De-Development in Post-Socialism: Conceptual and Measurement Issues

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In former socialist countries, neoliberal reform promised to replace stagnation with growth and development. Many places, however, experienced a decade of economic decline, accompanied by rising poverty. Although even the worst performing economies managed positive growth rates by 1999-2000, this growth starts from levels as low as 36 percent of 1989 levels. Less recognized than the problem of rising poverty is the erosion of development gains in countries once characterized by high human development. This article distinguishes de-development from the widely recognized issue of poverty. The authors find that transition outcomes are mixed but that de-development can be seen in parts of Central and Eastern Europe and most of the former Soviet Union. One important question is how to use renewed growth to prevent further erosion of development and to recapture lost gains.

Keywords: *transition; development; infrastructure; poverty; education*

When political-economic transformations shook Central and Eastern Europe (CEE) and the former Soviet Union (FSU) in the late 1980s and early 1990s, the region was in the midst of a major economic slowdown. Popular dissatisfaction with economic performance was an important factor in the political upheavals that ended the socialist experiment,[1] and support for the neoliberal reform model

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was often based on its promise to renew growth and development by "freeing" the economic forces of the market.

In many places, however, the decade since the transition began has been a period of further economic decline. Although even the worst performing transition economies managed (sometimes dramatic) positive growth in 1999-2000, this growth begins from output levels well below those of 1989. That the prolonged economic decline has been accompanied by a rise in poverty has been widely recognized in both academic and policy circles.[2] Recommended policy responses to the poverty problem focus on maintaining a social safety net, which will ensure continued access to the most essential goods and services until incomes rise with the tide of economic growth.[3]

What has been less recognized in the literature on post-socialist economies is the broad and rapid erosion of development gains. With falling GDP, stricter control of government deficits, and restructuring of the tax base, government and private investment has failed to keep pace with the depreciation of physical and human capital. As a result, many residents, especially in rural areas, characterize recent years as a period of "going wild"[4]—a gradual disconnection from the national economy and society, from educational and health care institutions, and from the paid labor force. Declines in development levels across broad areas of Eastern Europe and the FSU will undermine international efforts to achieve the Millennium Development Goals by 2015. Further, the negative changes have implications that extend significantly beyond the welfare of poor populations themselves. A process of de-development in parts of CEE and Central Asia will negatively affect the proposed integration of CEE into the European Union and will threaten regional peace and stability.

This article makes a preliminary contribution to the study of this issue, clarifying the distinction between de-development and the widely recognized issue of poverty. Using a variety of measures, we argue that although outcomes of the transition process are mixed everywhere, de-development can be seen in both CEE and the FSU. Hungary, the Czech Republic, and Poland stand out from the other cases for their very strong performance. For the other countries, however, a de-development is seen, raising issues of how to most effectively prevent further erosion of development gains and how to most effectively recapture gains once economic growth is achieved.

The problem of de-development is not restricted to post-socialist economies, of course. Although the study of development has focused mainly on the conditions for, and measures of, *improving* economic outcomes,[5] declines in development indicators have been seen in other areas of the world over the past two decades. Parts of Africa and Latin America under structural adjustment are examples of this.[6] The examination below of the process occurring in post-socialist countries in the 1990s thus raises conceptual and measurement issues that have much broader applications. Once the broad outlines of process are estab-

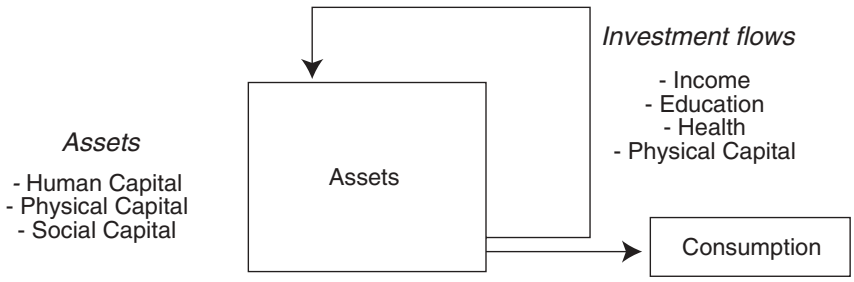

Figure 1. Asset stock and economic flows.

lished, researchers can analyze the tools needed to rapidly identify processes of *de*-development, and the policy issues related to *preserving*, as distinct from achieving, development gains. These tasks, however, are mainly left to other, ongoing work.

CONCEPTUAL ISSUES

To begin, we draw distinctions between the problems of poverty, development, and de-development. Although in many cases, poverty and a lack of development go hand in hand, the two are conceptually distinct. Two examples may illustrate this. We can think of the United States during the Great Depression, where poverty was rife but a relatively high level of development persisted, and the United Arab Emirates in the 1970s, when poverty was quickly eliminated but development was not yet achieved.

Conceptually, two distinctions may be useful. First, poverty rates refer to characteristics of individuals. Whether one uses an income, basic needs, or capability approach to poverty,[7] poverty measures all refer to levels of well-being achieved by individuals or individuals in a household. Measures of development, on the other hand, refer to groups or areas (nations, regions), the capital (physical, human, and social) within that area, and, in some cases, its distribution. A second distinction is that poverty represents a flow problem. At a certain time, the flow of income or services does not meet established acceptable levels. Development, however, might be better thought of as an accrued stock—of physical, human, infrastructural, and social capital that a population can use. That stock generates a loosely associated[8] level of flows, which are consumed or reinvested in the stock. This relationship can be depicted as in Figure 1. Typical measures of development, such as GDP per capita or education enrollment rates, measure flows associated with a given achieved stock.

De-development, then, is a reduction in the stock of capital available to a group or population and in the flows, or income, loosely associated with those stocks.[9]

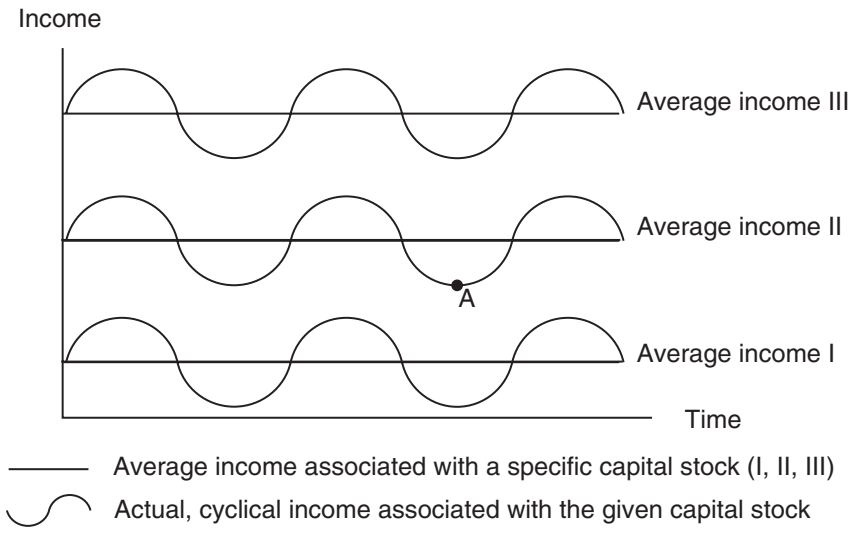

Figure 2. Assets and flows.

