Twenty Years After The Economic Restructuring Of Eastern Europe: An Economic Review

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ABSTRACT

Twenty years ago, the world witnessed the beginning of one of the most dramatic changes in economic systems. It was the 1989 revolutionary changes in Poland that initiated the collapse of the Soviet-style command economic system of Eastern Europe and the Soviet Union. The economic system transformation that followed did not have any precedent or established theories to rely upon. Thus, some countries opted for a "shock therapy" approach while most opted for the "gradual therapy" approach to economic restructuring. This paper reviews the impact of such unprecedented economic transformation and attempts to shed some light on the relative success of such changes and policies -- twenty years after the collapse of the communist regime in Poland that initiated the 'domino effect' of the Eastern European command economies collapse.

Key words: Economic transformation, comparative economic systems, economic growth, countries in transition, macroeconomic systems, European economy.

I. INTRODUCTION

In the last 20 years, the centrally planned economies of Eastern Europe and the former Soviet Union republics have gone through dramatic economic system transformations -- from command type economic systems to market based systems. This economic restructuring process started in Poland in 1989 then followed by and continued in the rest of Eastern Europe, the former Soviet Union republics and eventually spilled into Asia. The magnitude and intensity of the change from command economies to market based economic systems was historically unprecedented. These economic system transformations affected hundreds of millions of people (and, if one includes China, in billions) directly and, indirectly, billions more in the rest of the globe. Many predicted that the reversal of economic systems would be painful and very lengthy. Some predicted that the command model would be re-adapted in certain economic environments and within a short period of time.

This paper contrasts, analyzes and evaluates the relative macroeconomic success or failure of the Eastern European economies in transition. We also evaluate the outcomes of the alternative economic transformation approaches used by some Eastern European economies during the past twenty-years. For the process of transformation, some countries opted to use the "shock therapy" versus the "gradual approach" to restructuring their economies. A "shock therapy" approach involved immediate and widespread economic system changes, including removal of price controls, elimination of most regulations and significant privatization of resources. Alternatively, a "gradual" approach introduced economic system changes gradually over many years. The main objective of the paper is to determine whether the economic transformation impact differed significantly depending on the application of the "shock therapy" approach, as in the case of Poland, versus the "gradual" approach, as applied by countries like Bulgaria and Romania.

For the purpose of this study, we consider 1989 as the date of economic transformation as it is the date of the first dramatic economic and political revolutionary changes that took place in Poland and reverberated across the former Soviet bloc. This date relates to the Polish communist regime's collapse followed by the democratic election of Lech Walesa's Solidarity movement to power and the subsequent economic transformation that spilled into the

rest of Eastern Europe and the former Soviet Union republics shortly thereafter. However, we do allow for time lags because the political system changes were not immediately translated into economic transformation changes – especially when the system changes are extreme – from a command economy model to market economy. This was indeed an unprecedented restructuring of a significant component of the world economy, especially in the European continent.

II. SHOCK THERAPY VERSUS GRADUAL APPROACH MODELS OF TRANSFORMATION A BRIEF HISTORICAL OVERVIEW

The interest to transform command economies to some alternative goes as far back as the 1950's when Hungary attempted to break away from the Soviet model of a command economy. However, it was not until 1967 that some gradual reforms were implemented. In 1968, the former Czechoslovakia made a significant move towards substantial reform. However, like the 1950's attempt in Hungary, the attempt was crushed by the Warsaw Pact forces.

Even though Hungary was able to introduce some reforms beginning in the 1960's, it was not until 1989, with the advent of the collapse of the Polish Communist government, that massive significant revolutionary moves were initiated to restructure the Eastern European economies from command to market based economy systems. This is true for the former Czechoslovakia (which split in 1992 into the Czech Republic and the Slovak Republic), Hungary and Poland. In all of these countries, some attempt to restructure had been made earlier with varying success. Hungary, for example, had initiated a slow but limited process of restructuring in the 1960's and continued later, carefully, under the watchful eye of the *Warsaw Pact.* Czechoslovakia made a serious attempt at reform in 1968. However, that effort was crushed by the invasion of the *Warsaw Pact* forces resulting in hardly any economic system change. Poland, which was in some ways unique within the *COMECON* -- the former international trade union of command economies -- never collectivized its agricultural sector and began some economic reforms in favor of decentralization in the early 1980's. This was in response to the labor union led *Solidarity* movement headed by Lech Walesa.

The pressures imposed by the *Solidarity* movement resulted "in the 1981 reforms. These reforms, initiated by General Jaruzelski (martial-law regime), were to link state ownership, central planning and market mechanism. The Jaruzelski reforms proved ineffective" Lis and Slay (Lis and Slay 1991, p.125). This resulted in the 1989 collapse of the previous government and in the establishment of the *Solidarity* led government of Prime Minister Tadeusz Mazowiecki. Prime Minister Mazowiecki had a plan for political and economic reforms that included economic recovery, economic stability and privatization of some seven thousand enterprises. However, the Mazowiecki government operated under a very difficult macroeconomic environment in which they were attempting to transform the economy to a market type while attempting to promote an economic recovery and privatization of most of the public enterprises and resources. This was a task never experienced in the modern world.

