A NEW LOOK AT THE EARNINGS GAP
IN THE ARTS*

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Introduction

It was in a paper in *The American Economic Review* that Baumol and Bowen (1965) first introduced the concept of an ever-increasing need for support of performing arts organizations, which was later finalized in their seminal study (1966). Ever since, analysis of the performing arts has focused on the *earnings gap*,(1) the difference between expenditures and earned income. It has been taken as a

...fact, well known to professionals in the field, that the labor-intensive performing arts, whose productivity cannot keep pace with the ever-increasing productivity of the industrial economy in which they exist, are faced with an ever-increasing gap between their operating costs and their earned income. The costs, principally wages, are set by the cost level of the economy; the earned income is limited by the inherent limit on the number of performances live performers can give and the number of seats in the halls.(2)

While the logic of the argument seems compelling, it has not always been borne out empirically. For example, in a study of the live professional theatre, Anderson and Maltezou (1977) found that the economic condition of the theatre from 1965-66 to 1976-77 did not follow the prognosis of Baumol and Bowen. More recently, Baumol and Baumol (1981) found that the recent stagflationary period “has not had the disastrous effect upon the arts that some had feared.”(p. 12)

Furthermore, although it has sometimes been noted that the growth of the earnings gap “was also the product of more sudden changes in which organizations or art forms operate,”(3) it was assumed that the fluctuations from year to year and from one group of years to another “occur around an underlying, steady trend.”(4) As a result, beginning with Baumol and Bowen,
projections into the future have been based upon measures of the "rate of growth" of the earnings gap. However, most projections have been serious failures, the most notable being those of the Ford Foundation study (1974). In order to allow for comparability, we applied the Ford Foundation methods to a set of data for 17 major orchestras and obtained a projected growth rate (in constant dollars) of 12.5% for the Ford Foundation time-period, while the actual growth rate for the following 8 years was only 1.5%.

The purpose of this paper is to clarify and expand the Baumol-Bowen thesis, thus refocusing the analysis of the economics of the arts in the process.

Expanding the Baumol-Bowen Thesis

The central proposition of the Baumol-Bowen study is the natural tendency of the earnings gap to widen as the "inescapable result of the technology of live performance." While this is certainly correct, it covers only part of the story. For we must also take account of a widening of the gap due to an increase in output.

A simple example will illustrate. Suppose an arts organization has 10 performances annually with expenditures of $50,000, earned income of $40,000 and a gap of $10,000. It now doubles its season to 20 performances, and for the sake of simplicity, its expenditures increase to $100,000, earned income to $80,000, and gap to $20,000. We have, then, a doubling of the gap without any increase in player wages.

If we now take the Baumol-Bowen thesis to its logical conclusion, it should be restated as follows: at the same level of output, there is a natural tendency for the earnings gap to widen as a result of the technology of live performance, allowing for only limited increases in productivity, which we shall call its "natural growth"; in addition, any increase in output will increase the earnings gap. This implies, then, that any measure of the growth rate of the earnings gap contains two elements: its natural growth and its growth due to an increase in output, which we shall call its "output growth." Hence, in order to measure the "natural growth" of the earnings gap, we must maintain output constant. Indeed, this is the true measure of the underlying growth rate which the logical structure of the Baumol-Bowen thesis dictates.

It should be noted that "output" in the arts consists not only for the
number of performances, but also has a "quality" dimension as well. For a Beethoven symphony played by the Chicago Symphony Orchestra is not the same as when played by a high-school band. Some determinants of quality are the number of players, the quality of players, and even the physical setting of the performance. Given a constant level of earned income, an increase in "output" will increase the earnings gap even in the absence of "natural growth." This, then, is the second segment of the growth of the earnings gap.

Limits to Growth of the Earnings Gap

Having seen that there are two segments to the growth of the earnings gap, we now wish to inquire whether there exist limits to their growth. First, we will look at the natural rate of growth.

The underlying logic of Baumol-Bowen thesis is that artistic labor costs must rise as a consequence of productivity increases in the rest of the economy, with virtually none in the arts sector. If so, the (natural) rate of growth of real artistic labor costs (9) can be no greater than that of productivity in the economy at large. Let us now see what impact has on the natural rate of growth of the earnings gap.

Suppose an arts organization has total expenditures, E, artistic personnel costs, APC, and an earnings gap, G.

Furthermore,

\[ G = \frac{1}{k} E \quad \text{k} \geq 1 \]

\[ APC = \frac{1}{c} E \quad \text{c} \geq 1 \]

Now suppose that productivity in the rest of the economy grows at an annual percentage rate \( r \). In order to measure the natural growth rate, we must maintain a constant level of output and earned income.