Figure 2 can be used to further clarify this distinction between poverty and de-development. In Figure 2, let Average Income II reflect average long-run flows associated with a particular stock of capital (Capital Stock II). Over time, actual flows fluctuate around the Average Income II, as shown in the wavy line, due to the normal fluctuations of a capitalist economy. The fluctuations will clearly affect the poverty rate, but these short-run changes need not imply a change in the stock of available assets. The higher levels of flows associated with the existing assets are still possible.

Starting from Average Income II, there are three possible dynamic scenarios. In the first case, flows are such, and are used in such a way, that the capital stock is just maintained, resulting in a steady state of development and constant average income. In the second case, which we normally think of as "development," the capital base is increased, either through exogenous transfer, a technical or institutional change that increases flows from the given base, or a decline in consumption levels, which allows greater investment out of a constant level of flows. This increase in the capital stock, to Capital Stock III, permits an upward shift in average flows, to Average Income III. In the third case, if an economic downturn persists over a long period, the reduced flows (see point A in Figure 2) may be insufficient to allow the replacement of depreciated physical, human, infrastructural, and social capital. As the base erodes to Capital Stock I, flows associated with previous stocks of capital are no longer possible. Potential flows will shift down (to

Average Income I), in a process of de-development. As the capital stock and associated flows shift down, poverty rates will rise. De-development thus always implies increases in poverty, but increases in poverty do not always imply de-development.

If consumption levels do not adjust quickly to changes in total flows from the capital stock, virtuous or vicious cycles may develop. If capital stocks increase but consumption increases more slowly, increased flows into the capital stock are possible, producing another shift upward in a virtuous cycle of development. Alternatively, capital stocks and associated flows may fall without an offsetting contraction in consumption. In this case, flows back into the capital stock may fall below the level needed to cover depreciation, leading to a further reduction in the stock of capital. This creates the potential for a downward spiral.

The problem faced in many post-socialist cases is thus not only that of moving the economy out of the trough and toward growth (issues that have received quite a lot of attention, although perhaps not a successful resolution). Nor is the problem limited to designing a safety net that can prevent the most severe privations during the downturn. An equally important question is how to preserve the development level of the country (accrued capital of the various sorts) so that hard-won gains will not have to be achieved again once positive growth is restored.

HISTORICAL BACKGROUND

Countries that participated in the experiment with centrally planned socialism differed significantly in their levels of pre-socialist development. Still, at the time of their respective socialist revolutions, the majority of the future socialist countries[10] would clearly be described as underdeveloped. Industrialization was limited, and the vast majority of most populations worked in low-productivity agriculture, producing mainly for subsistence, which resulted in low levels of economic growth. Many lived in poverty and had little access to healthcare and education. The tasks of state building were in many cases at a very early stage.

A discussion of conditions in each country is beyond the purview of this article. Instead, data from a few cases will be used to support the above points. In the interwar years, two-thirds of the Polish population[11] and at least 70 percent of the populations of Romania, Bulgaria, Yugoslavia, and Russia depended on farming.[12] The majority of households farmed very small plots with very primitive technology. For the period from 1927 to 1935, between 80 and 90 percent of landholdings were less than 10 hectares in all CEE countries,[13] and this problem was not solved prior to 1945.[14] In Latvia, after the land reform of 1920, 48 percent of landholdings were under 10 hectares, and 71 percent were under 20 hectares.[15]

Most countries thus found themselves caught in a typical development trap: excess rural population kept agricultural productivity low and limited resources for industrialization, while limited industrialization prevented the outflow of labor from agriculture.[16] Overall, rather than closing the per capita income gap

with Western Europe, Eastern Europe actually fell further behind from 1910 to 1930.[17]

Achievements in health and education varied widely by country. Latvia had made significant progress in expanding education. In Russia, however, 70 percent of the population remained illiterate in 1913[18] as universal primary education had not yet been introduced. Public health systems failed to reach the villages, as a result of which infant mortality remained extremely high (one in four).[19] In Romania, too, medical care was extremely limited outside the main cities, and illiteracy remained high at 55 percent of the population in 1930.[20]

Infrastructure development was also very uneven. Although railroads were "indispensable to sustain a level of exports consonant with the needs of an industrializing economy,"[21] rail systems were insufficient in Poland, and Balkan railways were even more sparse.[22] Roads were less developed everywhere. Electricity production, another important prerequisite to industrialization, was also limited in many places. In 1955, Bulgaria produced only 2,070 million kilowatt-hours, compared to 5,430 in Hungary, 15,010 in Czechoslovakia, 17,750 in Poland, and 28,030 in the German Democratic Republic.[23]

The centrally planned, socialist societies produced a wide range of undesirable political and economic outcomes that are widely known.[24] Still, CEE and former Soviet countries did make significant progress in important development indicators between 1960 and 1980, achieving at least a midlevel performance on most indicators and high human development rankings by the late 1980s. Countries industrialized rapidly. In 1989, none of the countries examined here relied on agriculture for more than 23 percent of GDP.[25] Estimates of GDP per capita suggest income levels in the range from Portugal (low) to New Zealand (high) for 1980.[26] In health, centrally planned economies performed just behind industrialized market economies for the period 1950 to 1990, well ahead of Latin America or other parts of the developing world.[27] From 1961 to 1989, calorie and protein intake were on a par with Western countries.[28] Countries reported almost universal literacy,[29] and children from Eastern and Central European countries and Russia performed above the international average in the Third International Mathematics and Science Study (TIMSS) of eighth-grade achievement.[30]

Perhaps equally important from a development perspective, the benefits of these changes were quite evenly distributed. In particular, high levels of infrastructure development helped to integrate marginal populations and those in rural areas into national systems of health, education, and employment. Combined with male and female labor force participation rates of 70 to 90 percent (CEE, 1992), this contributed to relatively equal distributions of income. In the late 1980s, socialist countries had Gini coefficients ranging from 19 to 24.[31] Of the nonsocialist economies, only Austria, Belgium, and Sweden approach these levels today.[32]

The decade of the 1980s was a period of stagnation across the former Soviet bloc, however. Annual GDP growth rates averaged from 2.8 percent for Bulgaria for the period 1980 to 1988 to –0.8 percent for Romania, but they fell steadily over that period. In 1989, Czechoslovakia grew at 1.3 percent, while Romania posted growth of –5.8 percent. Some development indicators fell slightly from their peak levels during this period. Still, the populations of the socialist countries arrived at transition with relatively high levels of education, health, and labor market experience, and these assets were quite evenly distributed among the population.

