Studying “Sponsored Goods” in Cultural Sector Symptoms and Consequences of Baumol’s Cost Disease

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Abstract

The present research is the first part of econometric study of the so called sponsored goods and looks at one of the most common types of such goods namely art products created by theaters, concert organizations and museums. **The aim** of the paper is to analyse the performance of Russian art organizations to find out to what extend the conditions of their functioning in post Soviet times under the development of market economy, democratization of leisure and changes in consumer preferences influence their economic results. Could Russian theaters, museums and concert organizations be self- sufficient in market economy established in Russian in 1991-2010? The set up task determined the object of the study and the statistical data to be used—40 years time series performance indicators that include equal time intervals—1971-1990 for performing arts organizations and 1991-2010—for theaters, concert organizations and museums. The specifics of calculations presented in the article result from the very approach to the testing of cost disease. Its essence is **to reveal the symptoms** of this disease in art organizations taken as an element of economy as a whole rather than only as a part of cultural activities. Accordingly **a new method** of diagnostics of the cost disease is suggested that is based on development of specific indexes measuring the lag of labor productivity, advancing dynamics of wages and priority growth in prices for tickets in relation to the corresponding indexes of macroeconomic dynamics as well as determination of cost disease consequences—the deficit of income of providers of cultural (art) goods. **The implementation** of such an approach allowed to construct three-dimensional space which coordinates describe the dynamics of performance results of art organizations.

Keywords: «cost disease», productivity, wages, cost, income deficit, Baumol’s indexes

JEL classification: C43, L38, Z1, Z11.

1. Introduction¹⁾

There are a number of products of human activity, which production and consumption cannot be carried out within the standard market rules and is supported by regular state interventions. Goods and services, that fall within such a category one can refer to as “sponsored benefits” (*Rubinstein, 2009*) vary depending on a country and historic period discussed. However, the question is why governments have been spending rather considerable funds on financing sponsored benefits.

This question fully concerns one of the most renowned types of sponsored benefits – to the art products created in the sphere of culture and art. For many years, various assumptions on the nature, principles and methods of their state support were put forward. Among the most commonly occurring recipes it is likely to find recommendations for the budgetary financing of consumption of the cultural benefits by separate categories of the population, a certain nomenclature of services of the organizations of culture, their travelling forms of work and even empty places in auditoriums. In one shape or another they are present in numerous publications devoted to the economics of culture²⁾.

1.1 Theoretical landscape

The modern theory of economics of culture began to develop in the middle of the 1960s, following the issue of William Baumol and William Bowen’s classical work «Performing arts – an economic dilemma» [Baumol, Bowen (1966)]³⁾. Since then the theory has knowledge of «cost disease» which implies that the production costs growth in some sectors of culture is faster, than the growth of the final product prices.

For nearly half a century which followed the discovery of the «cost disease» phenomenon, numerous theoretical researches and statistical analyses were devoted to it. The authors doubted and re-confirmed this hypothesis which has eventually become one of the fundamental bases of economics of culture [Globerman, Book (1974), Schwarz, Greenfield (1981), Heilbrun (2003), *Ginsburgh, Throsby (2006)*]. It is to be noted that throughout the last decade, the obvious renaissance of the Baumol’s theory is observed, boundaries of its application in other sectors of economics and macroeconomic researches extend [Neck, Getzner (2007), Nordhaus (2008), Pomp, Vujic (2008), Fernandez, Palazuelo (2012)].

Presented in a number of monographs [Rubenstein (1991)], educational works [Shishkin (2003)] and textbooks [Economy of culture (2005)] this regularity became the “reference point” for the majority of Russian researchers. Meanwhile the “cost disease” was not exposed to a complete empirical check neither in Soviet period nor in the Russian

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- 2) The detailed review of treatments of the budgetary financing of cultural activity can be found in the monograph «Introduction in economics of performing art [Rubenstein (1991, p. 213-247)]. See, also: [Peacock (1969, P. 323-335), Scitovsky (1976), Gafgen. 1992, S.190-192)].
- 3) In 1996 on the regular congress on economy of culture, the special session was devoted to the 30 anniversary of issue of this classical report. And the next year there was published the monograph devoted to the “cost disease” [Ed. Ruth Towse (1997a)].

economy conditions. Except fragmentary testing (Rubinstein, Baumol, Baumol (1992a), Rubenstein [1991; 2005, page 114], Shkromada (2009), Musichuk (2012)) this hypothesis was considered more often as a theoretical fact not demanding statistical justifications.

The purpose of the present research is testing on the real Russian statistics of several types of the organizations of art on the existence or absence of the «cost disease» in their activity. An additional incentive to this empirical research was the desire to reveal how were the conditions of functioning of the organizations of art during the Post-Soviet period – including formation of market economy, democratization of leisure and changes of consumer preferences observed during this period – reflected in the results of their activity. Did any real ground for hopes of self-support appear for the organizations of art in the conditions of the Russian market economy formed in 1991 – 2010? Twenty years of work of theaters, concert organizations and museums is the sufficient period for analysis to answer this question. Such objective statement defined the object of research and statistical data required.

1.2 Basic data, methodology of the analysis

It should be noted specially that in this work museums are added to the traditional object of such researches – performing arts (theaters and concert organizations). Legitimacy of their joint consideration is proved by the fact that museums have two main types of activity: heritage preservation (storage, restoration, research) and providing services to the population. Strictly speaking, the organizations of performing arts exercise the same kinds of activity: creation of the new and maintaining of the current repertoire (rehearsal process, decorating of performances, concerts, restoration of musical instruments etc.) providing services to the population. The difference consists only in the fact that museums have no adequate measuring instrument of an art product – the same as performances or concerts. As for the first type of activity, both in performing arts and in museums it can be interpreted in an equal way – as internal investments.