In 1990, Poland opted to apply the "shock therapy" approach for its transformation to market capitalism. These were ambitious economic reforms, known in Poland as the "big bang", which were introduced on January 1, 1990 by former Polish Vice-Premier and Finance Minister Leszek Balcorowiecz. His economic plan called for more immediate, ambitious and comprehensive reforms then those implemented by Mazowiecky. It included a program for economic stabilization, economic liberalization and massive privatization of economic resources. The first part of the stabilization program implemented policies to curb inflation and reduce excessive domestic demand. Specifically, the following items were implemented by the government: a) abolishment of the centrally controlled prices, input allocation, and trade controls; b) a sharp reduction in government spending to reduce the budget deficit (this involved mainly reduction of business and product subsidies); c) application of a tight credit policy to reduce the money supply and, thus, inflation; d) introduction of positive and high real interest rates; e) application of a restrictive income policy with high taxes on wage increases; f) action to weaken the public monopoly; and g) introduction of the internal convertibility of the domestic currency combined with substantial devaluation of the Polish currency, the zloty.

This plan was labeled by economists as a "shock therapy" approach to transforming an economy from a command type to market type. The changes were significant and were implemented immediately. A similar approach was followed by the Czech Republic.

The 1989 collapse of the communist regime in Poland created the right political and economic environment to allow Poland to take the lead in the economic and political transformation of the former command economies of Eastern Europe and Asia. Eventually, it became the catalyst for changes in the former Soviet Republics, including Russia. A limited version of the "shock therapy" approach was applied later by Czechoslovakia before it split into countries in 1992. However, their "big bang" was less aggressive than that applied by Poland. Other Eastern European countries, including the Slovak Republic and Hungary applied a more "gradual therapy" approach to restructuring and privatization. This meant a slow process of change, privatization and micro and macro economic adjustment. The objective here was transformation to a market type economy over many years rather than overnight restructuring.

A very "gradual therapy" approach was followed by Russia and many of the former Soviet Republics or "satellites", such as Bulgaria, Romania and Hungary. Therefore, the application of restructuring models differed significantly in Russia versus Poland. Under Secretary Mikhail Gorbachev, the process in place was intended to develop a democracy, referred to as "glasnost", with limited economic restructuring, known as "perestroika". President Yeltzin, who followed Gorbachev as the leader of the newly re-created Russia, promised dramatic changes but lost control of the transformation process, partly due to internal political difficulties. Thus, Russia has followed a very gradual approach, like many of the countries under their influence.

The process of changing economic systems is very complex, demanding and risky to some degree. Economic system transformation requires actions to extensively reallocate economic resources and to change significantly the pricing mechanism. Additionally, it requires changes in management of resources, in technology utilized, in ownership of economic resources, in financial systems and in basic economic institutions. These changes are expected to cause dislocations in the interim that may result in loss of resources, productivity, production, income and employment. Moreover, even though in the long-term there may be a net positive gain, they may aggravate the short-term and medium-term socioeconomic conditions of the populations involved in such economic system transformations.

The degree and duration of economic dislocation and pain may differ depending on the intensity of the changes and the length of time involved in implementing the changes. Moreover, the prevailing political environment, the degree of adaptability of economic agents, cultural differences among different groups or countries, and the consistency in public policies implemented are factors that may also influence the relative success of economic restructuring. Therefore, *ceteris paribus*, one would expect a different level of performance on the objectives since they are influenced by many different factors. On an *a priori* basis, we expect economic behavior will vary in different countries or environments even if the duration and intensity of the system changes are the same. This expectation should be evidenced in the analysis of time-series macroeconomic data.

III. A BRIEF PERFORMANCE EVALUATION OF THE ECONOMIC SYSTEMS TRANSFORMATION

In this section, we evaluate the economic performance of Eastern European countries in transition using the basic economic indicator, the real economic growth rate for the pre-1989 period (1980-89) and the post-1989 period (1990-2007) when the economic systems transformation is taking place. It is well known that real economic growth does not fully capture the changes in quality of life (standard of living). This is due to the fact that it does not take into account other factors that influence quality of life such as environmental changes, crime, freedom of choice, freedom of decision-making, changes in quality of products, and changes in the psychological disposition of the population. However, it is a widely used proxy for the macroeconomic impact analysis as a measure of real production and income. Therefore, we analyze and contrast the pre and post-1989 periods for some countries (Albania, Bulgaria, Hungary and Romania) that opted to use the "gradual approach" of transformation versus the two countries (Poland and Czech Republic) that opted from the beginning to apply the "shock therapy" approach.