TRANSITION: DEVELOPMENT PROMISES AND DEVELOPMENT OUTCOMES

The economic stagnation of the 1980s gave important impetus to the eventual political upheavals.[33] Whereas state socialism enjoyed high rates of economic growth and technological "catching up" with the West through the 1960s, these gains had not continued into the late 1970s and 1980s. Demographic factors also contributed to the discontent. Unlike their parents and grandparents, socialist youth in the 1980s did not measure their well-being in comparison to the low level of development in the interwar and postwar periods. Their aspirations lay in the increasingly visible lifestyles of other industrialized countries—Western Europe and the United States. The younger members of the technocratic elite, groomed to lead socialism into a new period of growth and progress, were frustrated by foreign currency shortages, which cut them off from the international technical literature and inputs necessary to participate in global developments.[34]

With many development goals met, the central reform challenge may have seemed to lie in allocating resources more efficiently. Market reforms, which promised to generate the price signals necessary for improving allocation and to free actors to respond to those signals, had a logical appeal. Drawing on the relatively high levels of labor force attachment, education, and infrastructure development, the policy makers might even have hoped to integrate into the global economy on reasonably good terms. Of course, even the most optimistic proponents of the neoliberal reform warned that the reforms would have short-term costs, especially high unemployment and poverty. But as resources were freed up by the closing of old businesses, it was argued that entrepreneurs would mobilize those freed resources into new, higher productivity uses. Growth and development would follow.[35]

As expected, the transformation began with an economic downturn. The downturn was much deeper and more persistent than expected, however. In 1992, Larry Summers wrote that by conservative estimates, northern countries in CEE would not regain 1989 output levels until 1996 and southern CEE countries not until 2000.[36] By 1998, however, only Poland and Slovenia had regained pre-1989 output levels, and most countries remained 30 to 40 percent below 1989 levels.[37]

Despite positive growth in many places in 1998 and 1999, by the year 2000, only Hungary and the Czech Republic had joined those countries that had regained 1989 levels of output.[38]

With this prolonged downturn came significant declines in employment. By 1998, no country had regained 1989 levels of employment (at least not in the formal sector).[39] While the Czech Republic and Poland reported employment of about 90 percent of previous levels, other countries (including Hungary and Bulgaria) reported levels of about 70 percent of previous levels. Real wages also collapsed and failed to recover in many places. In 1998, real wages ranged from 101 percent of 1989 levels in the Czech Republic to 34 percent of previous levels in Kazakhstan and 40 percent in Russia.[40] Clearly, the informal economy provides some unmeasured additions to household income. Still, the declines in wages underlie some very large increases in (expenditure-based) poverty rates. By 1993-95, expenditure-based estimates suggested poverty rates ranging from 7 percent in Hungary to 48 percent in Romania.[41]

Government revenues fell alongside individual incomes. New tax and government budgeting systems have emerged slowly so that even resources that might be available to support income or fund services have not been effectively used. One change has been the shift of responsibilities for health, education, and welfare expenditures to the local level without adequate provision for revenue sharing.[42] Local governments and social service providers, faced with years of budget cuts and budgetary shortfalls, have prioritized current services and consumables over investment in maintaining buildings, machinery, roads, buses, electrical stations, and so on.[43] Schools and medical clinics have become more crowded and dilapidated, with fewer supplies. Free meals for students and patients have been eliminated. Transportation services have been drastically cut. User fees have been imposed or increased to ensure the continued provision of at least some services to those who can pay. Where social services were mainly provided by state firms during the socialist period, municipalities have found service provision even more difficult. As the downturn has persisted, worrying signs have begun to emerge of real declines in human and infrastructural capital.

Scholars and policy makers have begun to study aspects of this problem. Sekula et al.[44] found significant declines in food consumption across CEE and the Baltic states between 1989 and 1992 and even greater declines in the consumption of meat and milk over the period 1989 to 1994. They further documented significant shortfalls in crucial nutrients including iron, calcium, and folate among some population groups, and these may have important long-term health effects. The declines in nutrition were linked to rising relative food prices and decreased access to subsidized meals through schools, childcare centers, and workplaces.

Attention has also been paid to changes in schooling across transition economies. Preschools have historically played an important role in allowing children from diverse backgrounds to start school on an even footing, helping children

from poorer backgrounds to succeed in school.[45] Since 1989, enrollments in preschools have fallen in many of the formerly centrally planned economies, in some cases to half or less of their previous levels.[46] One study of Bulgaria shows that enrollments have fallen most in the poorer and more remote areas, where the remedial functions of preschools are likely to be most important.[47]

Secondary school enrollments have also fallen in some places, especially in the Caucuses and Central Asia. At the same time, the quality of schooling appears to have declined, as total real expenditures on secondary school in transition economies fell by amounts ranging from 22 percent (in Hungary) to 94 percent (in Georgia) over the period 1989 to 1996.[48] Research on Bulgaria suggests that declines in income contribute significantly to changes in school enrollments, but so do transportation problems.[49] Micklewright[50] also notes that changes in school outcomes vary significantly by locality. Research on Georgia and Hungary suggests that rural areas tended to see a much more severe impact.

The trend toward improving life expectancy in state socialist economies did not continue into the 1990s either, and Marc Suhrcke[51] finds that the changes in health outcomes in the post-transition period are statistically significant for the pooled set of CEE and FSU countries. At the same time, he finds that trends are diverging, with the countries with higher initial life expectancies outperforming those that started from a lower point.

The argument here is not that these declines are *caused* by transition. In fact, the countries that have the best performance on development indicators are those that have made the most significant changes in economic and political organization.[52] But declines do characterize the post-socialist period in many places, and the resulting problems are more profound than shortfalls in household incomes and more comprehensive than any of the particular problems (medical care or education) that transition literature has begun to describe singly.

