The Methodology for Response Burden Measurement

II. Types of Response Burden Measurement, Questionnaire to Calculate Response Burden

Response burden has two dimensions.

Quantitative dimension – time and money expense – an objective burden in terms of time spent by respondent to fill out state statistical observation forms and calculation on its basis of respondents' expenses. Quantitative dimension can be implemented on two ways:

- measuring response burden based on state statistical observation forms;
- baseline measurement of response burden.

Qualitative dimension – perceived – a subjective burden that is formed depending on the respondent's opinion, namely on how useful for the community is the information he/she provides, on whether the state statistical observation form contains sensitive/inconvenient/undesirable questions or other factors negatively affecting the respondent's perception of the state statistical observation form. Respondents' satisfaction index is calculated for this dimension. .

Response burden should be measured by means of calculating, generalising and analysing respondents' answers to items of the Response Burden Measurement Questionnaire (hereinafter – "the Questionnaire") – a model questionnaire is attached herewith.

Questionnaire survey should be conducted in the following way:

direct measurement of response burden – the Questionnaire is suggested to all respondents who file the state statistical observation form;

response burden measurement assessment – the Questionnaire is suggested either to respondents of a contact group/producers' association, etc. or the staff of state statistics offices. This assessment is rather subjective, however, it makes possible avoiding additional response burden.

The Questionnaire designers should pay special attention to a cover letter/addressing to the respondent. Formulation of the cover letter/addressing should be able to arouse respondents' interest and persuade them to perceive the filling out process as a useful means to defend their own concerns rather than as an additional burden.

Example:

We are well aware that filling out the state statistical observation form does to a certain extent imply some burden. Therefore the state statistical offices are constantly working hard to reduce the response burden. To discover the efficiency of these efforts, we would like to ask you how much time you have spent to fill out this state statistical observation form. .

To measure response burden, the respondent is asked to specify a state statistical observation form (index and frequency) and mark a size type of an enterprise (large, medium, small).

For quantitative (objective) response burden measurement, respondents are asked to specify time they have spent to fill out the state statistical observation form.

Example:

Please specify the total time spent by your organisation to fill out this questionnaire. Consider all the actions you have had to resort to for filling out the state statistical observation, such as:

- reading and understanding the cover letter/explanatory note/guidelines, etc.;

- collecting and processing of business accounting data;

- collecting additional information.

For qualitative (perceived/subjective) response burden, the Questionnaire should also bear questions that would reveal respondents' attitude to spending time for filling out the state statistical observation form, establish factors affecting their negative attitude or arousing resentment.

Example

Was the content of variables difficult to understand?

Was it difficult to prepare information needed to fill out the form?

Please specify what kind of difficulties you have experienced while filling out the form and/or provide proposals on how to improve it.

Questions should be answered based on the four criteria of complexity (very difficult, difficult, somewhat difficult, not difficult).

III. Methods of Response Burden Measurement

1. Measurement of response burden imposed by state statistical observation forms is one of the quantitative (objective) means of response burden measurement.

Response burden on all state statistical observation forms is measured once every 5 – 7 years. If needed (developing a new state statistical observation form/making essential changes), response burden on the new/changed form may be measured individually.

Calculation is made on every state statistical observation form individually taking into account an enterprise size type (large, medium, small).

Actual time spent on filling out the state statistical observation form respondents have specified in the questionnaires, will be analysed in terms of their homogeneity and, if necessary, variables that are not subject to calculation (e.g. comments and formulations like 'all life', 'much time', 'long', etc.) or are essentially different in their significance from the total data array for actual time spending should be removed from the data arrays. This procedure is followed by calculation of standard time ($x_{st.}$) spent on filling out a specific state statistical observation form, individually for each company time (in minutes). Time (in minutes) on filling out a specific state statistical observation form, which is totally specified by respondents in the Questionnaire, should be divided by a number of questionnaires.

$$\frac{X_1+X_2+X_3+\ldots Xn}{n} = X_{CT.}$$

X_n is time in minutes on filling out a state statistical observation form as specified by the respondent in a specific questionnaire.

n is a number of questionnaires.