Table 1 presents real economic growth rates for the period of 1980-2007. The first column records the real economic growth rate separately for 1980-89, the pre-Polish revolution period, the 1990-99 economic restructuring period and 2000-07, a period of greater economic stability after the turmoil caused by the economic restructuring from centrally planned economies to market economy based models. We start with 1990 as the transformation period in Polish government took place at the end of 1989. "On August 19, President Jaruzelski asked journalist/Solidarity activist Tadeusz Mazowiecki to form a government; on September 12, the Sejm voted approval of Prime Minister Mazowiecki and his cabinet. For the first time in more than 40 years, Poland had a government led by non-communists". In December 1989, the Sejm (Polish parliament) approved the government's reform program to transform the Polish economy rapidly from centrally planned to free-market, amended the constitution to eliminate references to the "leading role" of the Communist Party, and renamed the country the "Republic of Poland." Note, political and some economic changes were initiated in 1989 with the collapse of the President Jaruzeski's communist regime in Poland" ("History of Poland—Round Table Talks and Elections", Wikipedia, online encyclopedia, May 28, 2008).

When comparing the three periods of economic growth listed in Table 1, one can easily assume that on average the 1990's was a difficult period for the Eastern European countries in our study -- relative to the pre-transformation period and the post 2000 period. In the 1990's, the average rate of growth for all six countries was negative in comparison to the other two periods referenced in the table. The average growth rate in the 1990-99 periods was
-0.72% versus a positive average of +1.96% for 1980-89 and + 4.0% for the 2000-07 period.

Table 1

Average Real Economic Growth Rate in %'s

	1980-89	**1990-99**	**2000-07**
Albania	2.61	0.44	5.81
Bulgaria	3.65	-5.25	5.54
Hungary	1.53	0.23	4.00
Romania	1.61	-2.28	5.58
Average Growth	2.35%	-1.71%	5.23%
Czech Republic	2.25	-0.18	4.41
Poland	0.11	2.69	4.06
Average Growth	1.18%	1.25%	4.24%
Average Growth of six Countries	1.96%	-0.72%	4.90%

Source of data: IMF World Economic Outlook, 1980-2007

On a preliminary basis, for the 1990's, we can state that the above data indicate the Eastern European economic system restructuring, changes in political system, changes in economic relationships and behavior caused medium-term dislocations, inefficiencies and uncertainties in terms of production, consumption and investment. Thus, the 1990's was a period of economic and political system shock that caused production and income to decrease in relation to the previous ten years (1980-89). However, during the 2000-07 periods we observe robust economic growth on average. Table 1 shows the average growth for 2000-07 at two and one-half times the average growth (4.90% versus 1.96%) during the 1980-89 period when these economies were still applying the centrally planned economy model. Thus, one can conclude that the market economy model was taking hold and helping increase their economic growth.

During this period, Poland had the highest average rate of growth (2.69%) while the Czech Republic a rate of -0.18%. In comparison to the other four economies that used a more gradual approach to restructuring, the average for Poland and Czech Republic, the "shock therapy" countries, was 1.25% for the 1990's and 4.24% for the

200-07 periods - versus the other four gradual approach countries (Albania, Bulgaria, Hungary and Romania) average growth of -1.71% for the 1990's and 5.23% for the 2000-07 period. Thus, preliminarily, we can state that the shock therapy approach may have been more effective in reducing the dislocations and inefficiency during the process of transformation in the 1990's. However, the other economies seem to catch up late in the 2000-07 period when their growth rate performance is better.

To dissect this proposition a bit further, in Table 2 we break up the 1990's into two periods, 1990-1994 and 1995-1999. The former is the period when the most dramatic system changes are introduced and the latter is the period of continued system adjustment (from command-centrally planned to market economy).

Table 2

Average Real Economic Growth Rate

	1980-89	**1990-94**	**1995-99**	**2000-07**
Albania	2.61%	-5.24%	6.12%	5.81%
Bulgaria	3.65	-8.71	-1.78	5.54
Hungary	1.53	-3.22	3.68	4.00
Romania	1.61	-4.37	-0.19	5.58
Average Growth	2.35	-5.38	1.96	5.23
Czech Republic	2.25	-2.44	2.07	4.41
Poland	0.11	-0.52	5.91	4.06
Average Growth	1.18	-1.48	3.99	4.24
Average Growth of six Countries	1.96%	-4.08%	2.64%	4.90%

Source of data: IMF World Economic Outlook, 1980-2007

In analyzing the data in Table 2, there seems to be further evidence that the "shock therapy" model worked better during the 1990's in terms of economic growth. In order to determine the duration of the adjustment period and real economy impact of economic system restructuring, we break down the 1990's into two distinct periods – the period of intensive system changes (1990-1994) and the less intensive adjustment period (1995-1999). Table 2 shows that all six countries show a significant decrease in real GDP in the 1990-94 periods. The average annual contraction is -5.38% for the four countries applying 'the gradual approach" versus a -1.48% average annual contraction for Poland and Czech Republic that applied the "shock therapy approach" to transformation. It seems that the latter group fared better in terms of real GDP contraction during this crucial period of adjustment.