Then if we denote the growth rate by g, it follows that

\[ g (APC) \leq r \]

\[ g (E) \leq \frac{r}{c} \]
If so, equation 5 indicates that the natural growth rate has an upper bound,

\[ \text{max } \text{NGR} = \frac{k}{c} r \]

However, this is not a constant bound. As productivity increases in the rest of the economy, \( \frac{k}{c} \) also varies. For it follows from equation 1 and 2 that

\[ \frac{k}{c} = \frac{\text{APC}}{G} \]

As productivity grows at a rate \( r \), \( \text{APC} \) and consequently \( G \) are both increased by equal increments. It is well known that if the numerator and denominator are both increased by an equal amount,

\[ \left( \frac{k}{c}\right)_{t+1} > \left( \frac{k}{c}\right)_t \quad \text{if} \quad \frac{k}{c} > 1 \]

Thus, from whichever point we begin,

\[ \lim_{t \to \infty} \frac{k}{c} = 1 \]

and, consequently

\[ \lim_{t \to \infty} \text{max } \text{NGR} = r \]

Hence, if output and earned income remain constant, the long-run natural growth rate is the same as the rate of productivity growth in the rest of the economy.

Furthermore, NGR is not constant but changing; usually declining. For when an arts organization is created, it generally does not begin with a relatively large gap. Hence, by \([7]\) \( \frac{k}{c} \) and consequently NGR are relatively large. However, as time progresses, and the gap
grows, \( k \) and \( \text{NGR} \) continuously decline until they hit their respective limits. Hence, if one were to look at an arts organization over time, or at different organizations in the cross-section, he should find, in general, older organizations having smaller natural growth rates than newer organizations.

Let us now turn to growth of the earnings gap as a result of growth of output. While it appears at first blush that output can just grow - along with the earnings gap - but beyond any bound, there is a limit to output. For example, a symphony orchestra already employing all its players 52 full weeks a year, cannot expand much. It can split into smaller groups of players - e.g., a chamber orchestra - but not for very long, for then we have a number of groups rather than a symphony orchestra. (11) This then leads to an important implication.

Since it is the goal of arts organizations to disseminate their services to as wide an audience as possible, subject to budget and qualitative constraints, (12) beginning organizations tend to expand quickly and consequently have large growth rates in their earnings gaps. Over the years, as the organization becomes more established, limits on the growth of output set in, and the growth rate of the earning gap slackens. (13) Thus, over time, the output growth rate diminishes and

\[
\lim_{t \to \infty} \text{OGR} = 0
\]  

Furthermore, as output increases, differential economies of scale cause the artistic personnel share of total expenditures, \( 1/c \), to decline [See Schwarz (1981)] and, hence, lead to a smaller natural growth rate. Indeed, this is one element which has tempered the growth of the earnings gap over the years.

It follows from our previous discussion and equations 10 and 11 that the long-run growth rate of the total earnings gap,

\[
\lim_{t \to \infty} \max g (G) = \lim_{t \to \infty} \max \text{NGR} + \lim_{t \to \infty} \text{OGR} = r
\]

or the rate of productivity growth in the rest of the economy.

So far, we have dealt with pure growth, i.e., holding earned income
fixed. It is obvious that as earned income is increased, the size of the gap is decreased. For example, if an organization has a policy of increasing earned income so that it keeps up with the rise in costs, i.e., at the rate of \( r/c \), then the natural growth rate can become

\[
(13) \quad \text{NGR} < \frac{r}{c} \leq k \frac{r}{c}
\]

It should be noted, however, that despite evidence of inelasticity of demand for their services [e.g, Baumol and Bowen (1966, pp. 274-276)], arts organizations hesitate to raise prices because of their goal of hitting a large audience. Otherwise, they would cut back output and be profit maximizers. A case in point is the action by the New York City Opera outlined in the following excerpts from a letter to subscribers by its general director, Beverly Sills:

"...I've always believed that the arts are for everyone and that opera is not just for the elite. I knew I had to do something. So, as of today, I am cutting the cost of all City Opera subscriptions by 20% across the board.

In the spring of 1981, we raised our prices. We made money but lost people. This season we will finish $600,000 ahead at the box office, but our audiences who come to see our terrific young artists are down each night by 7 to 8 percent. I know what it feels like to look out on an audience and see empty seats and this spring we want all of our opera lovers back in them.

...We're cutting back on prices so that everybody can afford to enjoy our performances."

There is an additional reason for variation even in the long-run growth rate of the earnings gap. Our analysis, thus far, has been based on a constant rate of growth of productivity in the rest of the economy. But \( r \) can vary over time. For example, in recent years, there has been a decline in \( r \). Its effect in slowing the growth of the earnings gap - and, hence, reducing problems for arts organizations - has been pointed out by Baumol and Baumol (1981).

Having now analyzed the components of the growth of the earnings gap
and their relative magnitudes, the natural question arises: what allows this growth to continue? Obviously, an organization cannot incur a deficit forever, and this points to the contributions which must fill the gap. For without them, output cannot grow and even the natural growth of player wages cannot be met. It is to this that we turn in the next section, leading to a new interpretation of the earnings gap.

