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Recovery and Growth in Transition: A Decade of Evidence

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This paper reviews a range of studies that examine differences in growth performance among transition countries. There is a consensus in the literature about the core elements of transition and the policies necessary for sustainable growth, although considerable differences remain about how to implement these policies and about their proper sequencing. The empirical work identifies stabilization and structural reforms (e.g., market liberalization, private ownership) as important determinants of growth, but underlines the role of initial conditions and institutions. There is divergent evidence, however, on the importance of specific reforms. Traditional factor inputs have as yet no role in explaining growth. [JEL O40, P20]

The first comprehensive program of reforms in a centrally planned socialist economy is widely recognized to be Poland's late 1989 package under the new Solidarity government. This dating permits analysts to think of a decade anniversary already in 1999 and certainly in 2000, hence the ensuing spate of 10-year conferences and retrospectives. More important than the decadal marking point is the reality that enough time has passed to allow substantial quantitative and qualitative observations, to see the variation in progress of transition toward the market, to note country differences in economic performance indicators such as GDP growth, exports, foreign investment, and to identify broadly the more successful and less successful cases. This paper addresses the narrow issue of growth in GDP, by providing a review of a growing literature explaining the differ-

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ences in growth performance among transition countries. The focus is on non-Asian transition economies, in keeping with much of the literature's separate treatment of China and others in Asia.

Transformation from a centrally planned to a market economy is a multifaceted process of political, economic, social, and—not least important, as is increasingly recognized—institutional changes. Within the economic sphere, growth of aggregate output may be considered only one of many dimensions in the process. But such a narrow view would understate considerably the role of recovery and growth in GDP. True, growth is only the final link in a long and complex chain of transformation that involves, in approximate sequence, policies to implement market mechanisms; structural changes across and within sectors and firms (in other words, reallocation of resources); improvements in efficiency and new investments; and finally, recovery of output and sustained growth. However, even in the broadest "system paradigm" of transition (Kornai, 1998), growth of output and the attendant improvement in the well-being of the populace is, arguably, the key purpose of changing the system. At a minimum, strong sustained growth is a necessary outcome of a successful transition, and—given the lack of a yardstick for measuring progress in the ex ante policy and institutional movements toward the market—growth may serve as a very good ex post proxy for such progress.[1]

I. Analytical Framework for Growth in Transition

It continues to be popular to say that there is no theory to guide the practical process of transition, only theories of capitalism and socialism. This may still be true in the sense that a new consensus paradigm has not emerged from the vast literature on transition, though it is not clear how much a unified, cohesive theory is needed to understand the main developments.[2] To the extent it is useful to have a compact rather than complex analytical framework, it is not that difficult to cobble together from selected key writings a workable "model" of transition or transformation. Kornai (1994), in describing the special circumstances of the "transformational" recession compared with a market economy recession, highlights two key changes that are needed: *forcing a move from a sellers' to a buyers' market* (via price liberalization), and *enforcing a hard budget constraint* (via privatization and elimination of various government support mechanisms such as budget subsidies, directed low-cost credits, and tax exemptions). This provides the two principal incentives for profit-maximizing market behavior of all economic agents. Blanchard (1997) defines the core process of actual change as comprising two elements: *reallocation of resources from old to new activities* (via closures and bankruptcies combined with establishment of new enterprises); and *restructuring*

[1]The central role of growth rates as reflections of successful transition is implicit in several studies projecting long-term future growth potential, motivated by the question of how long it might take to catch up to EU country levels (e.g., Fischer, Sahay, and Végh,1998a; Sachs and Warner, 1996).

[2]Kornai (1998) explores the possibility of what he prefers to call a "system paradigm"; one key argument he makes is that transition by definition does not need a paradigm or theory—only the beginning and end-point systems do.

within surviving firms (via labor rationalization, product line change, and new investment). These two changes, which are very reminiscent of the Schumpeterian concept of "creative destruction," should be stimulated by the new incentives.[3] In the end, the transformation moves the economy to a resource allocation state consistent with its comparative advantage. The key policy actions needed to put in place Kornai's new incentives are described in many works (including those by Kornai (1994) and Blanchard (1997)), and are exemplified by the list of Fischer and Gelb (1991): macroeconomic stabilization; price and market liberalization; liberalization of the exchange and trade system; privatization of state-owned firms; establishing a competitive environment with easy market entry and exit; and redefining the role of the state as the provider of macro stability, a stable legal framework, and enforceable property rights, and occasionally as a corrector of market imperfections.