The object of the research and its orientation implied a set of initial indicators of activity of theaters, concert organizations and museum, calculated on the basis of the primary forms of the accountancy of the organizations of culture. Thus the following indices were used: number of workers, expenses on wages, aggregate operating costs, number of visits, income on the sale of tickets, value of the budgetary subsidies. All the initial indicators were presented in the current prices of the corresponding year in the aggregated form, separately for each type of the organizations of art. The following establishments subordinated to the Ministry of culture of the Russian Federation were studied: theaters with their network amounting for 579 theaters in 2010, 318 concert organizations and 2478 museums.

Taking into account the purpose of this work – testing of the «cost disease», being shown according to Baumol in the dynamics of labor productivity and average monthly wages, these derivative indices were also calculated individually for each type of the organizations of art. A certain comment is required here. The matter is that while analyzing labor productivity indices, it is important to consider features of measurement of results of activity of theaters, concert organizations and museums. This implies the specifics of an art product in creation which, in many cases, is transformed into cultural services with their volume measured by the number of visits, as for performing arts, the number of performances (concerts). Considering this circumstance, it is possible to

define the natural index of labor productivity of theaters and concert organizations as the number of visits or performances (concerts) in a year per worker.

A different situation is characteristic for museums. As already noted, there is no full analog to the number of performances (concerts) and, actually, there is no choice: the labor productivity index is defined only by number of visits in a year per worker. Therefore in this work there was applied the uniform indicator as the natural measurement instrument of the end production of theaters, concert organizations and museums used in labor productivity calculations, – the number of visits. Moreover, this decision is caused not only by unification reasons of the applied approach, but also by purely substantial arguments being rather fully presented in the known discussion on the instruments of measuring of the volume of production of the cultural benefits created by the organizations of performing arts [Throsby, Withers (1970 pp. 11-13), Schwarz (1987, p.10), Rubenstein (1991, page 44-48)].

In order to fulfill the objectives in the research there were used the forty-year dynamic series featuring equal chronological pieces: information on activity of the Russian organizations of performing arts in the years 1971-1990⁴⁾ and indices on the activity of theaters, concert organizations and museums in the years 1991-2010. Moreover, the bigger part of information related to the Soviet period of the years 1971-1990, is presented in departmental statistics with a limited accessibility⁵⁾. As for the dynamic series of the years 1991-2010 concerning already only the new Russia, they were made on the basis of the aggregated data on 80 Russian regions. The specified database is prepared by the State Information Computing Center (GIVTs) of the Ministry of culture of the Russian Federation basing on the special forms of accounting reports issued by the Russian Federal Service of State Statistics.

It is important to point out the features of dynamic series of the majority of indices caused by transformational processes of the years 1991-2010 [Yasin, Andrushchak, etc. (2011, page 77-96)]. The main difficulty of the research of economic indices of the specified period is related to the eventual compression of the economy and a very high rate of inflation, especially in the first decade (1991-2000), when, according to the Russian Federal Service of State Statistics, the prices grew almost in 16 thousand times. Taking into account this circumstance and the need of studying of the superinflationary dynamics, all the cost indices of activity of the organizations of performing arts and museums were re-counted in the prices of 1990 using the GDP deflator.

Now speaking about the research methodology. Specific features of the calculations presented in the article and their innovations are connected with the approach to the testing of the «cost disease» phenomenon. It implies revelation of symptoms of this “malfunction” yet not in separately taken sphere of culture, but by the means of studying of the organizations of art as an element of a united economy system. Therefore, the analysis is based not only on intra-branch factors, but on the comparison of indices of activity of the organizations of art with indices of macroeconomic dynamics. This is the

4) Due to the absence of authentic museum statistics on this period we had to be limited to the consideration of performing arts.

5) A part of the statistics (1971-1990) was published in the form of annexes to the already mentioned monograph [Rubinstein (1991)]. Besides, this database was used both in my own researches [Rubinstein (1987, 1995, 1997)], and in collaborations with William Baumol [Rubinstein, Baumol, Baumol (1992a, 1992b)]. This information, being rare for the period, was referred to by my other foreign colleagues as well [Peacock (1991, pp.1-18)].

purpose why the present report uses those dynamic series of macroeconomic characteristics of the Russian economy presented in the database of the Russian Federal Service of State Statistics, as follows: total workers number, GDP volume and real average monthly wages in the prices of 1990, as well as the deflator of prices to the 1990’s ones.

Implementation of such an approach, first of all, opted for the making up of a system of special indices characterizing the ratio of labor productivity, wages and prices in the organizations of art and the economy in whole, and, secondly, the creation of a three-dimension index space whose coordinates would interpret the dynamics of the results of activity of theaters, concert organizations and museums. And, eventually, such an approach is connected with the development of the corresponding econometric model which is quantitatively measuring expenses, income and losses of the organizations of art in the form of linear functions having for arguments the coordinates of the specified index space.