The changes have both direct and interactive impacts on countries' future social and economic trajectories, through their impact on the available stock of human capital in the transition countries. International evidence suggests that the health of a population influences earnings directly, as well as indirectly, through educational attainment and also affects levels of functioning, a development goal in itself.[53] Schooling raises productivity, material standards of living, and functioning.[54] Higher levels of schooling are also associated with faster adoption of new technology.[55] Falling labor force attachment further erodes human capital,[56] including the specific kinds of work habits that employers take pains to develop at the early stages of industrialization.[57] It also reduces incentives for future investments in human capital. Health and education affect both long-run growth rates[58] and income distribution.[59]

Declines in the stock of available infrastructure also interact with other variables to affect long-term prospects. Reduced infrastructure availability under-

mines investments in health and education,[60] cuts off populations from employment opportunities in nearby areas, and reduces incentives for investment.[61]

EVALUATING THE PROBLEM

To provide an initial overview of the problem, we have assembled data on development indicators for nine transition economies, drawing on data from the World Development Indicators and the Transmonee Database. In our sample, we include all of the countries of CEE outside of the former Yugoslavia (where war may have created unique problems), as well as a selection of former Soviet states (Latvia, Ukraine, Kazakhstan, and Russia). We examine the period from 1989 to 1998, as 1998 is the last date for which comprehensive data are available. To avoid undue influence by any one year, we use an average for 1996-98 as our endpoint, although this results in little change to the results compared with using 1998 alone. Comparable data for other pretransition years were not available, so 1989 data alone are taken as the starting point.

We examine measures of change in available human and physical capital. As we understand de-development, it is related mainly to the lack of available resources to replace depreciating physical and human capital. Where possible, we therefore rely on measures of flows into the stock of human and physical capital.[62]

Initially, we examine the dynamics of flows into stocks of human and physical capital separately. To measure the change in total available flows for all uses, including consumption and capital replacement, we examine change in GDP/capita. To evaluate changes in the stock of human capital, we initially rely on widely-used Human Development Index (HDI) variables, including enrollments in primary, secondary, and tertiary education and life expectancy at birth (but not literacy, as the measure reflects, in large part, the impact of flows in previous periods and not GDP/capita, which we use to measure overall flows).[63] Changes in secondary and tertiary enrollment rates and life expectancy are only imperfect measures of recent changes in flows into the stock of national assets, however, since these variables will be heavily influenced by flows in previous periods. For example, good primary schooling and child nutrition in the previous periods are likely to support higher levels of secondary enrollments and life expectancy in current periods, even after flows into health and education decline substantially. Declining investments into the human capital stock may take years to be reflected in these development indicators.

To examine flows back into the stock of physical capital, we use measures of gross domestic investment (GDI) and infrastructure. We use GDI per capita in current international dollars to measure immediate flows into physical capital. Flows into infrastructure are more difficult to evaluate. Internationally comparable data on total flows into infrastructure are not available, and measures of many flows into infrastructure will involve some double counting of flows captured in

GDI. We use changes in two available, and important, infrastructure variables—railroad use and telephone stock[64]— to proxy changes in flows to infrastructure. Changes in railroads are measured in passenger kilometers per million U.S. dollars of GDP, in purchasing power parity. We expect that this variable will move in tandem with funds invested in public transport generally, although it will be biased upward by the collapse in GDP.[65] Telephone availability is measured in telephone lines per one thousand people. Change in availability should directly mirror flows and will also capture the kind of positive infrastructural changes that have accompanied the post-socialist reforms.

As Table 1 shows, transition economies show a broad diversity in outcomes for the period 1989 to 1998. Real GDP per capita rose in Poland by $1,960 in current international dollars between 1989 and 1996-98 and $705 in Hungary but fell by as much as $3,334 in Russia. In all the former Soviet cases examined here, income fell by more than 30 percent. Changes in GDI per capita varied from an increase of $1,380 1995 U.S. dollars in the Czech Republic to a decline of $1,964 in Ukraine.

Measures of infrastructure give a similarly mixed picture. Passenger rail service per million dollars of GDP shows significant declines nearly everywhere, which is all the more surprising given the radical declines in GDP. Only Kazakhstan and Ukraine show increases, and in four cases the declines are 50 percent or more. Telephone access has increased uniformly, on the other hand, with increases ranging from 212 main phone lines per thousand people in Hungary to 35 phone lines per thousand people in Kazakhstan.

Human development indicators show that life expectancy at birth has risen in what we will call the Big Three countries (Poland, Hungary, and the Czech Republic) and fallen everywhere else, falling by almost four years in Kazakhstan (Table 2). Enrollments in kindergarten (not shown in the table), too, have risen slightly in the Big Three but fallen everywhere else. In Kazakhstan, enrollment rates fell from 52 percent of the relevant population to 11 percent.[66]

World Development Indicators, using data collected by UNESCO, suggest a mixed picture of changes in school enrollments.[67] Primary school enrollment rates fall only in Poland and Ukraine. But secondary school enrollment rates fall in all countries of the FSU as well as Romania, increasing significantly only in the Big Three and remaining flat in Bulgaria. Tertiary enrollments fall in all FSU countries except Latvia but rise everywhere else. Although the rise in tertiary enrollments in some countries may be a sign of responsiveness to the needs of the restructuring economies (as well as a sign of disguised unemployment), declines in secondary enrollments may make the rise unsustainable.

Considering all the variables presented here, the countries examined fall into two clearly delineated groups. There is a high-performing group consisting of the Big Three. In this group, GDP per capita has risen significantly (less in the Czech case), and human capital indicators uniformly have improved (with the exception of the primary enrollment figure for Poland). These countries have also seen

Table 1
Change in Development Indicators

	GDI per Capita			GDP per Capita			Telephone Mainlines			Railways (in millions)		
		Average			Average			Average			Average	
Country	1989	1996-98	Change	1989	1996-98	Change	1989	1996-98	Change	1989	1996-98	Change
Bulgaria	619.1	311.7	–307.4	5706.3	4879.7	–826.6	221.9	322.7	100.8	150053.6	129492.3	–20,561.3
Czech Republic	415.2	1795.4	1380.2	12373.5	12771.0	397.5	151.2	318.5	167.3	75575.4[a]	57754.2	–17,821.2
Hungary	996.1	1261.5[b]	265.5	9194.4	9898.9	704.5	88.0	299.9	211.9	123039.1	64163.2	–58,875.9
Kazakhstan	498.4[c]	218.9	–279.5	6543.6	4440.7	–2102.9	74.1	108.9	34.8	177953.5	180227.4[d]	2,273.9
Latvia	524.9	559.6	34.8	8089.6	5504.1	–2585.5	225.0	299.6	74.5	269353.9[c]	110948.2[e]	–158,405.8
Poland	569.1	925.4	356.3	5411.4	7372.2	1960.8	82.3	197.0	114.7	261160.5	91488.2	–169,672.3
Romania	459.9	279.3	–180.6	6397.8	6218.8	–178.9	101.0	152.0	51.0	239454.7	112486.6	–126,968.0
Russia	841.1[f]	387.5	–453.6	10089.7	6755.7	–3334.0	131.3	188.1	56.8	181236.8	158442.2	–22,794.6
Ukraine	2294.9[f]	330.6	–1964.3	6630.7	3298.3	–3332.4	130.0	185.4	55.4	230202.3	325573.0	95,370.7

Source: World Development Indicators, CD Rom, 2000.
Note: GDI = gross domestic investment.
a. 1993.
b. Average of 1996 and 1997.
c. 1992.
d. 1997.
e. 1995.
f. 1990.