Total time spent (in hours) for filling out a state statistical observation form should be calculated by multiplying the standard time (in minutes) by a number of state statistical observation forms to be filed by one respondent during a year with regard to frequency, and by a number of enterprises due to report on this form during a year (from the matrix of respondents' participation in state statistical observations) and divided by 60. Total time spendings are calculated individually on every enterprise type (large-sized, medium-sized, small-sized).

Example:

90 min./65 min./40 min. is a standard time indicator (in minutes) by company types (large-sized, medium-sized, small-sized respectively);

4 is a number of reports on the state statistical observation form to be filed by one respondent during a year with regard to frequency (12 times a year for monthly reports, 4 times a year for quarterly reports and 1 time a year for annual reports) – this example is based on a quarterly frequency.

2000/1800/1000 is a number of enterprises due to file a state statistical observation form during a year (from the participation matrix) respectively on each company type (large-sized, medium-sized, small-sized).

Total time spent to fill out the state statistical observation form by enterprise types:

for large-sized enterprises 90 min. x *4* x *2000 : 60 =12000 hours.*

for medium-sized enterprises 65 min. x *4* x *1800 : 60 = 7800 hours.*

for small-sized enterprises 40min. x *4* x *1000 : 60 = 2667 hours.*

Total time spent to fill out a specific state statistical observation form will be 12000 hours +7800 hours + 2667 hours =22467 hours.

Total time spent in the country during a year to fill out all state statistical observation forms has to be measured as the total of the subtotal time spendings of specific forms.

Total amount of money spent by respondents for a specific state statistical observation form can be calculated by multiplying the total time spendings for this specific state statistical observation form by an average monthly wage or salary of one full-time staff member on the country for one hour on the previous year. Respondent's hourly wage or salary can be calculated by dividing the previous year's average monthly wage or salary by an average number of working days during a month and by a number of working hours per day.

Example:

22467 hours is total time spendings on filling out a specific state statistical observation form

UAH 2633 is an average monthly wage or salary for 2011 in Ukraine per one full-time staff member

22 is an average number of working days during a month

8 is a number of working hours per day

Respondent labour payment per hour = UAH 2633. : 22 : 8 = UAH 15.

Total spendings of respondents' money on filling out a specific state statistical observation form 22467 hours x *UAH 15 = UAH 337005.*

Total annual country money spent by respondents on filling out all state statistical observation forms can be calculated as a total of subtotal money spent on specific forms.

Respondents' money spent on filling out one variable of a specific state statistical observation form can be calculated by dividing total respondents' money spent on filling out this form by a number of form variables.

Example:

UAH 336106 is the total respondents' money spent on filling out a specific state statistical observation form

32 is a number of form variables

Money spent by all respondents on filling out one variable of a specific state statistical observation form totals UAH 337005 : 32 = UAH 10531,4.

2. Baseline measurement of response burden as a method of a quantitative (objective) measurement of response burden is used to monitor changes resulted from activities aimed at reducing the annual response burden. The purpose of baseline measurement of response burden is the calculation of a baseline standardised value for time spent by respondents to fill out one variable based on frequency of filing forms to state statistical offices and an enterprise size type. Baseline standardised respondents' time spendings value will be a reference value to calculate baseline measurement of response burden during several years.

Baseline standardised respondents' time spent for filling out one variable is re-calculated once every 5-7 years or with another frequency in case of an essential change in the country's average monthly wages and salaries. To avoid additional response burden, the baseline measurement should be made simultaneously with response burden measurement on all state statistical observation forms.

Baseline measurement of response burden requires selection of 2 forms of different frequency (2 annual forms, 2 quarterly forms and 2 monthly forms) out of the total number of state statistical observation forms. Basic selection criteria are a significant number of respondents taking part in the state statistical observation (based on the participation matrix) and a close-to-average number of variables in selected annual, quarterly and monthly forms.

Baseline standardised respondents' time spending on filling out one variable is calculated individually for annual, quarterly and monthly state statistical observation forms by enterprise types (large-sized, medium-sized and small-sized).

