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Collection of Statistics in Small Countries: the Experience of Latvia

Invited paper submitted by Latvia¹

1. The aim of this paper is to characterise the peculiarities of organisation, collection and processing of statistics in small countries on the basis of Latvia's experience.
2. The feature of the statistical system of transition countries lies in the fact that due to the reorganisation of the system and introduction of statistical observation methods that are essentially different from those used in previous periods and due to the need to harmonise the statistical variables in accordance with the requirements of the European Union, the share of expenses for the development, adoption and introduction of statistical methodology in the total expenditure is comparatively high.
3. Compared with the big countries, the proportion of expenses for the statistical infrastructure to total costs of the official statistical system is relatively higher in any small country, be it a EU member country or an applicant country. By statistical infrastructure costs we understand expenditures for methodology, training, servicing and dissemination of statistical production. Expenditures for the servicing of statistical production include outlays for the IT department, software and management costs. A large part of the above mentioned infrastructure costs and in particular the costs of methodological support for the surveys in a small country are nearly as high as in a big country.

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4. The country's small dimensions also make the cost of its statistics higher due to the necessary sample size. Although the absolute figures of the sample in the small countries are lower than in the big countries, the relative indicators of the sample in small countries are considerably higher.
5. Statistical offices of the small countries lack the possibility to train their employees in a specific field and make use of the advantages of labour division to such a degree as it is done in big countries.
6. The confidentiality regulations restrict the publishing and dissemination of statistical data in territorial and other breakdown to a much greater extent than in big countries (Als, 1993).
7. Statistical centralisation, particularly territorial centralisation, should be more typical of a small country than of a big one, mainly due to the saving of data collection and processing costs and for the sake of a more convenient organisation. However, not always the statistical systems of small countries are completely centralised. An example of this is Latvia.

Latvia's Statistical System – Functionally Centralised and Territorially Decentralised

8. The area of Latvia is 64.6 thousand square kilometres and its population stands at 2.375 million. According to the data published by UN, Latvia occupies the 24th place among European countries by its area, and 32nd – by its population. At present there are 7 republican cities, 26 districts (regional governments), 7 area municipalities, 65 town municipalities and 473 rural municipalities. The local government is created at each of the administrative territorial unit. There is a two-level local government system in Latvia. The first level includes rural and urban municipalities, the second includes district level governments. Seven republican cities perform the functions of both levels.
9. It should be mentioned that currently Latvia is taking the reform of regional administrative territorial division, as a result of which the number of regions (districts) will be diminished essentially – it is proposed to create 5 regions in Latvia.
10. The state statistical system in Latvia is functionally centralised and territorially decentralised. The Central Statistical Bureau (CSB) plays the main role within the state statistical system as the actual performer of the majority of statistical tasks and is responsible for the organisation of statistical work in Latvia. Apart from the Central Statistical Bureau, other central and local government institutions (the Bank of Latvia, Ministry of Finance, Ministry of Welfare, Ministry of Interior Affairs, Ministry of Transport, etc.) also compile statistics on a variety of issues.
11. The central office and its subordinated regional statistical offices constitute the system of the Central Statistical Bureau. Currently there are 28 regional statistical offices.
12. The Central Statistical Bureau works under the administrative supervision of the Ministry of Economy. However, in its professional activity it is completely independent from any state or government institution, political party or movement.
13. Organisational and structural changes have taken place in the Central Statistical Bureau. At present the central office of CSB consists of 7 departments (Macroeconomic Statistics; Price Statistics; Business Statistics; Social Statistics; Informatics; Information, Publishing and Printing; Administrative) and 5 separate divisions (Business Register, Statistical Methodology and Organisation, Population Statistics, Mathematical Provision, International Relations and European Integration).

