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Optimization of regional development policy for tourists servicing system

by

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The paper is concerned with the following methodological problems:

— how the, demand for tourism and recreation in a subregion, originating in a different subregion, depends on demographic and socio-economic structure of population, and how it depends on the attractivenes of recreation spot, including prices and travel cost?

— how the demand for tourism is related to the supply of accomodation and service facilities?

— what should be the optimum pricing and taxing policies, maximizing the profits of tourists agencies and the revenue of regional budget?

1. Introduction

Tourism is not only an interesting subject of study for social and geographic scientists. It had been recognised a long time ago as an important sector of regional economies. As a result there exists among the regional planners and decision makers, a growing interest in the evaluation of economic benefits accruing to tourism, as well as — the evaluation of effects of concrete policies in pricing, taxing and regional investments (compare Vickerman (1975), Bökemann (1982)).

The present paper is concerned mainly with the methodological aspects of tourism policies. In particular, attempt has been made to analyse the following problems:

— how the demand, originated at subregion R_i, for recreation at subregion R_j, depends on demographic and socioeconomic structure of R_j and how it is influenced depends on demographic and socioeconomic structure of R_j and how it is influenced by attractiveness of R_j including prices, travel costs services etc.?

— how the future demand for turism is related to the future supply of accomodation and service facilities?

— what should be the regional policy in taxing and public investments to maximize the revenue, satisfy the tourists and private facilities owners?

— how the computerised system can assist the planners and decision makers in improving the regional planning strategy?

2. Consumer demand for turism

The standard approach to consumer demand for recreation and tourism (which is recreation spent outside the tourist's residence place) is based on maximization of the utility function (see e.g. Backer (1965), De Serpa (1971), Vickerman (1975)), of the general form

$$U=F(x, x_0), \tag{1}$$

where

x=vector of consumption of recreation goods and services.

x_0=vector of consumption of the rest of goods and services; subject to the budget constraint

$$\pi x^T+p_0 x_0^T \leqslant Y, \tag{2}$$

where

π, p_0=vectors of prices attached to x, x_0 respectively,

x^T, x_0^T=vectors transposed,

Y=consumer's consumption budget per year.

A typical example of U, with scalar variables x, x_0, is the function

$$U=\bar{U}x^{\beta} x_0^{1-\beta}, \tag{3}$$

where $\bar{U}, \beta$=given positive numbers, $0<\beta<1$.

By maximizing (3) subject to (2) one obtains the optimum quantities of x_0 and x, demanded by the consumer;

$$\hat{x}=\frac{\beta}{\pi} Y, \quad \hat{x}_0=\frac{1-\beta}{p_0} Y.$$

Then one can derive the value of $U(\hat{x}, \hat{x}_0) \triangleq \hat{U}$:

$$\hat{U}=\bar{U}\left(\frac{1-\beta}{p_0}\right)^{1-\beta}\left(\frac{\beta}{\pi}\right)^{\beta} Y \tag{4}$$

Since the variables Y, p_0, π and $\hat{U}$ change in time t, it is useful to introduce the relative increments of the type

$$\delta Y=[Y(t+T)-Y(t)]: Y(t)$$

Using the incremental variables one can represent the increment of (4), for small t, in the form

$$\delta\hat{U} \cong \delta Y-(1-\beta)\, \delta p_0-\beta\delta\pi \tag{5}$$

It is well known that consumers are sensitive to the relative change of utility δU and in the case of drastic changes of income or prices they adopt a new consumption model and consumption structure. Referring e.g. to the model (3)–(5) one may expect that when $\delta p_0=0$, in order to have $\delta U=0$, i.e. $\beta\delta\pi=\delta Y$, the consumers will increase (decrease) along with increasing $\delta Y\,(\delta\pi)$.

As follows from statistical data analysis the share β of recreation expenditures $\pi\hat{x}$ in total expenditures Y, depends also on age, social group, and income class to which a particular consumer belongs.

For example, the Household Budget Survey, published by the Main Statistical Office in Poland (1984) reveals that the expenditure, per person, in urban white collar families meant for recreation (including also sports, culture, entertainments) is 0.109 of total income. However, for urban blue collar families it is 0.076, while for the farmers — only 0.035.