1.3 The structure of the paper

The remaining paper is structured in the following way. The second part discusses the main features of Baumol’s cost disease and analyses dynamics of productivity of labour, salaries and ticket prices for art organizations and the use of specific quantitative indicators – Baumol’s indexes— is justified. The contents of the paper are as follows

1. Introduction

- 1.1 Theoretical landscape
- 1.2 Basic data, methodology of the analysis
- 1.3 The structure of the paper

2. Instruments to measure «cost disease»

- 2.1 Phenomenon of ‘lagging productivity’
- 2.2 Parallel trend’ in wages.
- 2.3 Compensatory rise in ticket prices.
- 2.4 Income deficit

3. Appendixes

References

2. Instruments to measure «cost disease»

According to the seminal work of Baumol and Bowen, the lag of labor productivity in performing arts organizations behind productivity dynamics in the economy as a whole is the main reason of the growth of their expenses, that is the nature of «cost disease» [Baumol, Bowen (1966)].

2.1 Phenomenon of ‘lagging productivity’

This is the point why the process of diagnostics should be started directly with the analysis of the dynamics of indices of labor productivity in the arts sector, comparing them with the alterations of average labor productivity of the Russian economy (Fig. 1).

Fig. 1. Labour productivity dynamics in performing art organisations and economy

According to the diagram provided above it is to notice that, firstly, the labor productivity of the economy throughout the all time interval of 1991-2010 surpasses labor productivity of theaters, concert organizations and museums. In other words, the theoretical thesis formulated by Baumol and Bowen, concerning the 'lagging productivity' in the arts sector, has its effect in the Russian economy as well. Secondly, the following fact attracts attention: labor productivity in performing arts and museums decreases both with the fall of the aggregate productivity (1991-1995) and with its growth (since 1996) not dependant on the crisis or post-crisis state of economy (Fig. 1).

Thirdly, the phenomenon of 'lagging productivity', checked many times in various economies, is to be substituted with a stronger statement for the Russian reality. Labor productivity in the organizations of performing arts and museums has a steady descending tendency. This conclusion, based on retrospective calculations, is interesting by itself and demands explanation. I will state some hypotheses.

One of them implies the following: decline in labor productivity in performing arts and museums is caused by the reduction of demand for these types of cultural benefits due to the increase in leisure opportunities in Russia and the growing competition for people's free time. Spread of mass culture and simultaneous growth of house forms of art consumption – development of television in 1970s, audio and video products in 1980s, computer games and Internet in the end of the XXth and the beginning of the XXIst century – represents, apparently, the general trend defining the decreasing dynamics of attendance of performances, concerts and museums in Russia⁶⁾. This decrease in the level of consumption of live artforms poses Russia to the corresponding level of the developed countries of Europe and North America.

Two «great civilization trends» – processes of globalization and fast spread of computer, informational and communicative technologies – have essentially transformed the institutional environment, changing orientation of values and standards

6) It is to mention that sociologists point out the decrease in level of consumption of live types of classical art in their researches [Resp. ed. Khrenov (2009)].

of behavior in the Russian society, which are the ones to influence art preferences and demand for cultural benefits.

Secondly, besides the reduction of demand for live performing arts and services of museums, the contribution to the decline of productivity was apparently made by the increase of the aggregate employment at theaters, concert organizations and museums which grew together with the expansion of the network of these organizations. Moreover, the forty-year survey over the number of workers in this sphere made it possible to find a certain paradox. The point is that employment rate during this period grew, despite the negative dynamics of labor productivity and the reduction of consumer demand for these types of the cultural benefits (Tab. 1).

Tab. 1. Dynamics of productivity and employment at theaters, concert organizations and museums (annual average growth rate during the period, %)

	Theaters		Concert organizations		Museums	
	Labour productivity	Employment	Labour productivity	Employment	Labour productivity	Employment
1971-1980	-1,1%	1,5%	-3,4%	5,4%	n/a	n/a
1981-1990	-2,1%	-0,3%	-2,8%	-0,2%	n/a	n/a
1991-2000	-6,0%	3,8%	-7,8%	2,7%	-5,8%	8,3%
2001-2010	-1,5%	2,2%	-1,0%	2,3%	-1,6%	3,5%
<u>1971-1990</u>	<u>-1,5%</u>	<u>0,5%</u>	<u>-2,6%</u>	<u>2,6%</u>	n/a	n/a
<u>1991-2010</u>	<u>-3,3%</u>	<u>3,4%</u>	<u>-4,0%</u>	<u>2,8%</u>	<u>-3,2%</u>	<u>7,4%</u>
<u>1971-2010</u>	<u>-1,9%</u>	<u>2,1%</u>	<u>-2,3%</u>	<u>3,4%</u>	n/a	n/a

So, the annual average number of performances per theater was reduced in 2,1 times, the number of spectators per performance – in 2,0 times, and number of spectators per theater – in 4,2 times. Moreover, the network of theaters, as well as the number of workers grew in 1,9 times in the specified period. Almost the same situation was observed in concert activity where, during the period from 1971 to 2010, the number of concert organizations increased almost in 4 times, the number of workers – in 2,4 times and the labor productivity rate decreased in 8 times. Similar results was observed at the museums: in 1991-2010 the number of museums grew in 2 times, number of workers – in 2,5 times but the number of visitors per museum decreased in 2,3 times and the labor productivity fell in 2,8 times.

It is possible to state that during the last forty years there was observed the increase in the network of the organizations of performing arts and museums, accompanied by the growth of the employment rate in this sphere, and the decline in the volume of consumption of cultural benefits. Apparently, such dynamics reveal a certain vector of the development of art, characteristic for the last twenty years of the existence of the USSR and the first twenty years of the new Russia. As for the justification of this hypothesis it is possible to present the following explanation.