14. The main advantages of functional centralisation of the state statistical system are the economy of costs and staff, methodological and organisational coherence, more simplified management and independence. The fact that part of the statistical work is not functionally centralised is related to organisational considerations. The statistical services of the ministries and other government institutions are closer both to the data sources and users of statistical information. It is worth noting that the increasing use for statistical purposes of the administrative registers and records of other information systems outside the central statistical office might be looked upon as a partial functional decentralisation (in respect of data collecting).

15. In comparison with the member countries of the European Union, the degree of functional centralisation and territorial decentralisation of the Latvian statistical system is rather high. The trend of the state statistical system might be directed towards a certain reduction in functional centralisation and substantial lessening of territorial decentralisation even as far as the transition to full territorial centralisation.

16. In recent years selected statistical works have shifted from the field of responsibility of the Central Statistical Bureau to the responsibility of other government institutions. An example of this is the compilation of the balance of payments that was taken over by the Bank of Latvia. Currently the CSB of Latvia performs approximately 75% of the statistical work in the country.

17. Alike most countries in transition, the Latvian statistical system has inherited from the centralised planned economy a wide net of regional statistical offices. Since its foundation (shortly after the war), the regional system of CSB of Latvia has been formed in accordance with the highest level of administrative territorial division of the country (with one exemption – there are joint local statistical offices in the republican cities and the corresponding administrative district).

18. Undoubtedly, centralised collection and processing of statistical information has some advantages, the main of which is the possibility to ensure the system with qualified staff specialised in a narrow field of statistics, as well as a possibility to make simpler the changes and supplements in the system of statistical indicators and data processes. Centralisation facilitates methodological work and allows avoiding duplication; it is also easier to maintain the central databases updated.

19. Under the territorially decentralised system the number of employees at each regional statistical office is small (at present from 3 to 10, on average 6) and each employee is engaged with different branches of statistics. Therefore there is less specialisation in comparison with the centralised system. Despite this shortage, the territorially decentralised system has been retained up to now because the primary collection of statistical information is nearer to the sources of statistical information and respondents that submit it. It is easier to clarify the real situation if there are some doubts about the reliability of submitted data. Besides, local governments have a possibility to order additional information in regional statistical offices. They can also make the analysis of economic and social development of districts, cities and rural municipalities.

20. There is no doubt, that the regional statistical offices have played an important positive role in the development of Latvia's statistical system. Nevertheless, we feel more and more the necessity of diminishing the level of territorial decentralisation in the CSB or even elimination of the regional system, mostly for the reasons of effectiveness and management.

21. The decentralisation index – the ratio of the number of people employed in regional statistical offices to the staff number in the central office – according to the list of number of approved staff units on 1 March 2001 in the CSB of Latvia was 0.57. Following the re-establishment of independence, a strong tendency of falling employment in the regional statistical offices became

apparent in contrast to the rising staff numbers in the central office of the CSB of Latvia. Thus, the decentralisation index at the beginning of 1995 was 1.62; 1996 – 0.98; 1997 – 0.89; 1998 – 0.80; 1999 – 0.78; 2000 – 0.73; 2001 – 0.62.

22. In view of the regional administrative territorial reform in Latvia the CSB has to decide in what way to implement its own reform of the regional system. The main alternatives might be as follows:

- 5 regional statistical offices in accordance with the division of the country's territory;
- full territorial centralisation.

23. The ever increasing cuts in the budget is yet another reason that calls for a necessity either to decrease the level of territorial decentralisation or to shift to full centralisation. Centralisation reduces the costs of surveys.

24. The main advantages of territorial centralisation are as follows:

- broader application of modern information technologies, for example, centralised data input and preparation connected to CSB databases and centralised scanning of questionnaires;
- provision of higher quality to the organisation of data processing technology and maintenance of equipment and management;
- a possibility to use the services of highly skilled specialists in the field of statistics and information technology and better conditions for training;
- simpler and more obvious accounting and financial management system which gives possibility to optimise the use of resources;
- savings of costs (due to a reduced number of employees, computers, data transmission channels, premises, inventory and software licences) for the same amount of statistical work.