Generally, β increases along with the increasing income Y. It means that people whose income δY is growing faster (slower) than the annual rise of prices switch to the more expensive (cheaper) forms of recreation i.e. they use the utility model with bigger (smaller) β.

These observations indicate that in order to have a realistic model of recreation it is necessary to split the total population in different social and age groups and income classes, each characterised by different β parameter. Dealing, in what follows, with such classes, βY is regarded as constant within each class, for small δp_0, $\delta\pi$ variations. For larger variations of prices a special consumption submodel can be used, as shown in the last section of the present paper.

Another important feature of recreation demand model is that recreation level x should not be regarded as another existing on the market, but as the good "produced", using the consumer's time T and his financial resources (the economic arguments supporting such a point of view are given e.g. in Becker (1965), Vickerman (1975)).

An assumption of decreasing marginal utility with respect to recreation time T is here also necessary. According to that assumption the consumer satisfaction, which follows out of consumption of Δx, in elementary time interval ΔT, decreases along with the increasing total recreation time T. In other words the function $x(T)$ is assumed to be increasing and concave.

To be concrete, one can assume that the function $x(T)$ can be approximated with the accuracy sufficient for practical purposes by the exponential function

$$x=k^{1-\alpha}T^{\alpha}, \quad 0<\alpha<1 \tag{6}$$

where k, are given positive numbers.

It can be also assumed that recreation may be consumed within independent, separated in time, subintervals. During these subintervals one restores the physical and mental ability for an efficient work, which decays during the working interval.

When the separation intervals are long enough, the resulting recreation level can be regarded as the sum of n recreations per year, taking place within T_i subintervals, i.e.:

$$x=\sum_{i=1}^{n} k^{1-\alpha}T_i^{\alpha} \tag{7}$$

It should be observed that in case of limited total recreation time T it pays to recreate in equal subintervals.

Indeed, one can easily check that the optimum values of $T_i \triangleq \hat{T}_i$, $i=1, \ldots, n$, which maximize (7), subject to

$$\sum_{i=1}^{n} T_i \leqslant T,$$

becomes

$$\hat{T}_i = \frac{T}{n}, \quad i=1 \ldots n.$$

The value of (7) for $T_i = T/n$, becomes

$$\hat{x} = x(\hat{T}_i) = (nk)^{1-\alpha} T^{\alpha},$$

and it is by the factor $n^{1-\alpha}$ greater than (6) (which corresponds to the recreation taken in one interval of T days).

One of the main reasons the tourists do not split T in subintervals indefinitely is the impact of travel cost from residence to the recreation place:

$$C_t = \omega n \tau,$$

where τ=time of travel (days), ω=cost of travel per day, which increases along with n.

The travel time $n\tau$ decreases also the effective time spent for recreation x (unless the traveling itself is a recreation).

The optimum tourist's strategy, when he is trying to maximize his recreation evel x with respect to n, and T can be derived by finding

$$\max_{n, T} (nk)^q T^{\alpha} \tag{8}$$

subject to budget constraint*

$$pT + \omega n \tau \leqslant \beta Y \tag{9}$$

where p=const of accomodation per day, while q is generally a positive number.

When solving the problem (8), (9) one finds easily that the optimum frequency of trips $\hat{n}$ and recreation time $\hat{T}$ become:

$$\hat{n} = \frac{q\beta Y}{\gamma \omega \tau}, \quad \hat{T} = \frac{\alpha \beta Y}{\gamma p}, \quad \gamma = \alpha + q$$

Using $(\hat{n}, \hat{T})$ trip strategy the tourist attains the following level of recreation

$$\hat{x} = x(\hat{n}, \hat{T}) = \frac{(\beta Y)^{\gamma}}{\pi} \tag{10}$$

* Generally speaking, the tourists strategy may be also constrained by total vacation time, i.e.

$$T + n\tau \leqslant T_0$$

where T_0 is a given time interval. However, as shown by statistical evidence, the last constraint is, on average, non active.

where

$$\pi=\left(\frac{p\gamma}{\alpha}\right)^{\alpha}\left(\frac{\omega\tau\gamma}{kq}\right)^{q} \tag{11}$$

Since the marginal recreation $d\hat{x}/dY$ decreases, generally, along with growing expenditures βY, it is necessary to assume $\gamma\leqslant 1$. Out of relation (11) one gets the price of tourism type of recreation π. That price increases along with the accomodation price p and the travel cost $\omega\tau$.