Table 2
Change in Enrollments and Life Expectancy

	Primary			Secondary			Tertiary			Life Expectancy at Birth		
Country	1989	Average 1996-98	Change	1989	Post-1989	Change	1989[a]	Post-1989[b]	Change	1989	Average 1996-98	Change
Bulgaria	98.9	98.9[b]	0	76.7	76.8[b]	0.1	31.1	41.2	10.1	71.8	70.8	–1.0
Czech	95.9	104.0[c]	8.1	92.5	98.7[c]	6.2	16.0	24.0	8.0	71.7	74.1	2.4
Hungary	96.0	103.2[c]	7.2	75.4	97.8[c]	22.4	14.0	25.1	11.1	69.5	70.5	1.0
Kazakhstan	85.4	97.8[b]	12.4	100.5	86.5[b]	–14.0	40.1	32.3	–7.8	68.3	64.4	–3.9
Latvia	90.7	95.8[b]	5.1	96.6	83.7[b]	–12.9	25.0	33.4	8.4	70.1	69.6	–0.5
Poland	98.8	96.4[c]	–2.4	81.6	97.6[c]	16.0	21.7	24.3	2.6	71.0[a]	72.6	1.6
Romania	98.4	103.5[b]	5.1	101.4	78.4[b]	–23.0	9.7	22.5	12.8	69.5	69.1	–0.4
Russia	106.6	107.2[d]	0.6	94.9	87.0[e]	–7.9	52.1	41.4	–10.7	69.3	66.6	–2.7
Ukraine	88.0	86.8[e]	–1.2	94.7	91.2[e]	–3.5	46.6	41.5	–5.1	70.5	67.3	–3.2

Source: World Development Indicators, CD Rom, 2000. Notes b-e represent latest available year.
a. 1990.
b. 1996.
c. 1995.
d. 1994.
e. 1993.

increased flows to their stock of physical capital. Per capita GDI has increased, and improvements in phone access have been double or more than in the other cases. One exception is the decline in the measure of rail service, which is significant for two of the three countries. But in these three countries, it is possible that the decline represents, at least in part, a significant shift to alternative transport, including private cars.

The other six countries share a pattern of declines in per capita GDP, per capita GDI, secondary schooling (except Bulgaria), and life expectancy. Declines in rail service are unlikely to have been offset by significant increases in private car use in these cases, where incomes are much lower. Improvements in telephone availability have been more limited.

Taken together, these changes may result in a downward shift in the stock of capital available to the population, as depicted in Figure 2. In the face of continued shortfalls in flows back into the capital stock, these changes may become a vicious cycle. Declines in flows into infrastructure, for example, may result in further declines in total income, in an ongoing process of de-development.

A GLOBAL MEASURE OF DE-DEVELOPMENT

The above data provide a rich description of the varied processes at work in transition economies. A concise comparison of overall changes does not emerge directly from the very diverse trends, however. One existing method of aggregating development indicators into a single, comparative measure is the HDI. The HDI provides a ranking of countries' performance on GDP per capita, life expectancy, and education (literacy and school enrollments) relative to all other countries, with each of the three variables weighted equally.[68] Changes in these rankings of the transition economies since 1989 present a clear picture of overall backward slippage, relative to the performance of other countries. In the 1990 HDI (the first published, which drew on data from the late 1980s), the countries in our sample ranked from 25th to 40th out of 130 countries. All fell within the "high human development" group,[69] with all countries but Romania ranking near the middle of that group. The 2000 HDI, which draws mainly on 1998 data, ranks the sample countries 34th to 78th out of 174 countries. The 1990 HDI does not provide data for the former Soviet countries individually, but changes in the rankings of the other countries can be seen in Table 3. In addition to the general decline in rankings, two other important changes emerge. One is the significant improvement in the position of Hungary and Poland among (former) socialist economies. The other is the "demotion" of all countries but the Big Three to the rank of "medium human development."[70] Compared to other countries, and especially those at a similar level of development in 1989, the majority of transition economies examined here have performed poorly over the past decade. This is particularly striking because many of the other middle-income countries have themselves experienced significant dislocation during the 1990s.[71]

Table 3
Human Development Index Rankings of Sample Transition Economies, 1989 to 1998

Country	1989	1998	Change
Czechoslovakia[a]	25[b]	34[b]	–9
Bulgaria	27[b]	60	–33
Hungary	30[b]	43[b]	–13
Poland	32[b]	44[b]	–12
Romania	40[b]	64	–24
USSR	26[b]	NA	
Russia	NA	62	–37
Latvia	NA	63	NA
Kazakhstan	NA	73	NA
Ukraine	NA	78	NA

Source: United Nations Development Program, 1990, 2000.
a. Czech Republic in 1998.
b. High human development.

While the HDI provides a concise measure of human development in post-socialism, it does not reflect other aspects of the countries' capital stocks or provide a measure of changing absolute development levels in these countries. To provide a concise measure of overall changes in the level of development of post-socialist countries, we construct a Dynamic Development Index (DDI) for the period 1989 to 1996-98. Like the HDI, the DDI can be seen as a measure of flows from the countries' capital base back into the stock of assets. But the DDI specifically measures changes in the absolute level of these flows and includes flows into both human and physical capital stocks.

To proxy changes in flows into the human capital stock, the DDI includes percentage change in the HDI variables enrollment rates and life expectancy but drops GDP per capita, which includes both flows into consumption and flows back into the capital base. To measure change in physical capital, we include percentage change in the physical capital variables described above, GDI per capita and infrastructure. Lacking a theoretical basis for choosing specific weights, we attempt to weight variables approximately equally.

Primary, secondary enrollment, and tertiary enrollment rates are weighted equally to create the Enrollment Index. Life expectancy and enrollments are then weighted equally to create a Human Capital Index (HKI) (Table 4). Railroad service and telephone availability are weighted equally to create the Infrastructure Index. GDI and infrastructure are then weighted equally to create the Physical Capital Index (PKI) (Table 5). The PKI and HKI are then weighted equally in the overall DDI (Table 6).