25. According to the Law on State Statistics the Central Statistical Bureau prepares the State Programme of Statistical Information every year. This is a very comprehensive document, which, especially in recent years, contains almost all kinds of statistical data collected not only by the CSB but also by other public bodies. In that programme every user can find details on the information, which he needs – the responsible institution, periodicity, kind of aggregation, population from which the data is collected, etc. The object of the programme is not only the data collected in the traditional way of statistical surveys but the data that comes from administrative sources, too. Unfortunately, the latter are not very developed in Latvia.

26. The State Programme of Statistical Information is also a tool for the co-ordination of activities in the field of statistics. During the preparatory stage the draft is usually discussed on a very detailed level with the line ministries and other institutions involved in the data collection and data production process. As a rule, the Central Statistical Bureau avoids collect the information that falls under the competence of other state institution in order to minimise the burden on respondents. That also leads to the reduction of field work for the CSB.

27. The primary statistical data are obtained by means of regular or one-off surveys (mostly, sample surveys), censuses, such as the Population Census in 2000 and Agricultural Census in 2001, as well as from administrative records. Statistical data from enterprises are collected mostly by way of questionnaires using mail service; from persons and households – with the help of the interviewers service.

28. The CSB regional system, especially since the beginning of the transition period to a market economy, is characterised by the fact that only part of the statistical functions are territorially decentralised while the other part is performed by the central office (to a certain extent this can be termed as division of labour). The main functions of the regional statistical offices are the gathering, entering and validation of primary data and, to a lesser degree, data processing. Under any conditions, work with the respondents plays a substantial role at the regional statistical offices. The

activities performed at the central office for the regional offices include publishing and printing works, development of methodological support, design and programming work, staff management and training, financing, planning and, to a certain extent, accounting, material technical supply and input and verification of data collected by the respondents of the city of Riga as well as basic processing and warehousing of data.

29. Regional statistical offices carry out statistical activities under the guidance of the central office and receive instructions and methodological materials for each statistical work. Regional statistical offices are obliged to disseminate this information to respondents. The regional offices transmit the prepared primary data to the central office electronically, receive applications for data processing and selected aggregated data from the central office also electronically. This method allows to accelerate data exchange between the central office and regional offices considerably and to clarify all issues quickly.

30. Reorganisation of the CSB regional structure may as a result entail corrections in the incoming data flows and the creation of new flows. Following the transition to full territorial centralisation, the respondents will send questionnaires directly to the central office. However, due to the closure of regional statistical offices additional problems may emerge in the work with the respondents since the statisticians will be working at a greater distance from the respondents.

31. It is worth to mention that the links with the respondents in the statistical system of small countries can be organised in a more simple way than in big countries due to a smaller number of respondents and closer proximity to statistical offices.

Characteristics of Sample Surveys in Small Countries

32. The financing that the small countries can afford to channel into statistics is much lower compared with the big countries but at the same time the users expect the information to be as broad as in the big countries. Because of this a question arises if it is possible for small countries to obtain statistical data on the same level of reliability and representativeness as for the big countries. On the other hand, to obtain internationally comparable information both the EU Member States as well as Applicant Countries including the small ones like Latvia try to conduct statistical surveys following the same survey methodology and gathering a similar range of indicators. Small countries can save resources mainly by reducing the number of respondents, which are included in observation.

33. The sampling method in the statistical surveys of enterprises conducted by the Central Statistical Bureau of Latvia was introduced in 1994. This was a period when after re-gaining independent statehood entrepreneurial activities became more and more wide spread resulting in a substantial increase in the number of private sector enterprises. Efforts in the collection of statistical questionnaires from a fully covered population did not yield any more the expected results in terms of information quality and timeliness. The CSB decided to hire a staff that would be highly qualified in mathematical statistics in order to introduce the sampling method and perform interpretation of results. Statistics Sweden was the first to provide technical assistance in this area. Since 1995 the sampling method is used in surveys on social statistics and labour indicators, too.