If usually the creation of enterprises corresponds to demand – demand determines supply – thus the emergence of new theaters, concert organizations and museums is based on a special need for self-expression of creative persons, often forestalling tastes

and additions of the public, – supply outdistances demand. This trend was contributed to by the process of softening of administrative restrictions which was observed in 1991-2010 when many regulations of creation of new organizations in the arts sector were removed⁷⁾. The creative energy splashed out from administrative fetters in the form of small and, usually, experimental theaters, concert collectives, museums and galleries did not always and even not often receive positive response in spectators' behavior. That was the cause of arising of the paradox noted above which, strictly speaking, demands culturological researches. What is important for the purposes of this work is the fact of lagging labor productivity in the arts sector itself.

In other words, during the twenty-years period of the new Russia, the prerequisites for the «cost disease» did not disappear. And, according to many researchers, significant change of such dynamics is of low probability⁸⁾. Without repeating them, I am to notice that from five possible factors contributing to the growth of labour productivity in the arts sector James Heilbrun distinguishes only the «economy on scale – a consequence of the increase in the duration of seasons» as the most real [Heilbrun (2003, p.92)]⁹⁾. Yet Baumol and Bowen emphasize that the organizations of performing arts «can not even hope to catch up with the labor productivity rate compared with the average of the economy [Baumol, Bowen (1966, p.165)]. In general, statistical data confirms this conclusion: in Russia, as well as in other countries, the phenomenon of 'lagging productivity' is the fundamental characteristic of activities of the organizations of performing arts and museums. Moreover, the lag of productivity has been increasing on average by 3,4 % per year at theaters and museums, and by 4,1 % per year in concert organizations (Tab. 2).

Tab. 2. Dynamics of the ratio of labor productivities

	Annual average rate of the increase of the ratio of labor productivity at theaters, concert organizations and museums to labor productivity in the economy (%)		
	Theaters	Concert organizations	Museums
1991-1995	-3,7%	-8,5%	-3,3%
1996-2000	-6,8%	-6,2%	-6,8%
2001-2005	-3,3%	-1,7%	-3,0%
2006-2010	0,2%	0,2%	-0,3%
1991-2010	-3,4%	-4,1%	-3,4%

- 7) It is confirmed by statistical data: about 75 % of the increase of theaters network, 85 % of the increase of the number of concert organizations and all the 100 % of the increase of museums network fall on the period of 1991-2010.
- 8) The favourite Baumol's example confirming the impossibility of growth of labor productivity in performing arts, became a platitude of many publications devoted to this subject. The point is that productivity of four musicians performing a quartet of Beethoven today is the same as 200 years ago.
- 9) It is curious that following Baumol [Baumol, Bowen (1966, p.163)], Heilbrun also considers that the «improvement of conditions for public by the means of air conditioning» provides the increase in the season duration [Heilbrun (2003, p.91)]. Russian practice does not reveal such correlation. Moreover, the statistical data of the period of 1991-2010 shows the reduction of the number of performances (in annual average calculation) per organization: at theaters – from 371 to 243 performances, in concert organizations – from 1476 to 232 concerts.

Concluding the description of the phenomenon of lagging productivity, I shall formulate a number of remarks. Firstly, taking into account the dynamic character of the “cost disease” phenomenon and for convenience of the subsequent analysis it is reasonable to introduce a special index – the Baumol index B_1 , equal to rate of an annual increase of the ration of productivity in the organizations of art to the average labor productivity in the economy:

$$B_1^{t+1} = (V_I^{t+1} / V_E^{t+1} - V_I^t / V_E^t) / V_I^t / V_E^t = [(V_I^{t+1} / V_E^{t+1}) / (V_I^t / V_E^t)] - 1$$

where V_I and V_E are the indices of labor productivity in the corresponding art forms (separately on each art form) and of the average labor productivity of the economy in the years t and $t+1$.

Secondly, negative values of the Baumol’s index B_1 ($B_1 < 0$) point to an increase in the lag of productivity in the arts sector behind productivity in the economy and, on the contrary, positive values of this index ($B_1 > 0$) signify the reduction of the existing gap. Thirdly, the analysis conducted allows confirming that the phenomenon of lagging productivity reflects the objective regularity which sets condition for the specifics of economic dynamics in the arts sector. In this context, the Baumol index B_1 introduced here can be related to the *exogenous* characteristics of the activity of theaters, concert organizations and museums. Its retrospective dynamics is presented in the appendix to the present research (Appendix 1).

2.2 ‘Parallel trend’ in wages

One of the main hypotheses which were put forward by Baumol and Bowen in their famous research is the assumption that, despite lagging labor productivity, wages in the arts sector increases following wages growth in the economy. Many authors wrote about it as well. Namely, Heilbrun proves this situation by the fact that organizations of art compete for workers on the national integrated labor market [Heilbrun (2003, p.92)]. There are other explanations too, according to which the growth of wages in the arts sector is supported, for example, due to the policy of equalization of the income [Kostina (1999), Rubinstein (2005)]. Without going deep into this argument, it is essential to check the Baumol and Bowen’s initial parcel on the specific statistical data (Tab. 3, Fig. 2-4).

Tab. 3. Annual average rates of the increase of labor productivity and wages at theaters, concert organizations, museums and the economy in aggregate (%).