One can now derive the monetary value of net demand for tourism (travel excluding) by L consumers, each having income Y:

$$Y_n=(\beta Y-\hat{n}\omega\tau)L=\frac{\alpha\beta}{\gamma}\cdot YL \tag{12}$$

Using the population class (L) and income (Y) forecasts one can derive by (12) the expected, future (e.g. one year ahead) demands.

3. Interregional demand for tourism

Consider a system of m regions R_i, $i=1, ..., m$, each having the (class) population L_i and the accommodation price (per 1 tourist and 1 night) p_i. Assume the travel costs ω_{ij} between each pair R_i, R_j to be given.

For tourists (living at R_i) the recreation level x_i, can be described by formula (10), while the net demand of the total population L_i becomes:

$$Y_{ni}=\frac{\alpha\beta}{\gamma}YL_i, \quad i=1, ..., m. \tag{13}$$

That demand is allocated among regions R_j in quantities Y_{ij}, $j=1, ..., m$, in such a way that

$$\sum_{j=1}^{m} Y_{ij}\leqslant Y_{ni} \tag{14}$$

In the present section our main task is to find the interregional allocation of net demands. It will be assumed that the tourists'visits to each region R_j are independent and separated in time so that the term x_i can be regarded as composed of the sum of mx_{ij}, $j=1, ..., m$, terms. Each term x_{ij} can be represented using (10) and (11) as follows

$$x_{ij}=\bar{Y}^{\gamma}_{ij}/\pi_{ij}=K^{1-\gamma}_{ij}\bar{Y}^{\gamma}_{ij}$$

where

$$\pi_{ij}=\left(\frac{\gamma p_j}{\alpha}\right)^{\alpha}\left(\frac{\gamma\omega\tau_{ij}}{k_j q}\right)^{q}, \quad K_{ij}=(\pi_{ij})^{\frac{1}{\gamma-1}}, \tag{15}$$

$$\gamma\leqslant 1, \quad \bar{Y}_{ij}=Y_{ij}\frac{\gamma}{\alpha L_i}, \quad i,j=1, ..., m.$$

The tourists strategy consists in finding such $\bar{Y}_{ij}=\hat{\bar{Y}}_{ij}$ $j=1, ..., m$, which maximize the resulting recreation level:

$$x_i=\sum_{j=1}^{m} K_{ij}^{1-\gamma}\,\bar{Y}_{ij}^{\gamma} \tag{16}$$

subject to

$$\sum_{j=1}^{m} \bar{Y}_{ij}\leqslant \beta Y, \quad \bar{Y}_{ij}\geqslant 0, \quad j=1, ..., m \tag{17}$$

In order to solve the present problem it is convenient to apply the aggregation theory described in Kulikowski (1974). Using that theory one finds, for the case of $\gamma<1$, easily:

$$\hat{Y}_{ij}=\frac{K_{ij}}{K_i}\,\beta Y \quad \text{or} \quad \hat{Y}_{ij}=\frac{K_{ij}}{K_i}\,Y_{ni}, \tag{18}$$

where

$$K_i=\sum_{j=1}^{m} K_{ij}, \quad i=1, ..., m,$$

The value of $x_1(\hat{Y}_{ij})\triangleq\hat{x}_i$ becomes

$$\hat{x}_i=K_i^{1-\gamma}(\beta Y).$$

on the other hand $\hat{x}_i=(\beta Y)^{\gamma}/\pi_i$
where

$$\pi_i=K_i^{\gamma-1}, \quad i=1, ..., m \tag{19}$$

is the resulting recreation price.

It is possible to observe that the total demand $\sum_j Y_{ij}$ under optimum allocation strategy (18) is equal to Y_{ni}, $i=1, ..., m$.

One can show that when $\gamma\to 1$; $K_i\to\max_j\{K_{ij}\}$ and the tourists are spending all of their resources in subregion j_m only.