34. During these years we have gained a considerable experience in sample surveys. First of all, we have understood the importance of different registers, which are used as a basis for sample survey design. The CSB maintains the Statistical Business Register that contains information on all economically active enterprises and every day updates it. In November each year the Statistical Business Register is fixed for sampling design purposes. The main survey, which is conducted by applying the sampling method, is the annual structural business survey. The structural business

survey in Latvia is designed following a quite complicated sampling scheme consisting as a result of several respondent lists. Apart from stratification by activity and locality, these respondent lists are built taking into account the criteria of ownership and size of enterprise by net turnover and (or) the number of the employed.

35. The fact that in the three lists of respondents the minimal sampling weight is 1,0 shows the main problem that faces a small country when making stratified sample surveys. The sampling weight (or close to it) means that the given stratum consists of a very small number of units for observation. In that case the statisticians of a small country must devote more efforts than their counterparts in the bigger countries in fighting with the influence of non-response, sample rotation and, consequently, larger burden on enterprises and last but not least – the problem of statistical confidentiality.

36. One of the possible solutions to this problem could be stratification on a higher level of classification. On the other hand, that leads to a situation when a country will not be able to fulfil some EU requirements especially on the level of detail.

37. Up until the last year the CSB had been using the same sampling design for the collection of annual structural data as well as for the collection of short-term statistics.

38. In 2001 the Central Statistical Bureau of Latvia made a compromise decision - the overall sampling fraction for short-term statistics was narrowed by 30 % in comparison with the one for structural business statistics. Despite the loss of possibility to obtain precise results on the lowest activity classification level as well as on separate administrative territories (except the capital city Riga) this should bring positive results in the following aspects:

- reducing of response burden to enterprises;
- saving of costs on the collection of data;
- maintenance of a high response rate and quality of results.

39. The CSB also conducts different sample surveys on social phenomena. Among them there are the Labour Force Survey conducted twice a year, the Living Conditions Survey (once in 5 years) and others. Nevertheless, a unique place among all these surveys is taken by the Household Budget Survey. This is the only continuous survey conducted by the CSB at the moment. Due to its complexity the survey highlights all those problems that are typical of observations of individuals and households under the conditions of a transition economy. First of all such observations are very expensive and demand never-ceasing methodological work. However, this data source gives inappreciable information about the households in transition.

40. It should be mentioned in the conclusion that the calculations of specific representative sampling errors were made taking into account the actual sample design and not just assuming that the sample was actually simple random sample. This experience leads to the following conclusions:

a) Rather small samples can ensure sufficiently representative data on the country as a whole while data on separate territories are much less reliable.

For example, in the household budget survey that covers 4 thousand households such important indicators as household disposable income and consumption expenditure per household member per month, the standard error of the sample on average in the country represents approximately 1.6% of the mean value but in the rural territory – approximately 4.0%. This is due to the fact that only part of the sample represents the countryside; in this particular case – less than a half.

b) Rather small samples can ensure sufficiently representative data for the most important program indicators of the synthetic surveys that are registered in practically all sampling units; the

rarely encountered zero observations and bulk observations provide a breakdown which is close to normal. If any other indicators do not comply with these requirements, the results are much worse. *For example, in the HBS expenditures on culture and recreation with a probability of 0.68 already give a relative sampling error of 5%. In Latvia many households cannot afford these expenditures thus zero observations are typical. In the same survey a maximum sampling error can be seen in the expenditures for education – 11% of the average expenditure. In many households without children and juveniles these expenditures are not necessary. The average size of the respective expenditures is formed by only a small part of the sample.*

- c) The representativeness of the sample for the construction of combined tables and multidimensional breakdowns is not yet sufficiently investigated. In this case it is recommended to apply econometric models for smoothing down random fluctuations.