	1991-1995		1996-2010	
	Productivity	Wages	Productivity	Wages
Economy	-7,8%	-14,3%	5,2%	10,7%
Theaters	-10,1%	-15,7%	-2,1%	15,1%
Concert organizations	-13,0%	-16,1%	-2,8%	14,8%
Museums	-9,8%	-14,8%	-2,1%	14,2%

Fig. 2. Dynamics of labour productivity and salaries in theaters in comparison with the wage growth in the economy

Fig. 3. Dynamics of labour productivity and salaries in concert organisations in comparison with the wage growth in the economy

Fig. 4. Dynamics of labour productivity and salaries in museums in comparison with the wage growth in the economy

Table 3 and diagrams in Fig. 2-4 prove that during the period of decline of the aggregated labor productivity (1991-1995) wages at theaters, concert organizations and museums was decreasing at almost the same rates, as on the economy in whole, showing an identical vector with dynamics of labor productivity in this sphere. However, since 1996 when the aggregated productivity was constantly increasing causing at the same time wages growth on the economy in whole, the situation considerably changes.

During this period the wages dynamics at theaters, concert organizations and museums has an opposite orientation towards the labor productivity in this sphere being in constant decline. This ratio, actually, correlates with the Baumol andBowen’s hypothesis, repeated by Heilbrun: «performers’ wages should increase over time in the same proportion as do salaries in the economy» [Heilbrun (2003, p.92)]. Thus, these calculations revealed that, in performing arts and museums, the wages dynamics actually does not depend on labor productivity, but is linked to the changes in average wages in the economy, therefore presenting «a parallel trend».

It is possible to confirm this conclusion while checking the cointegration of the difference of logarithms of wages in the organizations of art and the corresponding index in the economy as a whole. The results of such analysis are given in the following table (Tab. 4).

Tab. 4. Results of check on stationarity of indicators of wages

	Augmented Dickey-Fuller test			
	Wages logarithm		Difference of logarithms of wages in performing arts and the whole economy	
	t-Statistic	Prob.	t-Statistic	Prob.
Economy	0,897	0,999	–	–
Theaters	-0,268	0,984	-4,212	0,022
Concert organizations	0,380	0,997	-2,080	0,517
Museums	-0,082	0,988	-2,834	0,206

The data provided in this table proves that the null hypothesis on the existence of a single root with the trend is not rejected both for the organizations of performing arts and museums and for economy in whole. In other words, indices of wages logarithms are not stationary. Testing the difference of logarithms of wages of theaters and economy as whole revealed stationarity of this indicator for the significance value of 5 % (Tab. 4). Thus, it is possible to consider it proved that logarithms of wages at theaters and economy as whole cointegrate with the factor of 1.

I am to point out that this conclusion is stronger, rather than the Baumol’s hypothesis on the «parallel trend» of wages in performing arts. As for concert organizations and museums, the calculations provided did not reveal the cointegration. At the same time, the graphics given below testify that the dynamics of wages in concert organizations and museums is close to the dynamics of wages at theaters and economy as whole. Although wages in concert organizations and museums are not to be considered cointegrated, they adhere to a certain general trend, deviations from which reflect particularities of the corresponding sphere of activity (Fig. 5).

Fig. 5. Logarithms of the monthly average wages in the economy and in the art sphere

Considering the known property of the logarithms, the specified deviations can be described by means of an indicator of the ratio of the monthly average wages at theaters, concert organizations and museums to the monthly average wages in the economy (Fig. 6).

Fig. 6. Dynamics of the ratio of the monthly average wages at theaters, concert organizations and museums to wages in the economy (1990=100 %)

Therefore, revealing the same case as with labor productivity, it is reasonable to introduce a special index – Baumol index B_2 measuring the increase of this ratio (compared to the previous year). It is easy to show that this index belongs to exogenous characteristics and reflects another macroeconomic trend according to which the main prerequisite of the increase in wages in performing arts and museums is the growth of the average wages in the economy, caused by GDP growth. Moreover, in this case again the negative values of the Baumol index B_2 ($B_2 < 0$) indicate that wages paid by theaters, concert organizations and museums lag behind growth in of the average wages in the economy and, on the contrary, positive values of this index ($B_2 > 0$) correspond to the advancing dynamics of wages in the arts sector. Calculated retrospective dynamics of the Baumol index B_2 for theaters, concert organizations and museums is also presented in the appendix to the present research (Appendix 2).

2.3 Compensatory rise in ticket prices

Economic practice of the organizations of performing arts and museums faces the situation when, due to lagging productivity, their expenses grow faster than the overall price level, generating an increasing shortage of income in the sphere. This situation was also formulated by Baumol and Bowen. To justify it the authors referred to one more assumption. They took for basis the fact that the income in this sphere has no standard mechanism of growth based on an increase in labor productivity, and consequently almost the only possibility to compensate increasing expenses is the increase in prices for production of the organizations of performing arts [Baumol, Bowen (1966, p.201)].

Moreover, it is universally admitted that the increase in prices creates additional risks of decline in attendance level and income of these organizations. And though some researchers pointed out the existence of temporary periods when, given the rise in prices for tickets, the deficiency of the income of separate art forms decreased [Schwarz, Peters (1983), Felton (1994), Towse (1997b, P. 351)], the following question remains disputable: whether ticket prices can raise quicker than the inflation, without leading to a decline in attendance level and income. Numerous researches were devoted to the attempts of solution of this question. In this regard, I refer to Luis Lévy-Garbua and Claude Monmarketta's review: «It is more likely that demand for arts is elastic against the price and that art goods are luxury goods. But currently, this assumption is rather based on theoretical hypotheses than on a well modeled empirical estimation» [Lévy-Garboua, Montmarquette (2003)].

I shall note that there is no «well modeled estimation» yet. For example, several years later, in a survey report presented in Vienna at the 14th international congress on economy of culture, Bruce Seaman notes that, despite the efforts of sociologists, psychologists, marketing specialists and economists, «no particular proofs of the fact that the use of more difficult empirical methods gave a better understanding of the behavior of performing arts public, were received» [Seaman, 2006, p.5)].