Perhaps the most striking result is, again, the difference between the Big Three countries and the other cases. Hungary, the Czech Republic, and Poland have done extremely well, with increases ranging from 28 to 100 percent. With the exception of Latvia, all of the other countries examined here show evidence of

Table 4
Physical Capital Index (percentage change from 1989 to 1996-98)

Country	Gross Domestic Investment (GDI)	Telephone	Rails	Infrastructure Index: (Rail + Tel)/2	Physical Capital Index: (GDI + Infr)/2
Bulgaria	–50	45	–14	16	–17
Czech Republic	332	111	–24	44	188
Hungary	27	241	–48	96	62
Kazakhstan	–56	47	1	24	–16
Latvia	7	33	–59	–13	–3
Poland	63	139	–65	37	50
Romania	–39	50	–53	–1	–20
Russia	–54	43	–13	15	–19
Ukraine	–86	43	41	42	–22

Table 5
Human Capital Index (percentage change from 1989 to 1996-98)

Country	Enrollments			Life Expectancy (LE)	Human Capital Index: (Enroll + LE)/2
	Primary	Secondary	Tertiary		
Bulgaria	0	0	32	7	–1
Czech Republic	8	7	50	16	3
Hungary	7	30	79	31	1
Kazakhstan	15	–14	–19	–4	–6
Latvia	6	–13	34	4	–1
Poland	–2	20	12	9	2
Romania	5	–23	132	19	–1
Russia	1	–8	–21	–7	–4
Ukraine	–1	–4	–11	–4	–5

Table 6
Dynamic Development Index (percentage change from 1989 to 1996-98)

Country	Physical Capital Index (PCI): (GDI + Infr)/2	Human Capital Index (HCI): (Enroll + LE)/2	Dynamic Development Index: (PCI + HCI)/2
Bulgaria	–17	5	–6
Czech Republic	188	13	100
Hungary	62	20	41
Kazakhstan	–16	–6	–11
Latvia	–3	4	0
Poland	50	6	28
Romania	–20	19	–1
Russia	–19	–7	–13
Ukraine	–22	–5	–13

Source: Authors' calculations based on World Development Indicators 2000.
Note: GDI = gross domestic investment; LE = life expectancy.

moderate levels of overall de-development, from –1 to –13 percent (Table 6). As flows into the countries' capital stocks decline, there is a danger of further declines and a downward spiral of de-development. Latvia appears to have retained its 1989 level of development, with a DDI of 0.

The performance of the Big Three countries results from the consistency of positive performance across nearly all variables and from particularly strong performance on GDI. The Big Three have seen increased flows into both physical and human capital, but flows into the former far outweigh those into the latter. All six of the other countries experienced declining flows into physical capital, although positive performance on telephone infrastructure has partially offset declines in GDI and rail service. Anomalous good performance on rails saved Ukraine from potentially much greater declines in physical capital and overall development, as GDI collapsed, falling 86 percent.

Half of the de-developing countries (Bulgaria, Latvia, and Romania) managed to prevent greater levels of de-development by defending or even increasing flows into human capital, especially into tertiary education. Unlike GDI and many types of infrastructure investment, many human capital investments can be paid for with domestic currency and thus are more directly under control of government officials and the local population. But where good tertiary performance is not supported by secondary and primary enrollments, strong human capital performance may not be sustainable. In Ukraine, Russia, and Kazakhstan, levels of both human and physical capital have been eroded. The negative changes in human capital stock may have a particularly important influence on the countries' future development trajectories, as they in turn may influence investment prospects.

A final observation from Tables 4, 5, and 6 is the evidence of a widening development gap among former socialist countries. The Czech Republic, Hungary, and Poland were among the best performers in 1989 (Table 3) and have far outperformed the other countries in the region over the past decade. Romania, which was the worst performing of the independent socialist countries examined here in 1989, and Kazakhstan, which, although not an independent country in 1989, clearly had very low levels of development, have seen development levels slip further. The erosion of development levels in the previously top-performing countries of Russian and Bulgaria and in the highly developed former Soviet Republics of Ukraine and Russia illustrate, however, that previous development levels are not the only factor driving current outcomes.

CONCLUSIONS

Prior to their experiments with central planning, the majority of former socialist countries would have been easily recognized as "less developed." Despite the significant and well-recognized problems of the centrally planned, socialist systems, by the 1980s the countries examined here had industrialized and achieved high levels of human development.

Since 1989, the post-socialist transformation has brought mixed results to many places. The process has contributed to much-needed modernization of parts of all the former socialist economies. Phone access, for example, has increased everywhere since 1989. Some outdated heavy industries have declined, while services have expanded to meet consumer demand. But in many places, formal economic activity has collapsed, and this has been accompanied by declines in school enrollments, deterioration of infrastructure, and general reductions of flows into the stock of both physical and human capital. In a number of cases, this appears likely to contribute to the emergence of new "underdeveloped" areas.

In this article, we have not attempted to explain why this has happened. That topic is the particular focus of other, ongoing research. Three possible types of explanations can be suggested briefly, however.

The de-development problem results when investment flows decline below the level needed to replace depreciated capital stock, so one explanation lies in different rates of decline and recovery of GDP over the transition period and variations in the way domestic resources have been supplemented by external investment flows. Some of these distinctions can, in turn, be traced back to policy decisions made by governments, both before and after the collapse of socialism. Some types of industries have collapsed more rapidly than others in the face of international competition, and countries heavily specialized in, for example, heavy industry have experienced greater declines of GDP than those that had already begun to shift resources into services prior to 1989. Countries that were slow to implement effective stabilization or property rights policies after 1989 might also have a harder time attracting external investment. But some differences in economic recovery are probably driven by factors beyond the control of government officials—factors like countries' proximity to European Union markets or the availability of certain natural resources.

Once available funds are controlled for, explanations should focus on variations in how well governments use the available resources. Here, we might look at differences in both government skill and government motivation. Where basic information and organizational capacity are lacking, even well-motivated governments may be unable to use resources effectively to maintain development levels. For example, poorly developed and enforced tax systems may not be able to collect resources necessary for the provision of public goods. But governments may also lack motivation to protect development levels. For example, large differences in economic and political power may result in the government focusing policy only on the needs of a wealthy minority of the population. Or a repressive state apparatus may protect the government from popular pressures to protect health and education services. The relative importance of these alternative explanations will certainly vary across cases.

In this article, we have focused on conceptualizing and illustrating the problem of de-development in post-socialist transition. In focusing on the problem in for-

mer socialist economies, we also hope to raise some more general, related issues. The first is the need to further elaborate a framework for understanding the process of de-development. De-development has occurred in a number of countries in the past decades. Many African countries in the 1980s and certain other countries under structural adjustment have seen broad and persisting declines in development indicators. But the development framework, with its focus on the achievement of, or failure to achieve, certain improvements, is not adequate for addressing a process through which existing, socially valuable capital and institutions are lost. The process though which such changes occur requires further study.

