC is based on a statistical method which originates from industrial production and which allows managers to monitor the various aspects of provision of a wide range of services – including costs and desegregated aspects of costs - to often to a great number of clients.

Typically, the subject for monitoring is the quality of service, which could be roughly measured by a number of simple indicators (such as the time of consideration of an application for service, the size of waiting lists, etc) which can be collected for each provider (and, ideally, from the clients as well). However, it is also possible to use *SPC* for monitoring service provision in terms of their unit costs – marginal or absolute. This may help policy makers to identify early signals of any irregularities and changes in the costs, which may have resulted from specific problems (or successes), inefficiencies (or inefficiencies) with some providers or from implementation (imaginative or humdrum; positively creative or perversely negative) of regulatory initiatives.

The idea of *statistical process control* (*SPC*) originates in the private sector from big Japanese and US industrial companies, which devised and employed it as a simple and reliable technique to control the quality of large-scale production processes. The philosophy of *SPC* is often called “management by fact”, because its idea is to monitor only actual historical indicators of the production process in order to detect statistical signals of serious deviations in the general picture and to determine the factors that bring about the deviations: and, thus emerges the similarity of management by fact, with “evidence based policy”.

This technique is important, and increasingly is central for managers in many fields, whether it is industrial production or provision of services, because it allows managers to understand:

- what factors affect the quality of products or services;
- how quality interrelates with costs; and
- how their own managerial decisions tell on quality.

Another important advantage of SPC is that this technique, unlike classical approaches to control, allows saving time – economies of management run in parallel with gains in service provision or production, as:

it is not necessary to check individual products or services, but to focus on monitoring general statistical tendencies, always though with the opportunity to identify the sources of possible problems that show as outliers, aberrations, extra deviations in the empirical data once the databases are operational.

BACKGROUND: STATISTICAL APPROACHES

• General review of the statistical basis of SPC

The statistical method that underpins SPC is known as *Six Sigma*. This name originates from a branch of statistics that studies variation (or deviation) of a number of individual observations around the mean value in the course of any process, and helps to solve the tasks of minimising such deviations. The word “sigma” is used here, because, in statistics, the sigma symbol indicates a variation of values measured by the number of standard deviations from the mean value.

The database needed for implementation of Six Sigma should contain information on quality or cost indicators of some production process that can be monitored over time. It means that this method is most usefully applied to a large amount of data on the values of several variables (several aspects of quality) for a few services (or products) for a large number of consumers (or clients), which are constantly measured at different times. At this stage, the task of a manager is to make sure that the process is normal, which means that all the quality indicators keep close to the mean value and stay within the limits of acceptable standards (minimum and maximum). (Similar logic is maintained if the databases are used for monitoring deviations in unit costs of services).

The Six Sigma analysis allows for a statistical comparison of each new figure with the previous ones and with the general distribution of variables, as well as the identification of jumps, shifts, and tendencies. If the deviation of indicators stays within “the six sigmas”, it means that their values deviate from the norm by, at most, three standard deviations, in other words, it is neither too low nor too high. At the same time, this method provides very simple and clear rules for monitoring the indicators that help to detect situations where the process begins to manifest non-standard behaviour, and for identifying the sources of this specific variation, and consequently - possible factors of changes in quality.

The Six Sigma concept was introduced in 1986 by Bill Smith, working for Motorola Inc, which allowed the company to patent it, as well as to save billions of dollars on using the concept in their own production.

The software needed for implementation of Six Sigma is extremely simple and is based on the standard Excel package. Besides, the results of this computer analysis are presented in a graphical form, which can be easily read and interpreted by specialists without any statistical training and requires only basic acquaintance with a set of rules for interpreting corresponding graphs. Besides, in the process of services provision, this technique provides decision makers and practical workers with clear, quantity-based information about changes in the quality of products or services and about how their policies work in practice.

• An example: applying SPC to databases of vulnerable children

Databases of information about this category of children, whose creation has been recently discussed, could be an ideal model platform in Ukraine for the application of SPC methods to monitor the:

- quality of provision of corresponding social services and

- once the initial basic cost and unit cost calculations have been carried out, variations in the cost of corresponding service can be monitored too

It is clear that a detailed technical specification of requirements to such a data based approach to the evaluation of a social service calls for a deeper analysis and consultations with experts – both social service and financial. Neither type of expert is sufficient on their own

However, in this case, the basic idea of introducing a model SPC process is, whilst working out the databases of users (and, certainly also the various providers) of social services, to exemplify and then extend the range of indicators by inclusion of a few simple, reliable, and easily interpretable indicators. Besides, the application of the databases should allow for repeated collection of values for corresponding indicators at fixed periods. These – in the first place - quality indicators, if carefully and consultatively constructed and selected, can be simple and clear (for example, objective data of the time of processing applications for some types of assistance). However, theoretically, more complex and more effective quality indicators can be worked out, and progressively introduced. For example, with the use of prompt questionnaires that would reflect clients' (or their parents') opinion about the provided services.