The above conclusion is further reinforced when one looks at the real GDP growth rates for 1995-99. Again the average rate of growth for the "gradual approach" countries is 1.96% versus 3.99% for the "shock therapy approach" countries. However, after the adjustment (1990-89) is over, the former (Albania, Bulgaria, Hungary, Romania) grow at a faster pace than Poland and Czech Republic in the 2000-07 period. That is, they show greater growth and, thus, are catching up from some of the net loss they faced in the 1990's. Nevertheless, on average Poland and Czech Republic do better overall during the 1990-2007, the period of implementation of market based principles.

IV. PRE VERSUS POST ECONOMIC RESTRUCTURING PERIOD STRUCTURAL BREAK EMPIRICAL ANALYSIS

In this section, we attempt to test empirically whether the Eastern European economies faced a structural break after the introduction of a market type economy during the 1990's and the removal of the centrally planned economic system. Our objective here is to determine whether there is a statistically significant structural change

and, if so, to determine whether the break is positive or negative. To empirically test for a structural break in the economic system, we use a simple trend model:

1. RGDPG = a1+ a2(T)

In the above equation, RGDPG measures the real rate of growth in real GDP and T is the time trend (1980=1 to 2007=28). However, in order for us to test for a structural break in the real growth data, we introduce and dummy variable (D) which allows us to test for change in the intercept of the regression line and an interaction variable (DT) that allows us to test for a change in the slope between the two periods. The two periods in question are the pre-restructuring period and the post-restructuring period. Since the exact dates of political and economic changes differ, in addition to some time lag involved, the starting period differs somewhat for some countries as indicated on Table 3. Therefore, the equation estimated for all six countries in this study takes the following form:

2. RGDP = a1+ a2(T) + a3(D) + a4(DT)

where RGDP is the real GDP growth, T is the time trend, D is a dummy variable and DT is the interaction variable.

The econometric results are shown in Table 3 below for all six countries. In the Table, if the dummy (D) variable estimates (a3) show statistically significance (t-statistic value in parenthesis), then we can assume that the intercept of the regression line has changed significantly during the post-restructuring period relative to the pre-restructuring period. Additionally, if the interaction variable (DT) estimates (a4) are statistically significant, then we can state that there is econometric evidence that the regression line (rate of real economic growth) changed significantly during the post-restructuring period.

The econometric estimates of Table 3 show statistical significance for the dummy variable (D) in four (Bulgaria, Hungary, Romania and Czech Republic) out of the six countries in our study. For these countries, the estimated coefficient measures the change in the regression lines intercept between the two periods. Furthermore, the estimates of the interaction variable (TD) show statistical significance for all six countries studied.

The econometric estimates of the interaction variable measure the change in slope of the regression line. Therefore, based on the econometric results, there is sufficient evidence to conclude that in all six countries we observe a statistically significant of either an upward rotation of the regression line or a parallel upward shift after the introduction implementation of market economy principles in the Eastern European economies.

The basic conclusion that can be reached here is that the restructuring process, in general, produced positive results in terms of medium to long-term economic growth. One would have to examine many other variables to determine more specifically the impact of these changes in terms of quality of life or standard of living changes. However, the data in Tables 1-3 suggest a positive impact of the transformation from centrally planned to market economies, at least in terms of production, income and material well being overall. This does not mean to imply that all of the participants observed such gains. In fact one would presume that the income distribution and unemployment worsened.

Table 3

Structural Break Analysis Estimates (1980-2007)
Econometric estimates testing for structural break for some Eastern European countries

Countries	C	T	D	T*D	R-square	F-stat.
Albania	8.507	-1.425	1.967	1.232	0.428	5.993
	(2.15)*	(-2.86)*	(0.21)	(1.92)**		
Bulgaria	9.176	-1.198	-31.969	2.346	0.706	19.240
	(4.42)*	(-4.25)*	(-7.32)*	(6.98)*		
Hungary	2.725	-0.275	-10.466	0.773	0.348	4.267
	(1.39)	(-0.95)	(-2.85)*	(2.37)*		
Romania	6.157	-0.867	-20.829	1.682	0.454	6.649
	(2.25)*	(-2.15)*	(-4.08)*	(3.70)*		
Poland	-7.051	1.303	2.700	0.910	0.461	6.838
	(-2.79)*	(3.20)*	(0.64)	(2.07)*		
Czech Republic	4.430	-0.555	-9.402	0.939	0.348	4.263
	(2.32)*	(-2.14)*	(-2.34)*	(3.03)*		