41. The conclusion that the samples consisting of 1-1.5 thousand units can provide sufficiently representative data on a small country as a whole and its general and synthetic indicators if an optimum sample design has been used may be considered as common. However, every country, its politicians, public officials and researchers need data not only about the country as a whole and its synthetic indicators, territories, social and demographic groups, etc., but also about the analytical indicators. A small country does not necessarily imply the homogeneity of phenomena in its economic and social area. On the contrary, the spectrum of the investigated phenomena in these countries is much broader and its impact on the social processes much stronger than in the big countries. Secondly, the phenomenon of transition requires much deeper penetration into the problems the range of which is continuously diversifying. It is unpardonable under the conditions of transition to ignore small things that can quickly turn into all-embracing phenomena. Thus, except the narrow specified surveys, the sample size in small countries (as in Latvia) should be at least 5-10 thousand units.

Use of Administrative Records in Small Countries

42. The relatively high costs of sample surveys in a small country call for a different kind of solution in the collection of statistical data. The administrative registers and the use of data from other information systems might be one of the most effective solutions just in the small countries. The use of administrative records decreases not only the expenditures of the CSB necessary for data gathering but also reduces the burden on respondents.

43. The Law on State Statistics of the Republic of Latvia states that statistical information can be derived from state registers and other information systems. At the same time the norm which allows the use of administrative individual data on enterprises for statistical purposes is not included in some other legislative acts, for example, in the Law on Taxes and Duties.

44. For the time being there is no broad experience of Latvian statistics in drawing data from the administrative sources. One of the reasons is the unsatisfactory quality of data in state registers and other administrative records. The main administrative sources the data of which are used by the Latvian statisticians are the following:

- State Enterprise Register;
- Taxpayer's Register;
- Residents Register;
- Register of the State Land Service;
- Vehicle Register;
- Data base of the State Border Guard.

45. The State Enterprise Register of the Republic of Latvia (under the subordination of the Ministry of Justice) is the source of primary data for the building and updating of the statistical business register. Every month the statistical office receives information on the newly registered and legally liquidated enterprises as well as information on the change of enterprise name and legal address. Information on the reorganisation of enterprises is also provided. This is very important with regards to the application of sampling methods as it gives an opportunity to replace the liquidated enterprises by their legal successors.

46. Full information from the State Enterprise Register database is available on-line to the statisticians; this register holds also information about the size and structure of the statutory capital, the founders and their home address. As a drawback in the use of the administrative register for the maintenance in the necessary condition of the statistical business register data base is the fact that at the moment of registration the enterprise is allowed to register all kinds of activity it intends to pursue in the future.

47. An important source of information to capture all economically active enterprises is the Taxpayer's Register under the State Revenue Service. The connection between the administrative register and the statistical business register is ensured by a unified enterprise identification code. The statistical office receives information on registered taxpayers every month. This information shows the date when the enterprise last paid a tax and the declared number of employees. A weak point in the use of the above register lies in the fact that currently it is not possible to obtain individual data on the calculated VAT and the actual number of employees; these data would allow classify the enterprise to a defined size category. Currently work on amendments in legislation is under way so that this important information should be made available for statistical reasons.

48. In 1993 the Residents Register was established in Latvia that has developed since then and has reached a satisfactory level of precision now. It gives us a possibility to produce some kind of statistical tables showing population by citizenship, small territories, etc. that we were not able to produce earlier. In 2001 we started to produce a more essential part of the demographic statistics on the basis of Residents Register data.

49. The Residents Register data were used also in the 2000 Population and Housing Census. Of the 33 topics of the Census Programme, nine were covered by the data taken from the above-mentioned register. Another topic of the Census Programme – the branch of economic activity of a person – was covered by the data from the Taxpayer's register. Our experience (and also the experience of other countries) shows that the data obtained from administrative registers in most cases (date of birth, age, place of birth, etc. for example, for elderly persons) are more precise compared with the data obtained during the census field operation.