Extension into costs is a similarly interactive process with simple beginnings – with the value of:

- Signalling deviant values that are of diagnostic interest, and so potentially of policy or quality control interest ; and
- Establishing trends over time, which show the impact of administrative and financial adjustment in the short term, and potentially in the long term of policy and demographic effects; showing
- cost sensitive aspects of provision structures and change – whether intended or inadvertent, or perverse.

Technically, this process will require the development of simple software, which would enable the implementation of basic elements of SPC, and, at the same time, would allow for reliable protection of private information about some entries in a database (e.g. by means of some system of data codification, as well as through elaborate regulation of users' access to reading and changing the information in a database).

When this software is installed in the governmental departments defined in the course of consultations, their specialists will be able to create and use SPC analysis results they need, which will be generated in a generalised graphical form, and will not need to enter the sections of databases that might contain confidential information about some clients.

IMPLICATIONS

It is important to consider SPC implementation at early stages of database development. Using SPC for social policy is a relatively new phenomenon in Ukraine and in many global contexts. However, it is simple and effective, and does not necessarily imply large costs, and could yield, just by leading to rationalisation and incremental restructuring of social service provision, substantial cost savings.

Moreover, as Ukraine develops further, it is likely to expect that the human and material resources available for informational support of social policy agencies will grow. In order to utilise the available resources in an optimal way, it seems rational to consider at this stage the advantages of SPC and to take this technique into account in the discussions on the need for databases and on their structure and contents.

FRSSU project's PDDT would like to support the MoF in the first place in considering the introduction of SPC. The role of the PDDT could lie in circulating knowledge and experience, as well as in the provision of basic workshops, seminars or training for specialists of MoF or perhaps MoF and other government bodies interested in applying this technique.

At Oblast level, in Kharkiv Oblast, FRSSU has funded and is supporting the commissioning of a service, which is now under implementation for the development of a database intended to create and test a detailed specification for a management information system. This to facilitate targeting of social service provision for people living in difficult circumstances who require additional social services support in Kharkiv Oblast.

The outputs of the commissioned service will be a detailed specification for an oblast social services

management database, developed in close consultation with a range of stakeholders, and supported by an initial piloting of the management information system to demonstrate improved effective and efficient uses of social services resources. The service is expected to provide important lessons of relevance to potential developments at national level

PROPOSED NEXT STEPS

The first next step is a discussion of these possibilities with MoF.

A second step would be the introduction of this topic to the Financial Issues Working Group of WGILSS

If this technique is – after these discussions – felt to be an initiative that is of any practical interest, the following measures could be taken in order to introduce it:

- A National Social Services Inventory Database Project Group is established and coordinated by MoF – the group should comprise: professional managers with responsibility for social services; information specialists; and financial personnel. This group will be responsible for the establishment – with TA - of the dimensions, purposes and locations of databases;
- Appropriate time is given to undertaking the estimation of unit costs; and
- Considered judgements are made about data collection, with full use of the existing accounting system – and use of data that currently exist.

FRSSU could make a first presentation of the database and SPC concept to the specialists of the key government bodies, who are engaged in the process of quality control and reform of corresponding services and whose activity can become more effective due to this analytical instrument.

At a meeting with the MoF we could discuss the MoF's – and also MoLSP's of vision of the prospects for:

- introducing SPC; and
- of the role for FRSSU or other TA in supporting this or other aspects of improving database management for social policy process;
- the discussion could then pass on to identification of a donor to undertake support of the implementation of the database project, under the oversight of the group above.

Depending on the choice of the ministry and on the outcomes of this meeting, several options are possible:

Option 1. If there is not enough interest in the MoF to justify any further work, the project will take no additional action.

Option 2. If the MoF is not in a position to consider SPC at the moment, but requires more basic support in database development, the project will be happy to assist with simple data work. Such work may include compilation of institutional listings and their clients, as well as development of a framework to overcome the inconsistency and fragmentation problems.

Option 3. If the MoF is actively interested in SPC, the project will offer support in designing a more sophisticated, SPC enabled, database. In this case next steps will include:

1. Close consultations with the specialists of the government bodies that may be potential users in order to determine a realistic list of quality indicators to be included in the database (with assistance from FRSSU).
2. Using this feedback to define the scope of work / terms of reference (with assistance from FRSSU)

3. . Rendering assistance to corresponding government bodies in working out or purchasing the software elements they need for SPC, as well as a small series of training workshops for the specialists of these bodies to acquire practical skills of work with SPC (with assistance from FRSSU).
4. . Active support to the specialists who are going to work with SPC in the analysis of the first data array and joint work on an analytical report on the state of the process of service provision in the light of statistical quality control (with assistance from FRSSU).
5. . If there is an interest, support should be given in representing the progress of creating databases and introducing SPC to the press or to other authorities and the public by organising a special event (with assistance from FRSSU).