A second challenge raised by a discussion of de-development is its measurement. Development indicators currently in broad use do not permit one to distinguish between short-run fluctuations and a downward shift in potential performance. A fall in secondary enrollments, for example, may result from a cyclical downturn, during which high school students temporarily enter the labor market, or from a decline in the stock of qualified teachers or the physical availability of schools. The difference is significant, however, as the two changes have very different long-run implications.

A third particular challenge is policy. While there is a long (if not completely successful) history of thinking about how to build new capacity (physical, human, and institutional), there is no similar literature on whether and how to protect existing capacity during downturns. Yet protecting gains would appear to be, in many cases, more efficient than rebuilding later. Questions of how to make such valuations, and how to most effectively protect previous development gains, are of immediate importance if the development in CEE and the FSU over the past half century is to be protected. But clearly, such issues will have much broader application.

NOTES

1. See Peter Hauslohner, "Gorbachev's Social Contract," in *Gorbachev: The Debate*, edited by Ferenc Feher and Andrew Arato (Atlantic Highlands, NJ: Humanities Press International, 1989); and David Kotz, *Revolution from Above: The Demise of the Soviet System* (London: Routledge, 1997).

2. Yogesh Atal, *Poverty in Transition and Transition in Poverty* (New York: Berghahn, 1999); Philippe Aghion and Simon Commander, "On the Dynamics of Inequality in the Transition," *Economics of Transition* 7, no. 2 (1999): 275-98.

3. Michael Keane and Eswar Prasad, "Consumption and Income Inequality in Poland during Economic Transition," IMF working paper no. WP/99/14, 1999; Christiaan Grootaert, "Poverty and Social Transfers in Hungary," policy research working paper no. 1770, World Bank, Washington, DC, 1997.

4. World Bank, "Consultations with the Poor: National Synthesis Report, Bulgaria," www.worldbank.org (1999).

5. C. E. Black, *The Dynamics of Modernization: A Study in Comparative History* (New York: Harper and Row, 1966); Gerald Meier, *Leading Issues in Economic Development* (Oxford, UK: Oxford University Press, 1995).

6. Duncan Thomas, Victor Lavy, and John Strauss, "Public Policy and Anthropometric Outcomes in the Cote d'Ivoire," *Journal of Public Economics* 61 (1996): 155-92; Barbara Stallings and Wilson Peres, *Growth, Employment, and Equity: The Impact of the Economic Reforms in Latin America and the Caribbean* (Washington, DC: United Nations Economic Commission for Latin America and the Caribbean and Brookings Institution Press, 2000); United Nations Development Program, *Human Development Report 1990* (New York: UNDP, 1990); UNDP, *Human Development Report 2000* (New York: UNDP, 2000).

7. Atal, *Poverty in Transition*.

8. This figure is borrowed from one used by Manohar Sharma. His use of the figure makes a distinct, but related, point.

9. Flows are, of course, only loosely associated with given stocks. Stocks can be employed more or less efficiently, depending on the institutional context. One aspect of this efficiency of asset use has to do with the distribution of access to assets among the population. We will not treat this issue in detail here, however.

10. The Czech Republic is one exception to this. See David Turnock, *Eastern Europe: An Historical Geography 1815-1945* (London: Routledge, 1989).

11. Andrzej Korbonski, "Poland: 1918-1990," in *The Columbia History of Eastern Europe in the 20th Century*, edited by Joseph Held (New York: Columbia University Press, 1992).

12. John Lampe and Marvin Jackson, *Balkan Economic History, 1550-1950* (Bloomington: Indiana University Press, 1981), 335; R. W. Davies, "Introduction: From Tsarism to NEP," in *From Tsarism to the New Economic Policy*, edited by R. W. Davies (Ithaca, NY: Cornell University Press, 1990), 251.

13. Turnock, *Eastern Europe: An Historical Geography 1815-1945*, 245.

14. Korbonski, "Poland: 1918-1990."

15. Royal Institute of International Affairs, *The Baltic States* (Westport, CT: Greenwood, 1938), 107.

16. Turnock, *Eastern Europe: An Historical Geography 1815-1945*, 245.

17. Lampe and Jackson, *Balkan Economic History*, 342; Turnock, *Eastern Europe: An Historical Geography 1815-1945*, 239.

18. Maureen Perrie and R. W. Davies, "The Social Context," in *From Tsarism to the New Economic Policy*, edited by R. W. Davies (Ithaca, NY: Cornell University Press, 1990), 38.

19. Paul Gregory, "The Russian Agrarian Crisis Revisited," in *The Soviet Rural Economy*, edited by Robert Stuart (Totowa, NJ: Rowman and Allanheld, 1984).

20. David Turnock, *The Romanian Economy in the 20th Century* (London: Croom Helm, 1986), 128.

21. Alexander Gerschenkron, *Economic Backwardness in Historical Perspective* (Cambridge, MA: Belknap, 1962), 125.

22. Turnock, *Eastern Europe: An Historical Geography 1815-1945*, 127, 281.

23. David Turnock, *Eastern Europe* (Kent, England: Dawson, 1978), 97.

24. Janos Kornai, "Comments on the Present State and the Prospects of the Hungarian Economics Reform," *Journal of Comparative Economics* 7 (1983); www.freedomhouse.org. Of course, data from the cold war period have been subject to significant debate, with some arguing that the socialist growth data were very greatly overstated. For example, see

Anders Aslund, "The Myth of Output Collapse after Communism," working paper 18, Russian and Eurasian Program, Carnegie Endowment of International Peace, Washington, DC, 2001. These critiques have not gained the upper hand in the debate, however. Many careful studies confirm the general trends seen in official data, if not the exact numbers. See, for example, Kotz, *Revolution from Above*; Paul Gregory and Robert Stuart, *Soviet Economic Structure and Performance* (New York: Harper and Row, 1974); and John Lampe, *The Bulgarian Economy in the 20th Century* (London: Croom Helm, 1986). The data underlying the studies discussed here are the same data used by major international organizations, including the World Bank and UN organizations, when doing policy analysis.

25. World Development Indicators, CD Rom (Washington, DC: World Bank, 2000).

26. George Kurian, *The New Book of World Rankings* (New York: Facts on File, 1984).

27. Marc Suhrcke, "Are Reforms from a Centrally Planned to a Market System Bad for Health?" HWWA discussion paper, Hamburg Institute of International Economics, Hamburg, 2000.