Note:
D (Dummy) takes the following values:
For Albania, 1980-1992 takes the value of 0 and 1992-2007 takes the value of 1

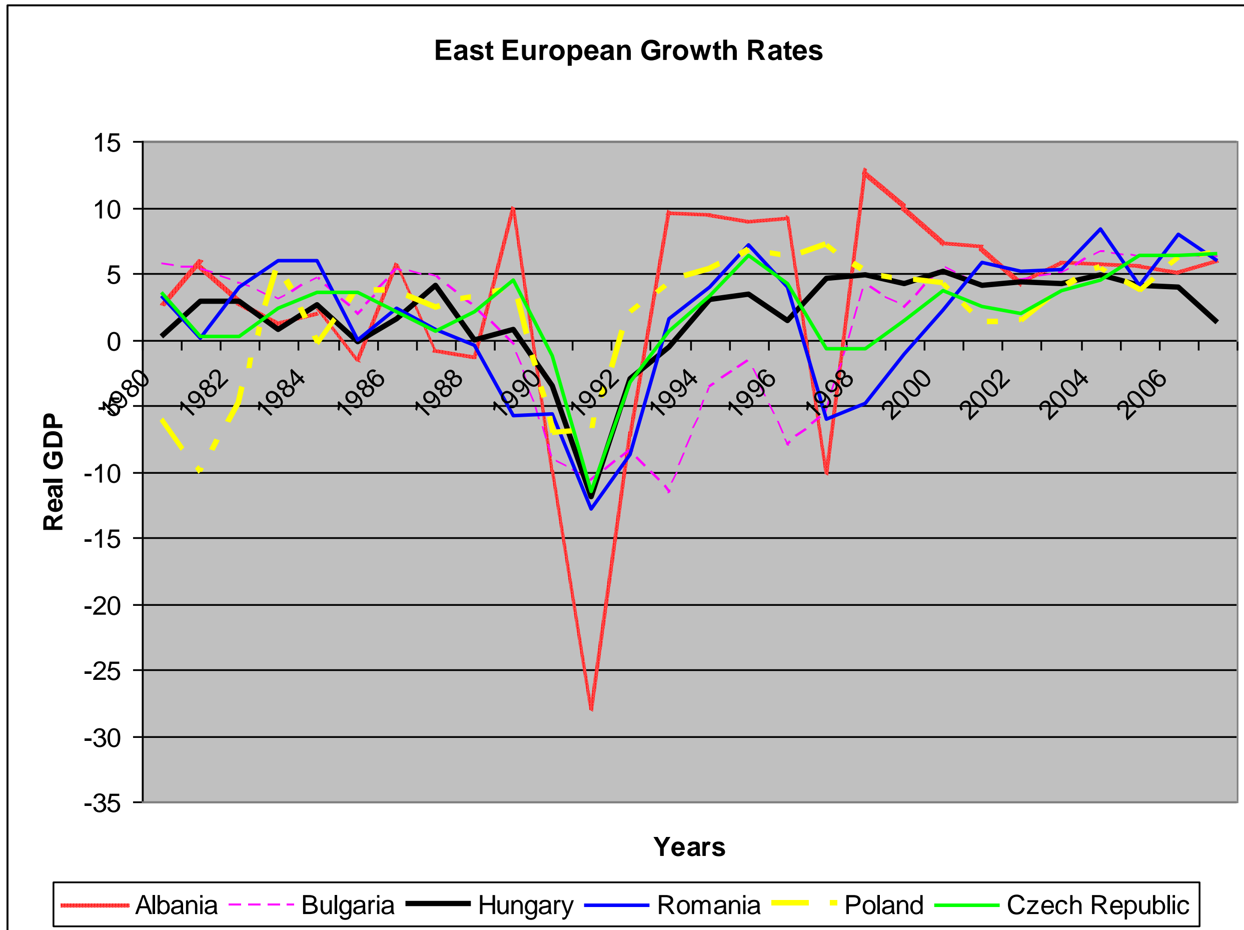
Values of parentheses are the estimated t-statistics:
*Significant at the 0.05 level
**Significant at the 0.10 level

Source of statistical data used for estimations: IMF World Economic Outlook, 1980-2007

A visual examination of the graphs on GRAPH I, which show the rates of real GDP growth over time, (1980-2007), reinforces our structural break findings. There seems to be a significant structural break for the countries for all six countries (Albania, Bulgaria, Hungary, Romania, Poland and Czech republic) between 1990 and 1994. One can also visually observe a higher rate of growth and, thus slope, after that period.

It is also interesting to note that some of these countries (Albania and Romania) seem to have faced a second severe contraction taking place between 1996 and 1998. This could be due political instability that may have lasted longer in these two countries.