The formula (18) says that the share of total demand ($\hat{Y}_{ij}$: Y_{ni}) originated at region R_i with respect to the destination R_j is equal K_{ij}: K_i. It is going down when p_j or $\omega\tau_{ij}$ are increasing while the rest of regional prices do not change.

The coefficient K_{ij} may be called "the resulting attractiveness of region R_j for tourists coming from region R_i", while k_j represents the original attractiveness of R_j.

The original attractiveness depends in turn on natural environmental attractiveness if R_j, characterized by the number a_j and the service level S_j at R_j.

It may be assumed that S_j is a "production function" of maintenance costs C_m, C_{am} and capital costs C_k, C_{ak} (per person per das); supplied by the recreation facility owners and regional authority respectively. Then, one can write

$$k_j=a_j\,C_m^{\alpha m}\,C_{am}^{\beta n}\,C_k^{\alpha k}\,C_{ak}^{k\beta} \tag{20}$$

where the elasticities α_m, α_k, β_m, β_k are given positive numbers and

$$\alpha_m + \alpha_k + \beta_m + \beta_k = 1$$

In order to get maximum service level, with limited total costs C_j i.e.

$$C_m + C_{am} + C_k + C_{ak} \leq C_j\,, \tag{21}$$

the cost components should be chosen in the optimum proportion, i.e.

$$\hat{C}_m = \alpha_m C_j\,, \quad \hat{C}_{am} = \beta_m C_j\,, \quad \hat{C}_k = \alpha_k C_j\,, \quad \hat{C}_{ak} = \beta_k C_j \tag{22}$$

In that case

$$\max k_j = a_j C_j\,, \quad j = 1, \ldots, m\,. \tag{23}$$

One can also assume that the regional authorities and recreation facility owners coordinate their service expenditures in such a way that relations (22) are satisfied. In that case original attractiveness of R_j becomes proportional to the total expenditures C_j, i.e.

$$k_j = a_j C_j\,, \quad j = 1, \ldots, m\,. \tag{24}$$

If for a reason the cost components differ from (22) the original attractiveness is less than the value (24).

When one knows the monetary values of demand $\hat{Y}_{ij}$ and prices p_j it is possible to derive the demand (in nights x beds units) denoted by $D_{ij} \triangleq Y_{ij}/p_j$.

Obviously the total demand at R_j becomes

$$Y_j = \sum_{i=1}^{m} \hat{Y}_{ij} = p_j D_j\,, \quad D_j = \sum_{i=1}^{m} D_{ij}\,, \quad j = 1, \ldots, m \tag{25}$$

4. Optimization of profits and taxes in two-regional model

Consider a recreation system composed of two regions (R_1, R_2), which compete for tourists coming from another region e.g. the rest of the country, characterized by net demand Y_n.

The demands for recreation at R_i, $i=1, 2$, become, according to (18), (25):

$$D_1 = \frac{K_1}{K_1 + K_2} \cdot \frac{Y_n}{P_1}\,, \quad D_2 = \frac{K_2}{K_1 + K_2} \cdot \frac{Y_n}{P_2}\,, \tag{26}$$

where

$$K_1 = \left[\left(\frac{p_1 \gamma}{\alpha}\right)^{\alpha} \left(\frac{\omega \tau_i \gamma}{k_1 q}\right)^{q}\right]^{\frac{-1}{1-\gamma}}\,, \quad K_2 = \left[\left(\frac{p_i \gamma}{\alpha}\right)^{\alpha} \left(\frac{\omega \tau_i \gamma}{k_i q}\right)^{q}\right]^{\frac{-1}{1-\gamma}} \tag{27}$$

The main decision variable at R_i is the profit rate per person per day:

$$v_i = P_i / C_i\,, \quad i = 1, 2$$

In addition to v_i it is also convenient to introduce the relative profit rates:

$$y_i=\frac{v_i}{\bar{v}_i}, \quad i=1,2 \tag{28}$$

where $\bar{v}_i$ is the value of v_i for the last year.

The value of v_i can be varied by changing accomodation price p_i or total cost C_i (including taxes).