50. We have taken into account that the methodological approaches of the administrative registers and statistical registers and publications are slightly different. The administrative registers usually give a picture at the exact point of time but statistical data including demographic data in accordance with the international recommendations must be produced by time of occurrence and not by time of registration. It means that we have to make small updates and corrections of administrative register data before they become official statistical data and could be published as such.

Managing Infrastructure Costs in a Small Country

51. The total budget of the Central Statistical Bureau is divided among the 28 regional offices and the central office in Riga. The number of confirmed staff positions in the regional statistical offices

and in the central office is the basis for the calculation of financial resources for each office. In accordance with the contracts on the rent of premises and communal services, expenditures for office maintenance, communications services and business trips are also included. Naturally the resources are divided among the statistical offices with the requests of each office taken into account but the decisive factor is the appropriations from the state budget. Each statistical office in addition to the appropriation from the state budget can receive payment for the sale of statistical information and publications.

52. The structure of costs of CSB of Latvia is characterised by a high share of staff costs (labour remuneration and social security payments) in the total expenses. In 2000 this item represented 74% of all maintenance (current) costs.

53. As we mentioned before the characteristic feature of the central statistical offices in the small countries is the high share of infrastructure costs in the total expenses. If we divide the total current expenses of the CSB in two parts - infrastructure costs and statistical production costs - and analyse the staff costs in the CSB of Latvia in 2000, the proportion of infrastructure costs to the statistical production costs represents 37%. The structure of infrastructure staff costs was the following: the costs of preparing methodology makes up 14% of all infrastructure staff costs, costs for the servicing of statistical production – 66%, costs of information dissemination – 20%. In its turn the staff costs in the regional statistical offices were 44% of all CSB staff costs in statistical production.

54. Annual expenses (without costs for the Population Census) of the CSB of Latvia in 2000 were 0.052% of gross domestic product. Annual costs of the CSB of Latvia in the same year per one resident of the country totalled 0.96 lats or 1.71 EUR.

55. A special role in the development of a statistical system belongs to the creation of modern information technology (IT) infrastructure. What is the experience of the Central Statistical Bureau in the planning, management and implementation of IT related projects in Latvia? Starting from 1993 a large number of various projects have been successfully implemented and maintained. Serious development projects require a very high quality and a significant number of IT specialists. At the same time it is well known that the higher qualified IT specialists, especially system software developers, are very expensive. Specialised IT companies can employ such kind of specialists due to their permanent current workload. This is not possible for the national statistical offices especially those from small countries like Latvia.

56. Different types of projects have quite different levels of preparation to be completed before implementation, especially where "outsourcing" is employed. Outsourcing is a very popular and efficient way for IT related and other statistical projects to be developed and implemented. If outsourcing is employed to complete development activities the CSB can employ normal personnel to complete the implementation and system maintenance.

57. There can be different situations where statistical offices could split the various tasks between the in-house specialists and the outsourcers as follows:

- Total insourcing - all IT (or other) services in-house - scope of project limited by in-house skills.
- Selective sourcing – part of IT services outsource, part of services in-house.
- Total outsourcing - all IT services outsource, no in-house IT specialists involved.

58. Popular in the CSB of Latvia is the case of selective sourcing – the case where system development will be outsourced, but all the pre-project planning and preparations as well as system maintenance and part of the implementation will be completed by the CSB specialists.

59. In cases of total outsourcing and selective sourcing we face a situation, when fully or partly

- We are managing contracts, not people.
- We are managing demands, not supply.
- We are managing revenues and costs, related with project.
- We are balancing costs / risks of vendor monitoring (Lacity, 95).

60. The life cycle of statistical information and its value chain (sequence of functions of statistical production and infrastructure services in which value is added to statistical information) with revenue inflows and costs outflows in the CSB of Latvia are shown in the Diagram.