GRAPH I -- Plots of 1980-2007 real growth rates



Source of data: IMF World Economic Outlook, 1980-2007

V. COMPARATIVE PRICE INFLATION BEHAVIOR

Before the historic changes after the collapse of the communist regimes in Central and Eastern Europe, (that is, the pre-1989 period), the Eastern European economies applied the central economic planning model. This model precluded the private market mechanisms in determining prices of goods and services, wages, rents and interest rates. Prices were set by the central economic planning boards and dictated to the economic participants (producers and buyers). Moreover, prices, wages, rents and interest rates tended to be fixed for long periods of time. They were not allowed to fluctuate based on changes in supply and demand conditions. The market mechanism was operating somewhat only in the “black/underground markets.” Therefore, under these conditions, the controlled price fixing mechanism imposed by the central planners, allowed for negligible price inflation during the pre-1989 period. In this section we analyze and evaluate the price inflation behavior and comparing the pre and post-restructuring periods to determine whether there was a difference in pattern between the countries that applied the “gradual approach” versus those that applied the “shock therapy approach.”

A market based economy, requires some degree of private ownership of economic resources and competitive markets in order for prices, wages, rents and interest rates to reflect market conditions. Thus, as these centrally planned economies were been transformed to market based economies, the pricing mechanism had to change dramatically. More specifically, freeing prices and allowing supply and demand to play the key role in determining their value were some of the actions taken. However, when central economic planning boards fixed

prices, wages, rents and interest rates, tremendous distortions were present in the system. Most prices were significantly different from the market equilibrium. Therefore, one would expect significant price inflation once the chronic price controls are lifted since competitive markets are not created over night. The dilemma facing the countries in transition was whether to apply a "shock therapy" approach or a "gradual approach" to transforming the pricing mechanism. Moreover, the shifting of price determination to a market based system would not be enough to guarantee price stability since the monetary policy also plays a major role in influencing prices, wages, rents and interest rates.

The decision to convert to a market based mechanism was complex and had economic, political and social implications. Poland took the lead in 1989-90 to free prices and significantly eliminates barriers to external trade. The result certainly was "shock therapy". Enterprises were told overnight to compete without price controls. Since initially while they were united as one country, the Czech Republic and the Slovak Republic applied similar pricing policies with restrictive monetary policy. After the split of Czechoslovakia, they followed different paths for a while. On the other hand, Hungary continued its "gradual approach" with progressive movements toward a market based pricing mechanism. One must remember that Hungary started some limited competitive pricing policy as far back as 1967. Russia and many of the former Soviet republics and satellites of Eastern Europe were most reluctant in eliminating price controls immediately for many goods and services. Also, privatization was much slower in the latter group. Thus, the followed a more "gradual approach," some would say erratic in some cases, to price mechanism transformation.

The inflation data of Table 4 reveals some interesting results with relation to price inflation. As one would expect the rates of inflation were, by and large, significantly lower when the centrally planned model was applied during the 1980's. Poland is the exception since the Solidarity labor movement was pushing changes during the 1980's causing both Political and economic instability that resulted in the 1989 revolution. However, when we examine the 1990-94 period when all of the countries in our study initiated political and economic transformation, the rates of inflation increase dramatically to an average of 95.72% versus an average of 15.22% in the 1980-89 period, for all countries under study. After the 1990-94 dramatic economic system changes were mostly in place, the average annual rate of inflation for decreased to 62.95% in the 1995-99 periods – a period of continued restructuring but most of price adjustment shocks, for most of the countries, had been by now absorbed. As we can see from Table 4, during the 2000-07 periods, the average inflation rate had dropped dramatically to an annual average of 6.74% from the 95.72 average increases in the 1990 to 1994 period. The market price mechanism seems to stabilize in the early 2000's, partly reflecting the completion to a market based mechanism, privatization of production, encouragement of competition, opening the domestic market to global competition through the reduction of trade barriers, some restructuring in the banking and financial system and applying a more sound monetary policy. Inflation was finally somewhat under control and the market mechanism was in full force.

Table 4

Average Rate of Inflation - - 1980-2007

	1980-89	1990-94	1995-99	2000-07
Albania	n/a	73.82	14.95	2.65
Bulgaria	2.74	121.64	253.51	6.63
Hungary	8.96	25.49	18.88	6.38
Romania	3.01	178.45	66.15	18.78
Average Growth	4.90	99.85	88.37	8.61
Czech Republic	1.51	21.62	7.85	2.55
Poland	59.86	153.32	16.36	3.43
Average Growth	30.69	87.47	12.10	2.99
Average Growth of six Countries	15.22	95.72	62.95	6.74

Source of data: IMF World Economic Outlook, 1980-2007; Data is based on consumer prices changes