On every selected form, of the total number of questionnaires received from respondents when measuring response burden on all state statistical observation forms, it is necessary to select five questionnaires filed by large-sized, five – by medium-sized and five – by small-sized enterprises. All in all, 30 questionnaires' data are used for calculating Baseline standardised respondents' time spending on filling out one variable for all_state statistical observation forms of a certain frequency (annual/quarterly/monthly).

The average time needed for filling out one of the selected state statistical observation forms can be measured on each enterprise type (large-sized/small-sized/medium-sized) individually (Xc). Time (in minutes) on filling out one state statistical observation form specified by respondents in five questionnaires should be divided by 5 in total.

$$\frac{X_1+X_2+X_3+X_4+X_5}{5} = Xc$$

X_n is time in minutes for filling out a state statistical observation form specified by the respondent in one questionnaire.

Average time spent by respondents to fill out the forms (on two selected forms with the same frequency) Xcp can be calculated by means of dividing the total values of two average time variables on these forms by an enterprise type (largsized/medium-sized/small-sized) by two.

$$\frac{Xc_1+Xc_2}{2} = Xcp$$

X_{cn} is average time in minutes for filling out a specific n form.

Likewise the calculation may be done for 9 average time values spent by respondents for filling out an annual/quarterly/monthly form by large-sized/medium-sized/small-sized enterprises.

To calculate baseline standardised time spent to fill out one variable in an annual/quarterly/monthly form by large-sized/medium-sized/small-sized enterprises, nine variables of the average time spent by respondents to fill out specific fre-

quency forms by all types of enterprises should be divided by an average number of variables in the two forms with the same frequency ($X_{cp} : N_c = X_b$).

Example of calculating baseline standardised time spent on filling out one variable for annual state statistical observation forms by enterprise types:

	Number of form variables	Average time (based on questionnaires of five specific type enterprises) in minutes spent to fill out the state statistical observation form		
		large-sized	medium-sized	small-sixed
1 form (annual)	N_1	$\frac{X_1+X_2+X_3+X_4+X_5}{5} = Xc1$	$\frac{X_{11}+X_{12}+X_{13}+X_{14}+X_{15}}{5} = Xc3$	$\frac{X_{21}+X_{22}+X_{23}+X_{24}+X_{25}}{5} = Xc5$
2 form (annual)	N_2	$\frac{X_6+X_7+X_8+X_9+X_{10}}{5} = Xc2$	$\frac{X_{16}+X_{17}+X_{18}+X_{19}+X_{20}}{5} = Xc4$	$\frac{X_{26}+X_{27}+X_{28}+X_{29}+X_{30}}{5} = Xc6$
Average value for the annual forms	$Nc = (N_1+N_2):2$	$\frac{Xc_1+Xc_2}{2} = Xcp1$	$\frac{Xc_3+Xc_4}{2} = Xcp2$	$\frac{Xc_5+Xc_6}{2} = Xcp3$
Baseline standardised respondents' time spent on filling out one variable of annual state statistical observation forms in minutes		**$X_{cp1} : N_c = X_{b1}$**	**$X_{cp2} : N_c = X_{b2}$**	**$X_{cp3} : N_c = X_{b3}$**

Similarly to the calculation of the baseline time spent on filling out one variable of the annual form by large-sized/medium-sized/small-sized enterprises (in minutes), calculation can be made for the quarterly and monthly state statistical observation forms. This calculation results in nine variables of the baseline standardised valued for time spent by respondents on filling out one variable (in minutes).

Calculating total money spent by respondents on filling out a specific state statistical observation form on the whole in the country.

Time on filling out a specific state statistical observation form by large-sized, medium-sized and small-sized enterprises (in minutes) can be calculated by multiplying the baseline standardised time spent on filling out one variable on the three enterprise types by a number of variables in this specific form.

Total time spent by respondents on filling out a specific state statistical observation form on the whole in the country can be calculated as the total of the three baseline time variables for filling out this form by large-sized, medium-sized and small-sized enterprises multiplied by a number of reports on the state statistical observation form due to be filed by one respondent during a year with regard to report frequency (12 for annual, 4 for quarterly and 1 for annual).