Assuming that the present model deals with a specific service category, characterized by total costs per tourists C, one can assume $C_i=C_2=C$ and get the demand at R_1:

$$D_i\,p_i=\left[1+b\left(\frac{y_i}{y_2}\right)^{\bar{\alpha}}\right]^{-1} Y_n \tag{29}$$

where

$$b=\left(\frac{\tau_1\,a_2}{\tau_2\,a_1}\right)^{\bar{q}}\left(\frac{\bar{v}_1}{\bar{v}_2}\right)^{\bar{\alpha}}, \quad \bar{q}=\frac{q}{1-\gamma}, \quad \bar{\alpha}=\frac{\alpha}{1-\gamma}. \tag{30}$$

Then by (26), (27) one gets

$$\frac{\bar{P}_2\,\bar{D}_2}{\bar{P}_1\,\bar{D}_1}=\frac{\bar{K}_2}{\bar{K}_1}=b \tag{31}$$

(the upper bars indicate the last year data). Since the past data are assumed to be known, (31) can be used for identification of the unknown parametr b in the demand function (29).

It is now possible to derive the benefits B_i^0 of facility owners at R_i (under the assumption (22)):

$$B_i^0=D_i\,p_i-\hat{C}_m\,(1+\tau_{im})\,D_i-\hat{C}_k\,(1+\tau_{ik})\,Q_i\,s_i, \tag{32}$$

where

$\hat{C}_m$, $\hat{C}_k$=maintenance and capital costs,

τ_{im}, τ_{ik}=taxes assigned to services and capital

Q_i=capacity (number of beds), s_i — duration of season

Taking into account (22), (29) onw gets

$$B_1^0/Y_n=\frac{1-\alpha_m\,(1+\tau_{im})/y_1\,\bar{v}_1}{1+b\;y_1/y_2}-\frac{\alpha_k\,(1+\tau_{ik})\,Q_1\,s_1\,C}{Y_n} \tag{33}$$

In a similar way

$$B_0^2/Y_n=\frac{1-\alpha_m\,(1+\tau_{2m})/y_2\,v_2}{1+b^{-i}\,(y_i/y_1)^{\bar{\alpha}}}-\frac{\alpha_k\,(1+\tau_{2k})\,Q_2\,s_2\,C}{Y_n}. \tag{34}$$

The functions (33), (34) are concave and three exists a unique value of y_1 (y_2), say $\hat{y}_1$ ($\hat{y}_2$), which maximizes (33), (34). In the simplest case of $\bar{\alpha}=1$ the value $\hat{y}_i$ can be derived explicitly by solving the eq. $dB_i^0/dy_i=0$, $i=1, 2$. For $i=1$ one gets

$$\hat{y}_1=\lambda_1\left(1+\sqrt{1+y_2/\lambda_1\,b}\right), \quad \lambda_1=\frac{\alpha_m}{\bar{v}_1}\,(1+\tau_{1m}), \tag{35}$$

Then the optimum price $\hat{p}_i = \hat{y}_i \bar{v}_1$. C can be also derived.

The formula (35) can be used for planning purposes. It specifies the optimum relative profit rate the region R_1 can achieve under some expectations regarding the profit rate y_2 of competition. That formula can be also used to derive the prospective profit rates at different regions, characterized by different, $y_2/\lambda b$ coefficients.

When $\alpha \neq 1$ the numerical solution of the problem is necessary. It should be observed that the formulae (33), (34), (35) were obtained for the case when the demand D_1 ($\hat{p}_1$) is less than the capacity $Q_1 s_1$ available at R_1. In the opposite case the demand is limited by supply of services and an extension of of servicing capacity, by capital investments, is necessary. Then in (32) one has to replace $Q_1 s_1$ by D_1 and (33) becomes

$$B_1^0/Y_n = \frac{1-\bar{\lambda}_1/y_1}{1+b\,(y_1/\bar{y}_2)^\alpha}, \tag{36}$$

where

$$\bar{\lambda}_1 = \frac{\alpha_m}{\bar{v}_1}(1+\tau_{1m}) + \frac{\alpha_k}{\bar{v}_1}(1+\tau_{1k}),$$

consequently, instead of (35) one gets

$$\hat{y}_i = \bar{\lambda}_1 \left[1+\sqrt{1+y_2/\bar{\lambda}_1 b}\,\right]. \tag{37}$$

Since $\bar{\lambda}_1 > \lambda$ the optimum profit rate is bigger for the case when the available capacity is fully utilised.