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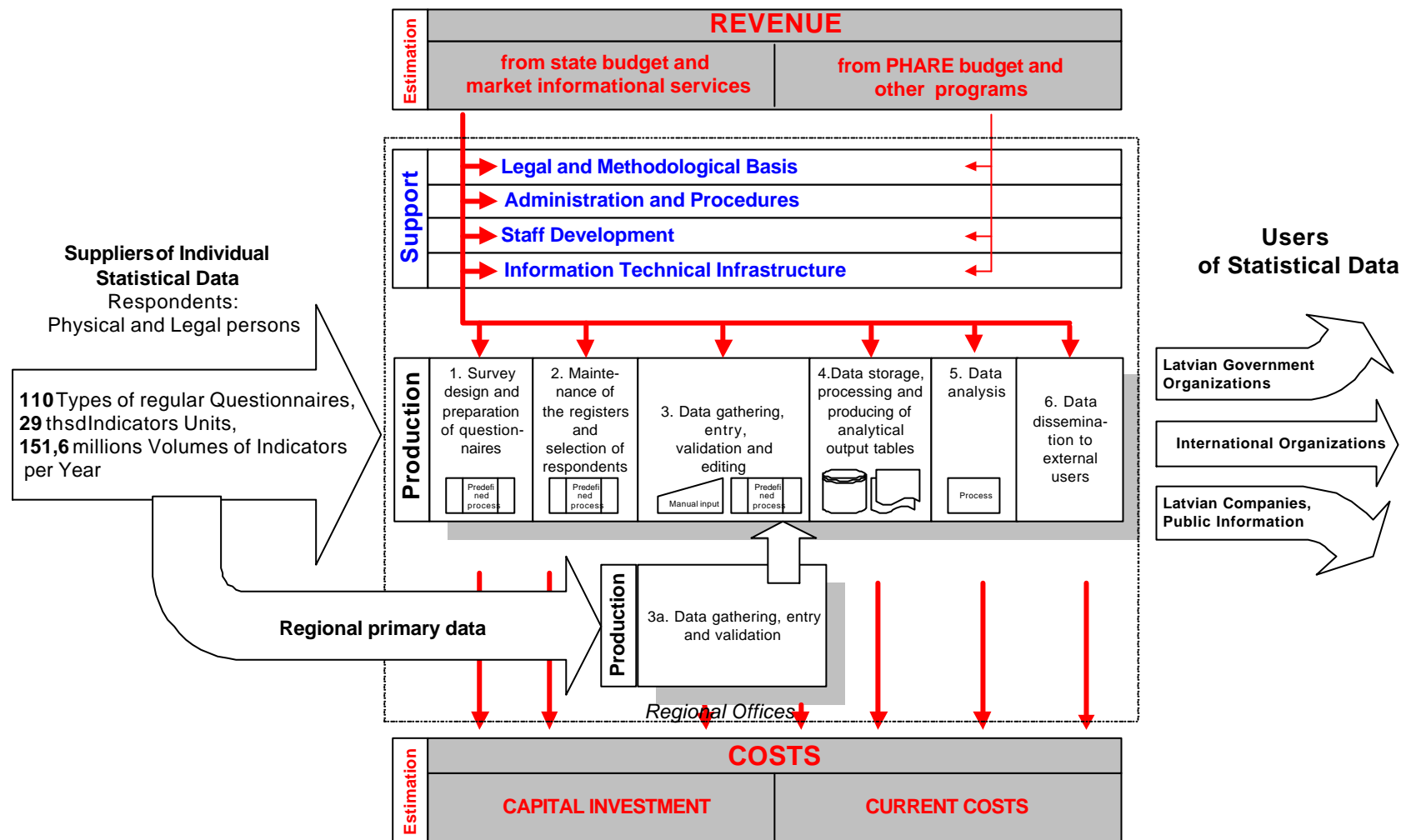


Diagram. Value chain for CSB of Latvia