28. Wlodzimierz Sekula, Katarina Babinska, and Stefka Petrova, "Nutrition Policies in Central and Eastern Europe," *Nutrition Reviews* 55, no. 11, pt. 2 (1997).

29. World Development Indicators, CD Rom.

30. John Micklewright, "Education, Inequality, and Transition," *Economics of Transition* 7, no. 2 (1999): 343-76.

31. Branko Milanovic, *Income, Inequality, and Poverty during Transition from Planned to Market Economy* (Washington, DC: World Bank, 1998), 41.

32. World Development Indicators, CD Rom.

33. Hauslohner, "Gorbachev's Social Contract"; Kotz, *Revolution from Above*.

34. Hauslohner, "Gorbachev's Social Contract."

35. Lawrence Summers, "The Next Decade in Central and Eastern Europe," in *The Emergence of Market Economics in Eastern Europe*, edited by Christopher Clague and Gordon Rausser (Cambridge, MA: Blackwell, 1992).

36. Ibid.

37. European Bank for Reconstruction and Development, cited in UNICEF, *After the Fall: The Human Impact of Ten Years of Transition* (Florence, Italy: UNICEF Innocenti Project, 1999).

38. World Bank, *World Development Report* (Washington, DC: World Bank, 2001); World Bank, *World Development Report* (Washington, DC: World Bank, 2002).

39. Estimates on the importance of the informal sector are notoriously difficult. Barkley Rosser, Marina Rosser, and Eshan Ahmed, "Income Inequality and the Informal Economy in Transition Economies," *Journal of Comparative Economics*, 28, no. 1 (2000); and Aslund, "The Myth of Output Collapse after Communism," provide two quite different estimates. Our own survey work in Bulgaria suggests that in rural areas the only important form of informal sector activity is subsistence production.

40. Transmonee Database (www.eurochild.gla.ac.uk).

41. Branko Milanovic, *Income, Inequality, and Poverty.*

42. Jorge Martinez-Vasquez, "Central and Local Government Tax Relations," in *Financing Government in Transition: Bulgaria*, edited by Zeljko Bogetic and Arye Hillman (Washington, DC: World Bank, 1995).

43. UNDP, *Human Development Report 2000*.

44. Sekula, Babinska, and Petrova, "Nutrition Policies in Central and Eastern Europe."

45. Janet Currie and Duncan Thomas, "Does Head Start Make a Difference?" *American Economic Review* 85, no.3 (1995): 341-64.

46. UNICEF, *After the Fall*.

47. Mieke Meurs, Assen Assenov, and Jolanta Krol, "The Demise of State-Run Child Care in Bulgaria: Causes and Implications" (paper presented at the Southern Economic Association meetings, Crystal City, VA, November, 2000).

48. Micklewright, "Education, Inequality, and Transition."

49. F. J. Zimmerman, "Determinants of School Enrollment and Performance in Bulgaria: The Role of Income among Rich and Poor," *Contemporary Economic Policy* 19, no.1 (2001): 87-98.

50. Micklewright, "Education, Inequality, and Transition."

51. Suhrcke, "Are Reforms from a Centrally Planned to a Market System Bad for Health?"

52. Ibid.

53. Micklewright, "Education, Inequality, and Transition"; Suhrcke, "Are Reforms from a Centrally Planned to a Market System Bad for Health?" 10.

54. Rati Ram, "Can Educational Expansion Reduce Income Inequality in Less-Developed Countries?" *Economics of Education Review* 8, no.2 (1989): 185-95; Micklewright, "Education, Inequality, and Transition"; Zimmerman, "Determinants of School Enrollment."

55. Ram, "Can Educational Expansion Reduce Income Inequality in Less-Developed Countries?" 186.

56. Chris Rude, "Are Workers Permanently Scarred by Job Displacements?" *American Economic Review* 81, no.1 (1991): 319-24.

57. Douglas Holmes, *Cultural Disenchantments: Worker Peasantries in Northeast Italy* (Princeton, NJ: Princeton University Press, 1995).

58. X. Sala-i-Martin, "I Just Ran Four Million Regressions," NBER working paper no. 6252, Cambridge, MA, 1997.

59. Zimmerman, "Determinants of School Enrollment"; Ram, "Can Educational Expansion Reduce Income Inequality in Less-Developed Countries?" 192.

60. Zimmerman, "Determinants of School Enrollment."

61. George Zodrow, "Income Tax Reform and Investment Incentives," in *Financing Government in Transition: Bulgaria*, edited by Zeljko Bogetic and Arye Hillman (Washington, DC: World Bank, 1995); Philippe Aghion and Mark Schankerman, "Competition, Entry and the Social Returns to Infrastructure in Transition Economies," *Economics of Transition* 7, no. 1 (1999).

62. Most widely used measures of the *level* of development are actually measures of *flows*.

63. The UNDP Human Development Index (HDI) includes all of the variables mentioned here: GDP/capita, enrollment rates, life expectancy and birth, and literacy.

64. Data include land lines but not cellular telephones, for which comparable data are not available.

65. One problem with using any one measure of transportation to measure overall change in infrastructure is the potential for the population to substitute among different forms of transportation—substituting private cars for rail travel, for example. One of the authors is currently working to develop a more global index of infrastructure that may help to capture such substitution dynamics. In this article, we consider the potential for substitution when interpreting the results.

66. Transmonee Database.

67. Data from TRANSMONEE (UNICEF) present a different picture. Primary school enrollment rates have fallen in many places, although not in the Big Three or Romania. On the other hand, enrollments in higher education show a positive trend in most places, and

tertiary enrollments have risen in all cases. This is a serious contradiction in the evidence from the distinct data sources. One explanation, offered by UNICEF, is that the way primary and secondary school enrollments are defined varies by country in the World Development Indicators database, while UNICEF has standardized definitions. For consistency with the rest of our data, the analysis here relies on the World Development Indicators data.

68. The HDI method of aggregation has been subject to critique by Martin Ravallion (and others). Ravallion argues that the aggregation of the diverse measures into one value implies the ability to "trade off" a certain level of gains in one variable, say income per capita, against a certain level of losses in others, say life expectancy, to retain a constant HDI. The method makes no direct evaluation, however, of whether the specific trade-offs implied in the measure are defensible. While future work will certainly support more self-conscious choices about the relative benefits of the different aspects of development, the HDI remains a standard method of comparing countries on broad development achievements. Ravallion does not provide an alternative. "Good and Bad Growth: The Human Development Reports," *World Development* 25, no. 5 (1997): 631.

69. UNDP, *Human Development Report 1990*, 128-29.

70. UNDP, *Human Development Report 1990*; UNDP, *Human Development Report 2000*, 157-59.

71. Stallings and Peres, *Growth, Employment, and Equity.*

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