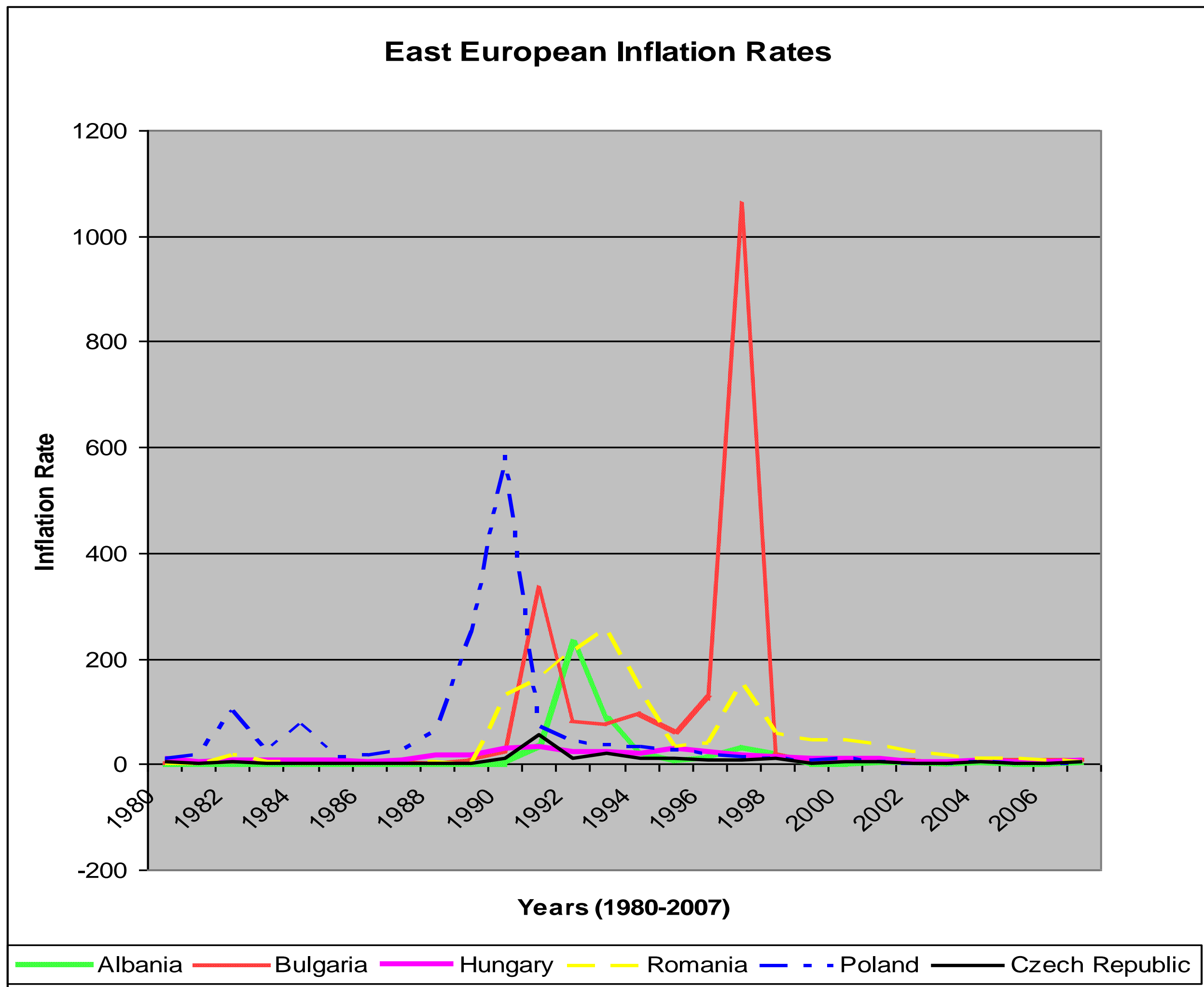
The other issue that needs to addressed here is our hypothesis that the use of the "gradual approach versus "shock therapy approach" of transformation produced different results, or had a different degree of impact as these economies were been changed. In examining the data presented in Table 4 above, one can make the following observations. Poland and the Czech Republic, even though they applied the "shock therapy approach" and, thus, decontrolled the price system almost immediately after the collapse of their Communist governments, they seem to have achieved better price stability and faster than the rest of the countries (Albania, Bulgaria, Hungary and Romania)that applied the "gradual approach."

As can be observed from Table 4, since the period of transformation of the economic systems from centrally planned to market based economies, the rate of inflation has decreased substantially from the early explosive rates of 1990-1994 for all countries. The contraction in annual rate inflation rates is more substantial for the two counties that we classified as having applied the "shock therapy approach", Poland and Czech Republic relative to the other four economies that used the "gradual approach" to transformation. In the 199-94 period former outperforms the latter group somewhat (87.47% versus 99.85% of inflation). The difference in performance becomes more evident after the initial system and price shocks are absorbed.

