Methodology name. Methodological recommendations as to improvement of assortment structure of the enterprise of restaurant business

Essence of methodology. Methodology provides logical sequence of the process of evaluation (determination of period of evaluation, forming and classification of information base, calculation of relative indexes, matrix formation and interpretation of results) and using of matrix "Demand level/Income level", having been formed with relative indexes of demand and income values.

Application results. Application of methodological recommendations allows making reasonable management decisions as to improvement of assortment structure of the enterprise leading to constructing of assortment policies according to the current consumer demands, increasing of the volumes of realization of products and income of the enterprises of the restaurant business.

Field of application: Enterprises of the restaurant business

Range of application: Assortment enterprise policy

Description of methodology.

For the enterprises of the restaurant business the most important question concerns securing of maximum possible volume and level of income from realization of products (services), that allows developing it and successfully act at competitive market. One can achieve this purpose by way of forming of the maximum optimal assortment structure of products (services) on the level of income due to responsibility of demand intensity at different time periods. To decide such task one should propose methodology, essence of which is given in Figure 1.

The first and second stage is "Information" unit, within of which necessary information is formed and integrated by groups of the indexes (price, quantitative qualitative) according to the evaluation period selected.

Evaluation of demand inequality by criteria "Intensity" provides calculation of intensity factors.

Daily intensity factor (КІд) is proposed to determine by formulas 1-3:

$$KI_{\text{Д}} = \frac{K3_j}{K3_{\text{Д}}} \ , \tag{1}$$

$$K3_j = \frac{TO_j}{KM} \ , \tag{2}$$

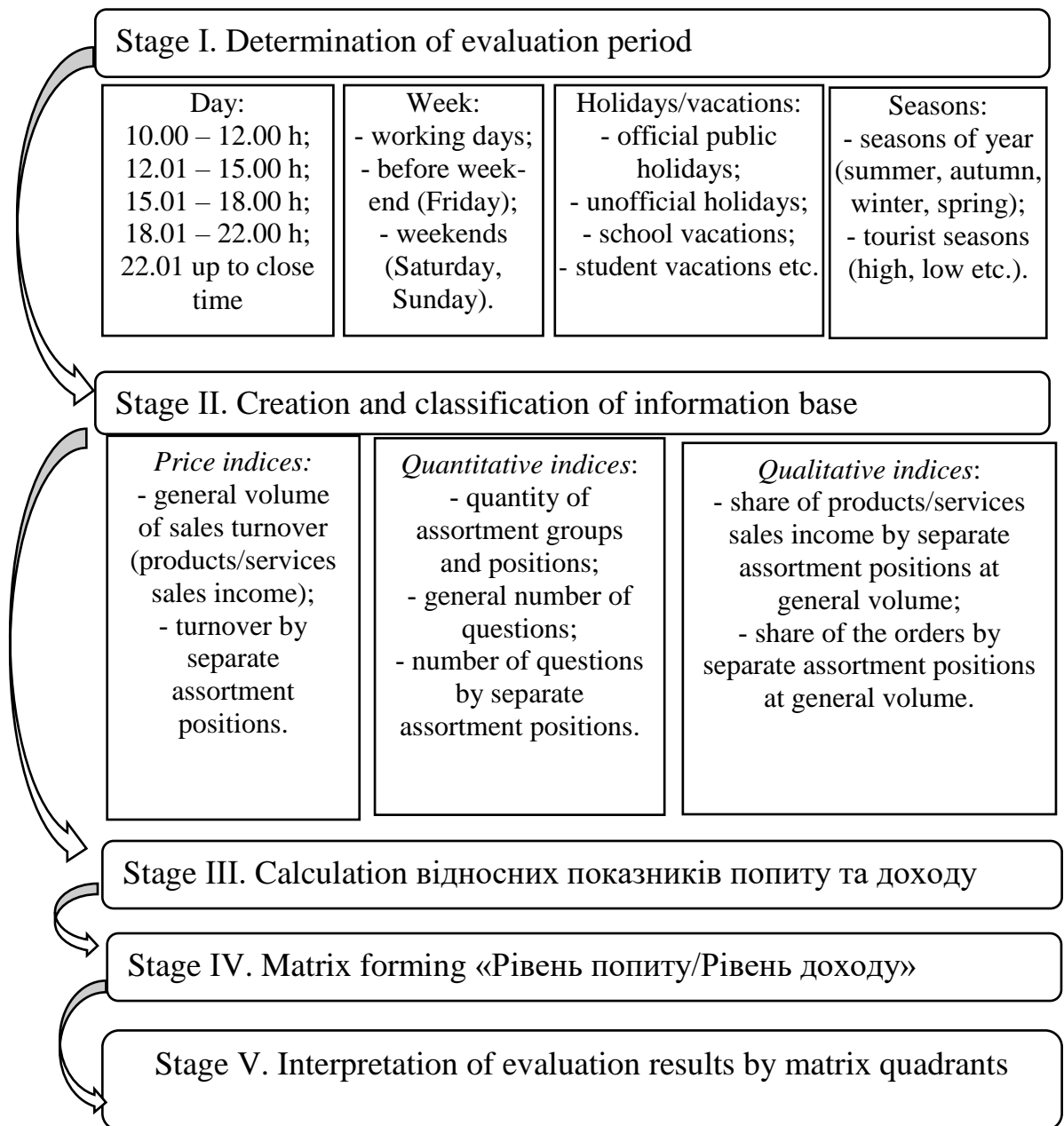| Stage I. Determination of evaluation period			
Day: 10.00 – 12.00 h; 12.01 – 15.00 h; 15.01 – 18.00 h; 18.01 – 22.00 h; 22.01 up to close time	Week: - working days; - before week-end (Friday); - weekends (Saturday, Sunday).	Holidays/vacations: - official public holidays; - unofficial holidays; - school vacations; - student vacations etc.	Seasons: - seasons of year (summer, autumn, winter, spring); - tourist seasons (high, low etc.).