However, it is possible to point out a certain increment of knowledge. For example, numerous empirical works, dedicated to studying of audience of performing arts and often presenting quite similar results, allowed to establish main characteristics of the audience visiting theatrical performances and concerts of classical music. These researches prove, in particular, that the audience of live performing arts, as a rule, is rather educated, belongs to middle class and has well paid jobs [Kurabayashi, Ito (1992, pp. 275-287), Towse (1994), Pietro-Rodriguez, Feranández-Blanco (2000, pp. 147-164), Avtono-mov (2011)].

Russian researchers came to almost the same conclusions. Among frequent results I shall allocate the following characteristics of the audience: in its considerable part these are people from 20 to 45 years (45,7 %), with the higher education (over 45 %) and permanent job (45 %), estimating their income as average (about 50 %) ¹⁰⁾. From the positions of this research, the following conclusions seem to be more important: a stronger influence of education on attendance, rather than the amount of income of the

10) Refer, for example, to the annex to the monograph «Market of cultural services: theater audience of the 90s» in which the results of 120 sociological polls at theaters of the Russian Federation during the years 1992-2000 are presented (Rubenstein, Gedovius (2002, p. 321-631), as well as the recently published anthology «Theater as a sociological phenomenon» [Man. editor Khrenov (2009)].

respondent and, the key conclusion, the existence of a correlation between the attendance and visits of performances and concerts during last years and the level of current ticket prices of the organizations of performing arts.

At the same time, no statistical researches of the elasticity of demand and the income on the prices for the cultural benefits in Russia were presented except theoretical intensions that following the rise in ticket prices the attendance of the organizations of performing arts decreases, and results of sociological polls in which respondents named high prices as a factor interfering with the attendance. In whole, it is to note that no specific results concerning the correlation between the audience behavior and ticket prices, concerning the ability of the latter to compensate increasing expenses of the organizations of arts confirmed by the corresponding econometric calculations, were yet obtained neither in domestic, nor in foreign works.

With a view of convenience of the description of the research done I shall make a specifying statement. It is connected to the interpretation of the indicators of the prices dynamics used in the present work. The matter is that testing of the «cost disease» assumes the analysis of not only ticket prices in theaters, the concert organizations and museums, but the comparison of their dynamics to the average prices growth in the economy. Taking it account, instead of the current prices of the organizations of art, this work examines their corrected analogs calculated foreach year in the form of the ratio of the current prices to the deflator of the corresponding year (Fig. 7)¹¹⁾.

Fig. 7. Dynamics of ratio of current prices in arts to average prices in the economy

The diagram provided above (Fig. 7) proves that, with the existence of an obviously expressed trend of the increase of the specified relation of the prices, there were time spans when deviations from the general trend were observed. In other words, the current ticket prices in theaters, the concert organizations and museums and their increasing

11) Taking into account the galloping inflation in the early 90s of last century and a little reliability of the information available on the dynamics of ticket prices in theaters, concerts and museums during the period of 1990-1993, all subsequent calculations (except table 5) were executed for temporary ranks of 1994-2010.

dynamics during the whole period of 1994-2010 showed a certain volatility corresponding to their going ahead or lagging behind growth in the overall price level in the Russian economy.

Taking this circumstance into account, as well as describing the phenomenon of lagging labor productivity and the “parallel trend” in wages, it is appropriate to introduce into the analysis another special index – the Baumol index B3 measuring the rate of increase of the ratio of the current prices of the organizations of art to the general rate of inflation. In this case, negative values of the Baumol index B3 ($B3 < 0$) indicate a slower increase in ticket prices against the general increase in prices in the economy and, on the contrary, positive values of this index ($B3 > 0$) indicate overinflationary dynamics of the current prices at theaters, concert organizations and museums. The calculated retrospective dynamics of the Baumol index B3 is given in the appendix (Appendix 3).

2.4 Deficit of income

The above considered Baumol indexes B1; B2; B3 provided rather convenient statistical tools allowing to regularly measure the state of affairs in the organizations of art, testing the latter for the existence of the “cost disease” symptoms. Yet, negative values of the specified indices mean that labor productivity, wages and prices lag behind growth in similar indicators of the macroeconomic dynamics, and, on the contrary, positive values prove their advancing growth. However, measurement of the “cost disease” symptoms tell nothing about its consequences, the ability of theaters, concert organizations and museums “infected” with this disease to compensate the expenditures at the expense of the income from the sale of tickets. It is clear that the answer to this question can only be obtained if there is an adequate measuring instrument, being usually the indicator of the deficit of income – the difference between expenditures and income of the organizations of culture per visit [Heilbrun (2003, p.95)]. On the diagram provided below the dynamics of this indicator is presented (Fig. 8).

Fig. 8. Dynamics of the deficit of income (in the prices of 1990) per visit of theaters, concert organizations and museums (1995=100 %)

The specified schedule proves that since the year 1996, when, according to the statistical data, the landslide compression of the Russian economy stopped, the specific (i.e. per visit) deficit of income of the organizations of art shows a steady tendency of growth: as for theaters – an average of 14,5 % per year, as for concert organizations – 17,3 % per year, as for museums – 4,2 % per year. Whether this tendency will proceed in the future or it is possible to count on a remission of the «cost disease» in the Russian economy? This question is not so trivial and it is not possible to obtain the answer with a simple extrapolation.