During the 1995-99 period, Poland and Czech Republic brought down the annual average rate of inflation to 12.10% from 87.47% in the previous five years, whereas, the four "gradual approach" countries still had a high average rate of 88.37% versus 99.85% in the previous five years. The improvement of inflation rates continued during 2000-07 for all countries in the study. However, during this period, again Poland and the Czech Republic performed better in reducing their average annual rate of inflation to 2.99% versus 8.61% for the other four countries, which is about three times the average inflation for the former group.

Therefore, based on the date of Table 4, we can conclude that the countries that applied the "shock therapy approach" performed better in terms of annual rates of inflation than those that used a "gradual approach" to economic transformation. A visual analysis of GRAPH II below that depicts the rates of inflation for the six countries in our study reinforces the statistical analysis.

GRAPH II – 1980-2007 Plot of Inflation Rates



Source of data: IMF World Economic Outlook, 1980-2007;
Inflation rates are consumer price index based.

In the above graph on can see the spiking of inflation rates between 1990 and 1994 as these countries start removing price controls and implementing a market based system. Once the initial system and price shocks are absorbed, the rates of inflation start to subside for all except Romania. Romania observed a second and more potent price inflation spike between 1996 and 1998, partly reflecting the political environment and the delayed pricing system reforms.

As stated earlier GRAPH II allows us to reconfirm the over all better performance of Poland and the Czech Republic, the "shock therapy" countries versus the "gradual approach countries," in general. After the initial price inflation spikes 1990-1992 in both cases the inflation rates drop to very low rates shortly thereafter.

VI. CONCLUSION

During the past twenty years, the world has seen one of the most massive and impressive economic system transformations. The magnitude of the changes from a command (centrally planned) economy to a market economic

system in Eastern Europe and the former Soviet Union republics is historically unprecedented. The objective of this paper was to analyze, evaluate and compare the relative economic success of Eastern European economies in transition. In Eastern Europe, two alternative models were applied in an attempt to transform the economies from command models to market based models. One was the "shock therapy approach" as applied in Poland and the Czech Republic and the other was the "gradual therapy" approach as applied by most of the rest of the former centrally planned economies of Central and Eastern Europe. Our *a priori* expectation was that the "shock therapy" model, even though it may have been more painful in the short-run, may have been more successful in achieving positive transformation results more rapidly, creating a more stable economic environment, increased incomes and price stability. The "shock therapy' approach seems to have performed better when one compares rates of economic growth and rates of price inflation, as discussed earlier.

It is apparent from the data and analysis that the transition period was extremely painful and, in some cases, devastating. In all countries presented in this paper, during the first few years, the economic system transformation was followed by dramatic contraction in real GDP, implicitly, contraction in real per capita incomes, high unemployment and high inflation. That is a form of stagflation where both inflation and unemployment were rising at the same time due to negative shifts in aggregate supply followed by negative shifts in aggregate demand. The first can be attributed to the reallocation of economic resources, short-term transformation induced inefficiencies and uncertainty. The drop in aggregate demand can partly be attributed to the loss of income and employment and substantial reduction in government subsidies during the transition period. Moreover, in all cases studied, the removal of price controls and introduction of the market pricing mechanism resulted in a price spike with very high inflation rates. The duration of the hyperinflationary period varied depending on the overall economic transition policies applied, the intensity of the reforms and the time span used.

The basic conclusion that can be reached here is that the restructuring process, in general, produced positive results in terms of medium to long-term economic growth. One would have to examine many other variables to determine more specifically the impact of these changes in terms of quality of life or standard of living changes – especially since the average unemployment rate and income distribution worsened. However, the data analyzed suggest a positive impact of the transformation from centrally planned to market economies, at least in terms of production, income and material well being overall. This does not mean to imply that all of the participants observed such gains. In fact one would presume that the income distribution and unemployment worsened.

The data analysis also shows that countries that chose a very "gradual approach" to transformation versus those that chose the "shock therapy" approach performed markedly better in terms of economic growth, inflation and economic stability, during the period of economic transformation to market economies. Poland and the Czech Republic that chose the 'shock therapy approach," after some significant initial downturn very high inflation rates, observed some significant improvements in economic growth and income, and succeeded in reducing significantly the rate of inflation by the 2000-2007. That is, relatively speaking they performed better on average than their counterparts in this study. Thus, one can concludes that the "shock therapy" approach may have been a more successful model to transform an economy from command type to market type, if one is willing to accept significant economic and social pain in the short-term.

The results presented here reflect an evaluation of performance based on the two key economic indicators (economic growth rates and inflation). As more information becomes available -- now that comparable statistical systems are in place – further analysis is required using more economic and socio-economic variables to expand the scope of this study and get more conclusive answers to the effects of economic transformation from command to market system models and the impact of specific approaches used.

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