Stage II. Creation and classification of information base		
Price indices: - general volume of sales turnover (products/services sales income); - turnover by separate assortment positions.	*Quantitative indices*: - quantity of assortment groups and positions; - general number of questions; - number of questions by separate assortment positions.	*Qualitative indices*: - share of products/services sales income by separate assortment positions at general volume; - share of the orders by separate assortment positions at general volume.

Stage III. Calculation відносних показників попиту та доходу

Stage IV. Matrix forming «Рівень попиту/Рівень доходу»

Stage V. Interpretation of evaluation results by matrix quadrants

Fig. 1. Structural and logical circuit of evaluation of demand structure for production of the enterprises of the restaurant business

$$\overline{K3_{\text{Д}}} = \frac{TO_{\text{Д}}}{KM} \ , \tag{3}$$

where КЗj – loading factor of the enterprise of the restaurant business for j time period during the day;

$\overline{K3_{\text{Д}}}$ – average loading factor of the enterprise of the restaurant business for j time period during the day;

ТОj – turnover of the enterprise of the restaurant business for j time period during the day;

КМ – quantity of the places of the enterprise of the restaurant business;

ТОд – turnover of the enterprise of the restaurant business during the day;

Note, that as a rule they determine such periods within the day:

- from 10 to 12 – breakfast and lunch time,
- from 12 to 15 – dinner time,
- from 15 to 18 – time after dinner,
- from 18 to 22 – time for supper and evening rest.

However if required and due to specific character of the specified institution (type, approach, place of location etc.) one can correct the specified periods.

Methodology of calculation of week intensity factor (KIт) is determined in the formulas 4-6, and season intensity factor (KIc) - in the formulas 7-9.

$$KI_T = \frac{K3\kappa}{\overline{K3_T}} \,, \tag{4}$$

$$K3_K = \frac{TO_K}{KM} \,, \tag{5}$$

$$\overline{K3_T} = \frac{TO_T}{KM} \,, \tag{6}$$

where $K3k$ – loading factor of the enterprise of the restaurant business for k time period within the range of week (as a rule they determine two main time periods – "week-ends" and working days. However we should note, that at the day before the week-ends – Friday, demand has some special peculiarities. So, that is purposeful to determine this period also);

$\overline{K3_T}$ – average loading factor of the enterprise of the restaurant business for the week;

TOk – turnover of the enterprise of the restaurant business for k time period within the week;

KM – quantity of the places of the enterprise of the restaurant business;

$TO_т$ – turnover of the enterprise of the restaurant business for the week.

$$KIc = \frac{K3p}{\overline{K3c}} \,, \tag{7}$$

$$K3p = \frac{TOp}{KM} \,, \tag{7}$$

$$\overline{K3c} = \frac{TO}{KM} \,, \tag{9}$$

where $K3p$ – loading factor of the enterprise of the restaurant business for p season (as to distribution by seasons two methods exist: the first, connected with separation of the seasons according to the time of year – winter, spring, summer,

autumn; second, connected with separation of "high", "low" season in the tourist industry);

$\overline{K3c}$ – average loading factor of the enterprise of the restaurant business for the year;

TOp – turnover of the enterprise of the restaurant business for *p* season;

KM – quantity of the places of the enterprise of the restaurant business;

TO – turnover of the enterprise of the restaurant business for the year.

At the third stage of the presented methodology there carried out calculation of relative indices of demand and income.

Relative demand index (*ПП6*) is calculated by such formula:

$$ПП6 = \frac{Ч3i}{\overline{ПП}},\qquad(10)$$

where, *Ч3i* – share of the orders for *i* assortment position for the specified time period, %

$\overline{ПП}$ – average demand index for 1 assortment position, %

$$Ч3i = \frac{K3i}{K3} \times 100,\qquad(11)$$

where *K3i* – quantity of the orders *i* of assortment position for the specified time period;

K3 – general quantity of assortment positions for the specified time period.

$$\overline{ПП} = \frac{100}{K3},\qquad(12)$$

Relative income index (*ПД6*) is calculated by formula:

$$ПД6 = \frac{ЧTOi}{\overline{ПП}},\qquad(13)$$

where *ЧTOi* – turnover share of *i* assortment position for the specified time period, %

$$ЧTOi = \frac{TOi}{TO} \times 100,\qquad(14)$$

where, *TOi* – turnover of *i* assortment position for the specified time period;

TO – general turnover of the enterprise of the restaurant business for the specified time period.