As an example, I will once again quote Baumol and Bowen who, comparing the economic results of theaters activity in England and the USA in the years 1950-1960, noted that «the expenses during the post-war period increased in the annual rate by about 4 % while the increase in prices amounted between 1 and 2 %» [Baumol, Bowen (1966, p.201)]. Taking into account this dynamics, which was also confirmed in other international comparisons (Italy, Sweden), they extrapolated the specified trend for the 70s years of the twentieth century. Assuming that during this period the expenses of the organizations of performing arts will grow at the rate of 5-7 % per year, and the income will increase only at the rate of 3.5-5.5 % annually, the authors made a prediction for a future constant growth of the deficit of income [Baumol, Bowen (1966, p.390-401)].

However the subsequent verification of this forecast by Ford's Fund showed quite different results. For example, according to the specified research, the relative rate of the deficit of income in the years 1965-1971 grew in noncommercial theaters and symphonic orchestras, but deteriorated in the opera, the ballet and the companies of modern dance [Ford's Fund (1974, P. 388-393)]. In the 90s, in a number of countries there were revealed other evidences indicating the possibility of the «economic remission» in performing arts, on a temporary, according to Ruth Towse, «suspension of influence of the cost disease» due to the extremely high inflation and, as the result, the policy of the reduction of expenses [Towse (1997b, p. 351)]. It made it possible for Heilbrun to draw the general conclusion: «in general, ominous predictions that lagging productivity will result in the inevitably growing deficit of income, appeared erroneous» [Heilbrun (2003, p.96)].

I don't think that the years 1970-1990 give the reasons for such a categorical conclusion. If it is possible to speak about Baumol and Bowen's forecast in the terms accuracy, it can be done only regarding its absolutization. Both earlier and in the last quarter of the twentieth century there were time periods when the decrease in the deficit of income in the activities of some organizations of culture was observed. Taking into consideration the trend character of the “cost disease”, indicating that due to the phenomenon of lagging labor productivity the expenses of the organizations of culture, in the trend, grow quicker than the prices for cultural benefits and, putting an emphasis on the words «in the trend», I want to point out once again the fundamental nature of the regularity revealed by Baumol and Bowen.

Statistics given below (Tab. 5) prove that the annual growth of expenses surpassed both the increase in ticket prices and the growth of income of the organizations of performing arts. For example, in annual calculations, the expenses of theaters increased on the average by 15.4 %, and the income – only by 1.9 %. Besides, ticket prices in theatres grew annually on the average by 7.4 %. In other words, 5.5 % of the increase in prices “were spent” to compensate the decreasing labor productivity at theaters. The similar situation is observed in the dynamics of the main indicators of concert organizations. Again, all the increase in the ticket prices – on the average by 1.7 % per

year, “was spent” for a partial compensation of the decreasing productivity. However, it did not prevent the general reduction of revenues from the sale of tickets on the average by more than 1.5 % per year.

Tab. 5. Annual average rates of the increase of prices, income and expenses (in the prices of 1990) at theaters, concert organizations and museums in the years 1971-2010.

	Theaters			Concert organizations			Museums		
	Prices	Income	Expenses	Prices	Income	Expenses	Prices	Income	Expenses
1971-1975	12,4%	13,1%*	7,9%*	7,9%	5,8%	7,1%	–		–
1976-1980	5,6%	5,7%	5,7%	4,0%	6,3%	6,5%	–		–
1981-1985	2,4%	3,0%	3,0%	1,3%	0,1%	0,6%	–		–
1986-1990	7,8%	0,8%	32,1%	2,9%	-3,0%	0,4%	–		–
1991-1995	-14,3%	-16,7%	12,6%	-12,1%	-17,1%	-12,7%	-4,2%	-17,1%	6,0%
1996-2000	26,6%	24,0%*	11,3%*	13,9%	6,3%*	6,0%*	36,0%	4,7%*	3,4%*
2001-2005	14,1%	0%	16,1%	13,3%	10,9%	14,6%	7,0%	0%	8,7%
2006-2010	1,6%	4,9%*	3,1%*	-5,1%	-2,2%	4,2%	-1,5%	-0,1%	3,6%
1991-2010	1,1%	-1,5%	21,6%	-0,9%	-3,7%	-0,1%	8,8%	7,1%	7,9%
1971-2010	7,4%	1,9%	15,4%	1,7%	-1,6%	2,2%	–	–	–

- Increase in costs lagging behind growth in incomes

Almost the same situation is observed while considering a shorter period – the years 1991 to 2010, without regard for the activity of the organizations of performing arts in Soviet period. During the last twenty years, the growth of expenses in Russia still surpass the growth of the income: at theaters – over 20 % per year, in museums – over 0.8 % per year, in concert organizations the expenses decrease by 3.6 % per year slower than the decrease of the income. Yet the essential rise in ticket prices in museums observed – on the average of 8.8 % per year also couldn’t change the general tendency of the increase of the deficit of income.

At the same time if we reduce of the horizon of the analysis to five years – the transition from the consideration from the altitude of the «bird’s flight» to the researches «under a microscope» when specific concrete circumstances the conditions and results of activity of the culture organizations become appreciable, – the facts of the abnormality of the general regularity, in this case – «cost disease», are found. In particular, it is easy to notice that in the years 1996-2000 the expenses of theaters, concert organizations and museums grew more slowly, than the income from the sale of tickets, causing the decrease in the deficit of income¹²⁾. This list of exceptions from the general rule is supplemented by the results of activity of theaters during the periods of the years 1971-1975 and the years 2006-2010 when expenses also grew more slowly than the income.

12) If the horizon of the analysis is reduced to one year, it is to be noticed that within the five-year interval there are the years when the expenses grew either to a lesser or to a faster extent than the income from the sale of tickets.