Now one is able to investigate the impact of taxes on the regional benefits. When τ_{1m}, τ_{1k} are chosen in such a way that the profit rate of regional authority

$$v_1^a = \frac{\tau_{1m}\,\alpha_m\,\tau_{1k}\,\alpha_k}{\beta_m + \beta_k},$$

is more than (equal) to 1 the profit rate of facility owners v_1^0 becomes less than (equal) to $\hat{y}_1 \bar{v}_1$.

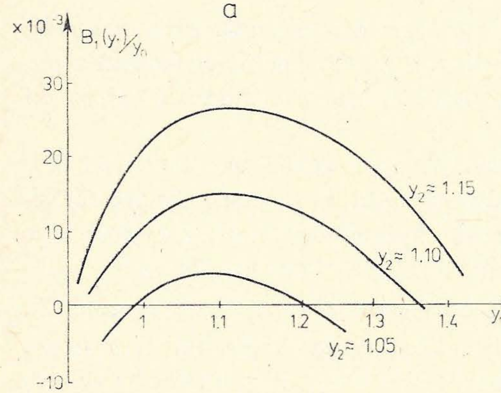

Fig. 1a

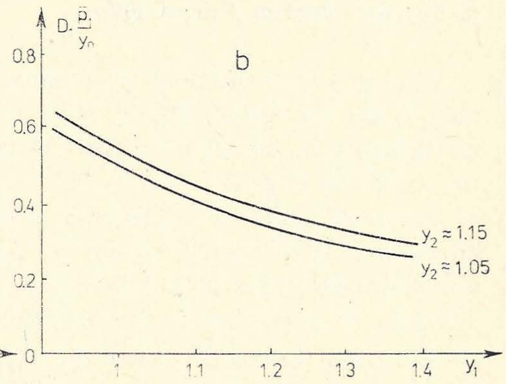

Fig. 1b

In Fig. 1a, 1b the graphs of B_1^0/n, $D_1 p_1/n$ as functions of y_1 (for fixed y_2) are given. It is assumed that $Q_1 s_1 > \hat{D}_1(\hat{y}_1)$ and $\alpha_m/1+\tau_{1k}=0.58$; $b=1.1$; $\alpha=2.1$; $\dfrac{\alpha_k(1+\tau_{1k})\,Q_1 s_1 C}{Y_n}=0.21$. One can observe that for each strategy of R_2 (expressed by y_2) there exists a unique optimum strategy y_1, maximizing the relative profit rate at R_1.

The benefits of the authorities B_i^a can be derived (when capacity is fully used) by the formula:

$$B_i^a = C(\alpha_m \tau_{im} + \alpha_k \tau_{ik} - \beta_m - \beta_k)\, D_i(\hat{p}_i) =$$
$$= C(\beta_m + \beta_k)(Y_i^a - 1)\, D_i(\hat{p}_i), \quad i=1,2 \tag{38}$$

The optimum demands $D_i(\hat{p}_i)$ determine also the necessary capacities in tourists servicing system, which should be supplied by regional authorities within the planned interval. The increased capacities determine in turn the investments in regional infrastructure, i.e. in water supply, waste disposal etc., if necessary.

Generally speaking the regional authority following a specific tourists taxing policy should choose a rational compromise between a tendency to increase or decrease the profit rate v_1^0 for recreational facility owners. The increased profit rate attracts new enterpreneours to the regional system though it decreases the profit v_i^a of the authority. In order to study the competetive relations between regional authority and facilities owners the methods of cooperative game theory can be also used.

It should be also noted that when the regions R_1, R_2 choose (instead of competition) a monopolistic strategy, e.g. increasing y_1, y_2 idefinitely, they face soon the situation when the demands D_1, D_2 decrease so much that the system operates below the existing capacities. That in turn introduces losses and decreases the regional benefits.

5. Regional tourism demand model

In order to use effectively the optimum relations, describing the optimum profit rates $\hat{y}_i$ and the benefits B_i^0, B_i^a, which correspond to the specific prices and taxes, a computerized, interactive model can be used. In Fig. 2 a simplified version of such a model is given.