Example:
Baseline time variables for filling out a specific form by enterprise types:
- 90 min. for large-sized enterprises,
- 65 min. for medium-sized enterprises
- 40 min. for small-sized enterprises
a number of enterprises (data of the participation matrix):
- 2000 large-sized
- 1800 medium-sized
- 1000 small-sized

A number of reports on the state statistical observation form due to be filed by one respondent during a year with regard to the frequency (in our example the quarterly report form is 4 times a year).

Total time spent on filling out a specific quarterly state statistical observation form has been calculated based on the baseline standardized respondents' time spendings value.

- 90 min. x *2000* x *4 = 720000 min. for large-sized enterprises*

- 65 min. x *1800* x *4 = 468000 min. for medium-sized enterprises*

- 40 min. x *1000* x *4 = 160000 min. for small-sized enterprises*

720000 min. + 468000 min.+160000 min. = 1348000 min.

Total money spent by respondents on a specific state statistical observation form can be calculated by dividing total time spent on a specific state statistical observation form (in minutes) by 60 and multiplying by an average monthly wage or salary of one full-time staff member in the country for the previous year for one hour.

Example:

1348000 min. is total time spent on a specific state statistical observation form

Respondent's hourly labour payment = UAH2633 : 22 : 8 = UAH15.

Total money spent by respondents on filling out a specific state statistical observation form = 1348000 min.: 60 x *UAH15 = UAH337000.*

3. Respondents' satisfaction index is a qualitative measurement of the respondent's perception. It is calculated on each state statistical observation form individually based on questionnaires filed by respondents. The questionnaire contains questions on complexity of understanding variables of the state statistical observation form, problems accompanying search of necessary information, availability of sensitive/inconvenient/undesirable questions, etc. Respondents' satisfaction index can be determined by breakdown of the answers into four complexity criteria. Each individual criterion is assigned a coefficient: 1 for not difficult, 0.5 for somewhat difficult, 0.5 for difficult and 0 for very difficult.

Respondents' satisfaction index on a specific question or on the whole on the state statistical observation form can be calculated as the total calculated indices on all the complexity categories. A specific complexity category index can be determined by multiplying the percentage of filed answers on a specific complexity category by a relevant complexity coefficient (0 /0,5 /1).

Example:

Results of questionnaire survey of respondents

Questionnaire items	Breakdown of respondents' answers by categories				Total
	very difficult	difficult	somewhat difficult	not difficult	
1. Was it difficult to understand the content of variables?	15 questionnaires 3%	26 questionnaires 5%	83 questionnaires 16%	392 questionnaires 76%	516 questionnaires 100%
2. Was it difficult to prepare information for filling out the form?	20 questionnaires 4%	77 questionnaires 15%	169 questionnaires 33%	2 45 questionnaires 48%	511 questionnaires 100%
Total	35 questionnaires 3%	103 questionnaires 10%	252 questionnaires 25%	637 questionnaires 62%	1027 questionnaires 100%

Calculation of the respondents' satisfaction index

Questionnaire items	Breakdown of satisfaction indices by categories				Satisfaction index
	very difficult	difficult	somewhat difficult	not difficult	
1. Was it difficult to understand the content of variables?	3% x 0 = 0	5% x 0,5= 2,5	16% x 0,5= 8	76% x 1= 76	0+ 2,5+8+76= 86,5 = 87
2. Was it difficult to prepare information for filling out the form?	4% x 0 = 0	15% x 0,5= 7,5	33% x 0,5= 16,5	48% x 1= 48	0+7,5+16,5+48= 72
Total (on the whole on the two items)	3% x 0 = 0	10% x 0,5= 5	25% x 0,5= 12,5	62% x 1= 62	0+5+12,5+62= 79,5 = 80

Respondents' satisfaction index should be calculated within the range from 0 to 100. The closer the calculated index to 100, the higher respondents' satisfaction assessment.

Respondents' satisfaction index assessment criteria:

(70 – 100) – acceptable level;

(50 – 70) – points to some problematic issues in need for improvement taking account respondents' proposals;

(less than 50) – points to the need for urgent actions aiming at improving respondents' perception of a specific state statistical observation form.