Possible values of relative indices of demand and income with interpretation of their borders are given in Table 1.

Table 1

Possible values of relative indices of demand and income

Index	Possible value	Indicated borders	Interpretation
Relative demand index ($\Pi\Pi e$)	$0 < \Pi\Pi e$	$0 < \Pi\Pi e < 1$	Advantage of consumers when selecting of the other assortment positions. Demand for this assortment position of less than average demand according to represented PRG assortment of products.
		$\Pi\Pi e = 1$	Demand for this assortment position at the level of the average according to represented PRG assortment of products.
		$1 < \Pi\Pi e$	Advantage of consumers at selection of this assortment position. Demand for this assortment position according to represented PRG assortment of products.
Relative income index ($\Pi\!\!\not\!\!\!\Pi e$)	$0 < \Pi\!\!\not\!\!\!\Pi e$	$0 < \Pi\!\!\not\!\!\!\Pi e < 1$	Received income from products sale of his assortment position is less compared with averaged value.
		$\Pi\!\!\not\!\!\!\Pi e = 1$	Received income from products sale of his assortment position meets average value.
		$1 < \Pi\!\!\not\!\!\!\Pi e$	Received income from products sale of his assortment position is more than the average value.

At the fourth stage based on the received values of relative indices of demand and income matrix "Demand level/Income level" is built (Fig. 2).

At the fifth stage they perform interpretation of results of demand evaluation according to matrix quadrants according to the characteristics given below.

The 1-st quadrant includes such assortment positions, demand and income from realization of which or lower (they are located in the middle of quadrant), or equal (placed at the upper and/or right side walls of quadrant) to average indices according to general assortment of this enterprise of the restaurant business or according to average indices on general assortment of this enterprise of the restaurant business – they are placed in the middle of quadrant. The more quantity of assortment positions is placed in this quadrant, the worse state of the enterprise of the restaurant business will be as to satisfying of the existing demand and receiving of income.

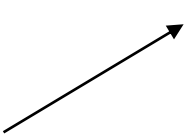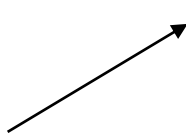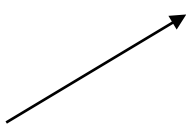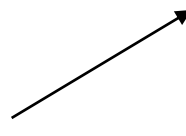| ПДв \ ППв	$0 < ППв \le 1$	$1 < ППв$
$1 < ПДв$	2 $0 < ППв \le 1$ $1 < ПДв$	3 $1 < ППв$ $1 < ПДв$
$0 < ПДв \le 1$	1 $0 < ППв \le 1$ $0 < ПДв \le 1$	4 $1 < ППв$ $0 < ПДв \le 1$

Fig. 2. Matrix "Demand level/Income level"

In the 2-nd quadrate there placed assortment positions of the high demand which bring income of less than average value. The more number of assortment positions in this quadrant, the more level of satisfaction of the consumers' requirements, that is positive and provides stable position for the enterprise of the restaurant business at the market within the competitive group. However the lower income level specific for this quadrant rises risk of reducing of efficiency of the enterprise of the restaurant business in case of increasing of number of assortment positions in this part of matrix.
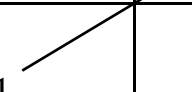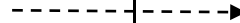
Quadrate 3-rd places such assortment positions, demand and income from sales of which is higher than the average values as per the general assortment of this enterprise of the restaurant business. The more the number of assortment positions in this quadrant, the better state of the enterprise of the restaurant business there is as to satisfying of the existing demand and receiving of income.

Quadrate 4-th high-income assortment positions of the low demand. Considerable quantity of assortment positions in this quadrant witnesses of not weighed price police and marketing policy of the enterprise of the restaurant business. To increase efficiency of the enterprise activity one should develop the measures stimulating demand for these assortment positions and provide their transition to the 3-rd quadrant of matrix.

Matrix "Demand level/Income level" can be used also in the quality of the tool of evaluation of efficiency of the management decisions made. In this case one should perform procedure evaluations before and after making specific measures, determine dynamics and vectors of movement of assortment positions and compare it with the given one in Figures 3 (a, b).

ППв / ПДв ІЧР	0 < ППв ≤ 1	1 < ППв
1 < ПДв	2	3
0 < ПДв ≤ 1	1	4

a) within the range of separate matrix quadrants;

ППв / ПДв ІЧР	0 < ППв ≤ 1	1 < ППв
1 < ПДв	2	3
0 < ПДв ≤ 1	1	4

б) between separate matrix quadrants.

Fig. 3. Dynamics of assortment positions in the matrix "Demand level/Income level" is characterized for effective management decisions