The model consists of five basic submodels. The consumption submodel uses population projection (L) and family income per head, in each specific population group, as exogeneous variables. That submodel derives the recreation expenditures $Y_r=\beta YL$, corresponding to the recreation price π (β depends usually on π)

The travel submodel derives the net (travel excluded) recreation demand Y_n.

The submodel of interregional demand allocation gives the optimum values $\hat{D}_i, \hat{p}_i$, $i=1, 2$, using last year data $\bar{D}_i, \bar{p}_i$, as well as taxes τ_{im}, τ_{ik} proposed by regions R_1, R_2, and capacities Q_i. The optimum values $\hat{D}_i, \hat{p}_i$ are used for computation

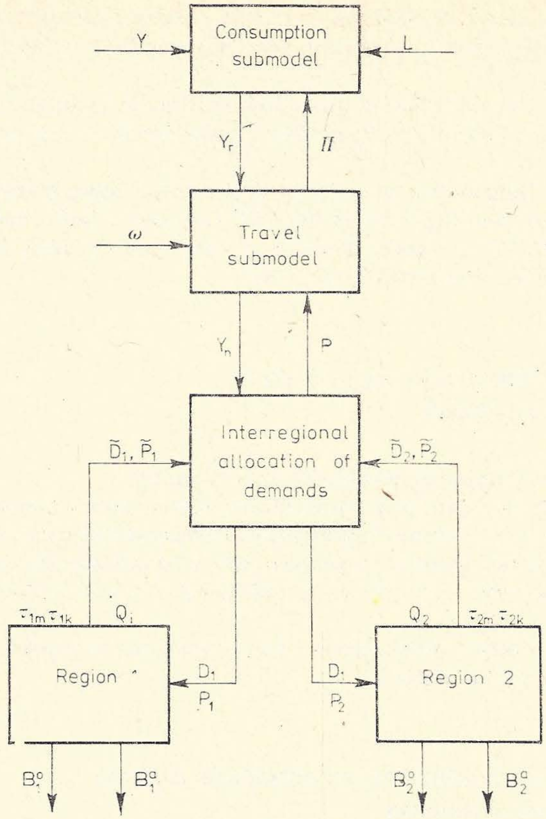

Fig. 2. Interactive regional demand model

of the benefits B_i^0, B_i^a for facilities owners and regional authorities. The submodels exchange information in a recursive form.

For example, the proposed increase of the average price

$$p=\frac{\hat{p}_1\hat{D}_1+\hat{p}_2\hat{D}_2}{\hat{D}_1+\hat{D}_2}$$

induces an increase of recreation price $\delta\pi=\alpha\delta p+q\delta w$ and corresponding decrease of recreation expenditures Y_r. These in turn decrease the expected benefits B_i^0, B_i^a, $i=1, 2$.

It should be observed that the present model can be used, besides tourism, for planning other forms of regional services, such as e.g. shopping, medical facilities etc., characterised by different attractiveness.

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Modelowanie i optymalizacja regionalnego systemu usług turystycznych

Praca dotyczy następujących problemów metodologicznych:

— w jaki sposób popyt na usługi turystyczne w danym regionie (powstały w innym regionie) zależy od struktury demograficznej i społeczno-ekonomicznej ludności. Ponadto w jaki sposób zależy on od atrakcyjności ośrodka wypoczynkowego (z uwzględnieniem cen i kosztów podróży),

— w jaki sposób popyt na turystykę jest uzależniony od możliwości zakwaterowania i podaży usług,

— jaka jest optymalna polityka cenowa i podatkowa, która pozwala maksymalizować zysk biur turystycznych i dochód regionu.

Моделирование и оптимизация региональной системы туристического обслуживания

Работа касается следующих методологических вопросов:

— каким образом спрос на туристическое обслуживание в данном регионе и возникающий в другом регионе зависит от демографической и социально-экономической структуры населения. Кроме этого, в какой степени зависит он от привлекательности места отдыха с учетом цен и дорожных затрат.

— каким образом туристический спрос зависит от возможностей расквартирования и предложений по услугам.

— как выглядит оптимальная ценовая и налоговая политика, которая бы позволила максимизировать прибыль туристических бюро и доход региона.