Without finding the reasons of such deviations, the analysis of which represents an independent interest, I shall emphasize once again the trend character of the «cost disease» which, being especially noticeable on big intervals of time, during its smaller periods reveals the decrease in the deficit of income. Therefore, in this case it is also reasonable to introduce one more special index, reflecting not the symptoms of the «cost disease», but its consequences. The point of it is the endogenous characteristic of the activity of the organizations of art – the Baumol general index B measuring the rate of the annual growth of the deficit of income per visit. Here, negative values of the Baumol general index B ($B < 0$) indicate the reduction of specific deficit of income and, on the contrary, its positive values ($B > 0$) signify the increase in negative consequences of the «cost disease». Retrospective dynamics of the Baumol general index is given in the appendix (Appendix 4).

Appendix 1

Dynamics of the Baumol individual index B_1

	Theaters	Concert organizations	Museums
1994	-0.0491	-0.1480	0.0713
1995	-0.0439	-0.0943	0.1562
1996	-0.1271	-0.0520	-0.1371
1997	-0.1635	-0.2378	-0.1246
1998	-0.0555	-0.1584	-0.0908
1999	-0.1274	-0.1280	-0.1602
2000	-0.0364	-0.1384	0.0238
2001	-0.0406	0.0347	-0.0427
2002	-0.0602	-0.1241	-0.0287
2003	-0.1344	-0.1299	-0.1446
2004	-0.1266	-0.1020	-0.0894
2005	-0.0488	-0.0561	-0.0384
2006	-0.0031	0.0282	-0.0054
2007	0.0115	0.0251	-0.0319
2008	-0.0183	-0.0007	-0.0208
2009	0.0517	0.0531	0.0229
2010	-0.0117	-0.0428	-0.0156

Appendix 2

Dynamics of the Baumol individual index B_2

	Theaters	Concert organizations	Museums
1994	-0.0074	0.0129	-0.0095
1995	-0.1678	-0.0755	0.0070
1996	-0.1328	0.1325	-0.0269

	Theaters	Concert organizations	Museums
1997	0.1748	-0.0454	-0.0326
1998	-0.0753	-0.0294	0.0802
1999	-0.0011	-0.0268	0.0079
2000	0.0021	-0.0535	0.0755
2001	0.0977	0.0053	0.0083
2002	0.1014	0.0585	0.1120
2003	0.0684	0.0474	-0.1216
2004	-0.0160	-0.0497	0.0453
2005	-0.0180	0.0970	0.0029
2006	0.0299	0.0354	-0.0085
2007	-0.0501	0.0023	-0.0226
2008	0.0037	-0.0020	0.0346
2009	0.1287	0.0448	0.0790
2010	-0.0416	0.0171	-0.0261

Appendix 3

Dynamics of the Baumol individual index B_3

	Theaters	Concert organizations	Museums
1994	1.3403	0.4110	-0.6933
1995	0.1131	-0.1064	2.0527
1996	0.3504	0.3049	1.4046
1997	0.3581	0.1381	-0.2997
1998	0.2051	0.1796	0.3232
1999	-0.0263	-0.1097	0.0164
2000	0.0835	0.0869	0.2365
2001	0.3224	0.0093	0.2202
2002	0.2209	-0.0313	0.0945
2003	0.1098	0.2844	-0.2043
2004	0.0002	0.0719	0.3119
2005	-0.0486	0.2360	-0.0308
2006	-0.0419	-0.1726	0.1103
2007	0.0060	-0.1437	-0.2663
2008	0.0416	0.1452	-0.2384
2009	0.1148	-0.0723	0.4780
2010	-0.0328	-0.0118	0.0089

Appendix 4

Dynamics of the Baumol individual index B

	Theaters	Concert organizations	Museums
1994	0.3489	0.4637	0.7496
1995	-0.285	-0.2947	-0.3066
1996	0.1137	0.1908	-0.4251
1997	0.5084	0.3251	0.4967
1998	-0.177	0.0965	-0.0730
1999	0.0709	-0.1397	0.3000
2000	0.0336	0.1199	0.0150
2001	0.2	0.0542	0.0171
2002	0.2524	0.3782	0.2229
2003	0.2327	0.3203	0.1509
2004	0.0457	0.0675	-0.0477
2005	0.0434	-0.0487	-0.0114
2006	0.0808	0.0672	-0.0116
2007	-0.036	0.0322	0.0975
2008	0.0254	-0.1041	0.0773
2009	0.0297	0.0592	0.1038
2010	-0.069	0.0606	-0.1108

Appendix 5

Dynamics of the Baumol individual index B^*_t

	Theaters	Concert organizations	Museums
1994	1.2254	0.2021	-0.6714
1995	-0.007	-0.1907	2.5296
1996	-0.168	0.2371	1.0750
1997	-0.133	-0.1326	-0.3869
1998	0.1748	-0.0073	0.2031
1999	-0.075	-0.2237	-0.1464
2000	-0.001	-0.0636	0.2659
2001	0.0021	0.0442	0.1681
2002	0.0977	-0.1515	0.0631
2003	0.1014	0.1175	-0.3194

	Theaters	Concert organizations	Museums
2004	0.0684	-0.0374	0.1946
2005	-0.016	0.1666	-0.0681
2006	-0.018	-0.1493	0.1043
2007	0.0299	-0.1222	-0.2897
2008	-0.05	0.1444	-0.2542
2009	0.0037	-0.0230	0.5120
2010	0.1287	-0.0541	-0.0068

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