**Interpreting the Earnings Gap**

Researchers have usually looked at only one side of the coin - growth of costs, forgetting that the other side consists of contributions. For without contributions there is no earnings gap. Thus, if for example, a donor contributes $1 million to an arts organization, its earnings gap can be increased by $1 million. On the other hand, when contributions slacken, the organization is forced to contract and decrease the gap. This, then, points to a new interpretation of the earnings gap.

Traditionally, the total national earnings gap has been interpreted as "the amount which, at the present time, society must be prepared to contribute, by some means, if the nation's existing performing arts organizations are to be kept solvent."(15) Thus, projections of large growth rates of the earnings gap have served as the rationale for more support for the arts especially from government [cf. Ford Foundation (1974), p. 104]. This would imply that projection of a smaller growth rate indicates less of a need for support for the arts. (16)

Our previous analysis indicates that precisely the contrary is true. Growth rates of the earnings gap above the natural growth rate indicate an expansion of the arts and are a sign of good health, while those below the natural growth rate are an indication of contraction and poor health for the arts.

This expansion and contraction can take the form of changes in both quantity and quality. For example, let us look at what has happened in the live professional theatre. "Smaller casts, smaller orchestras, ... fuller houses, larger houses, lower-salaried casts, sparser sets ... [Anderson and Maltezou (1977), p. 64]. While they called this "economizing" and stated that they have "no way to judge the extent to which the economic condition of the theatre has been maintained and/or improved at the expense of artistry,"(17) this
was, in great part, a decrease in "output." Of course, if we leave the vegetables out of the soup, we have "economized." Only now we have hot water and not soup.

Summary and Conclusions

Our expansion of the Baumol-Bowen thesis has closed the gap between the theory and empirical observations while, at the same time, strengthening the underlying logic. Our dissection of the growth of the earnings gap and the resultant interpretation of the earnings gap has led to the same major conclusions and policy implications. We have shown that:

1. any growth of the earnings gap greater than the natural growth rate may be a sign of good health for the arts. Thus, large growth of the earnings gap need not necessarily be interpreted as a sign of poor conditions;

2. within the same class of organizations, older, more established arts organization, in general, have smaller growth rates than newer, less established ones; and

3. the earnings gap can grow only if there are contributions to fund that growth. Hence, if we want to obtain a comprehensive analysis of the condition of the arts, we must take a closer look at the growth of contributions and its relationship to the earnings gap. This, then, is the new frontier of research.

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FOOTNOTES

*Assistant Professor of economics, Queens College of the City University of New York and consultant, Informatics, Inc. This paper is part of a larger study on the growth of nonprofit arts and cultural organizations in the decade of the 1970's being performed at Informatics, Inc. under a contract from the National Endowment for the Arts, NEA PC 80-29. The helpful comments of Mary G. Peters are gratefully acknowledged. I am most grateful to Professor William J.
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1. This term was coined later by the Ford Foundation. Baumol and Bowen (1966) referred to it as the “income gap.”
3. Ibid, p. 87.
4. Ibid, p. 91.
5. It should be pointed out that both Baumol and Bowen (1966) and the Ford Foundation distinguished sharply between projections and forecasts, both clearly indicating that they were not offering predictions. In the words of Baumol and Bowen (1966, p. 388): “A projection is not a forecast and certainly not an instrument of clairvoyance; it is a statistical device which tells us only what current trends presage for the future. Yet projections do indicate what is in prospect if things continue to change as they have in the past, and thus they present at least a minimal basis for planning and decision-making.”
7. These were derived from data gathered by the American Symphony Orchestra League (ASOL) for the following 17 orchestras: Baltimore, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Houston, Indianapolis, Los Angeles, Minnesota, National, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis and San Francisco.
9. Money wages in the economy can and do grow much faster than productivity and artistic wages follow, though sometimes with a considerable lag.
10. For example, for the 17 major orchestras listed in fn. 7, the earnings gap was only 38% of total gross expenditures in 1949/50 while in 1969/70 it had climbed to 52%. [See Schwarz and Greenfield, p. 108] This is not always the case, however. For example, some ballet companies began mostly with private contributions.
11. This is not so obvious for organizations that have neither a fixed group of players nor fixed attendance capacity. For example, many theaters do not have permanent casts and perform in several auditoriums simultaneously. However, although there exists more room for expansion in such cases, eventually there is a limit beyond which the organization loses its unique character. For management and direction can not be duplicated.
13. The notion that more established organizations have smaller growth rates because of less room for expansion was also independently proposed by Mary G. Peters of Informatics, Inc.
16. This is not always the case when there are changes in earned income or there is a deficit.
17. Anderson and Maltezou, p. 64.

REFERENCES