The above simplification does not do justice to the large theoretical and policy literature, and the continuing sharp debates about transition. One school of thought advocates following broadly the Washington consensus elements—essentially those listed above—and includes the view that more rapid and earlier implementation is generally better (in various shades of nuancing, with Sachs (1996) at the extreme end). A second school of thought argues—in theory if not in practice—that transition can occur too quickly, which will cause more costly disruption than beneficial restructuring and therefore risk undermining the will to continue. Aghion and Blanchard (1993); Blanchard and Kremer (1997); and Roland and Verdier (1999) exemplify the theoretical work along these lines. Stiglitz (1999)—with whom the former do not necessarily agree—argues ex post that excessive speed was indeed a problem in practice and explains the dramatic failures of privatization and lack of recovery in many transition countries, including, for example, Russia. A third school of thought focusing on institutions argues, as Murrell (1992), that stabilization and liberalization are needed but will not have the intended results if the institutions of market operations are inadequately developed.[4] But all of these debating schools appear to agree on *what* the transition process is, and their views are in general compatible with the Fischer-Gelb description of the core elements. Their differences are more about *how* to conduct policy to best achieve the results of transformation. Nevertheless, these debates are relevant and find reflection (mostly, ad hoc) in the specifications of econometric analysis of growth in transition reviewed later in this paper.

From the core concept of transformation defined above there follow some implications for growth, which differentiate transition economies from market economies and provide the basis for the empirical analysis of determinants of recovery in transition. *First, output will necessarily decline initially* under the new buyer's market and hard budget constraints, since unsalable goods accumulate and

[3]The EBRD *Transition Report* (1997) provides an excellent review of the conceptual framework in the "creative destruction" spirit, as well as empirical analysis of structural changes in the transition so far.

[4]It is frequently said by critics (e.g., Roland (2001) in this Special Issue of *IMF Staff Papers*) that the Washington Consensus erred greatly by omitting institutional development; the Fischer and Gelb (1991) article is but one of many that show that this was simply not true. Of course, it is still possible to argue that institutions, while mentioned in passing, were not given enough weight in practice.

signal the need for cutbacks in production. Further elimination of the wastage found under the old regime has to precede creation of the new regime, adding to the production cuts. *Second, growth of the new regime will not occur until the new incentives are in place and made credible*; that is, the sooner reforms achieve a hard budget and liberal price environment, the sooner reallocation and the restructuring of old and creation of new production can begin. The lag can be attributed to the "disorganization" effect of Blanchard and Kremer (1997), as central planning mechanisms are not immediately replaced by market coordination mechanisms. *Third, in the early recovery period, a variety of efficiency improvements are more likely to be useful than an expansion of either investment or labor factor inputs*. With labor fully (but inefficiently) employed, and much capital stock—again inefficient—accumulated from earlier Soviet investments, the room for factor-expansion growth is limited. Indeed, as Easterly and Fischer (1995) and De Broeck and Koen (2000b) suggest, growing inefficiency was one reason the Soviet system collapsed.

Starting from a Soviet-period (inefficient and distorted) output level as shown in Figure A1 in the Appendix, five types of mechanisms, many of which may be simultaneous or overlapping, can help increase output: recovery of underutilized capacity; elimination of egregious waste of labor, capital, and materials (*X*-efficiency, improvements); efficiency gains from a more appropriate combination of capital and labor (factor efficiency); efficiency gains from resource reallocation toward goods in which a country has a comparative advantage or for which there is unsatisfied consumer demand; and output expansion via new net investment and employment increases.[5]

It is notable that only the last item above involves factor expansion, while all the others are some form of efficiency gains. The empirical evidence described below will confirm that the early period of transition recovery is largely based on efficiency gains and that investments—physical or human capital—are not the important determinant generally seen in the growth literature.

II. The Record on Growth

Output declined substantially from 1989, for 25 non-Asian transition countries.[6] Recovery began only hesitantly in 1993 in two or three countries in Central Europe, then spread gradually and accelerated by the end of the decade (Table 1). By 1995, virtually all Central European countries plus the Baltic countries were experiencing this recovery, while further east only 2 of 12 countries were begin-

[5]It is a simplification to say that all the efficiency improvements (all but the last item in the list) can come about without new *net* investments; what is meant here is that the investment required is often small. Also, such efficiency improvements can take place at the sector or firm level even if aggregate net investment in the economy is zero, since new gross investment is directed not to replace depreciated stocks in "old" industries but to expand it in the "new" ones.

[6]Data in this section use the official GDP measure, excluding what many have demonstrated is a large underground economy—see Johnson, Kaufmann, and Shleifer (1997)—and uncorrected for other possible errors—see Bloem, Cotterell, and Gigantes (1996). The reasons for this choice are simple: first, only GDP data are systematically available for a long period for all countries; and second, different estimates of unofficial economy values give differing results. There is at least one study, Loungani and Sheets (1997),

ning to grow (Armenia and Georgia after their civil conflicts came to an end). It was only by 1997 that a majority of the CIS[7] countries saw positive growth. The Russian crisis of 1998 caused a brief slowdown in this trend for 1998–99, but by 2000 a strong recovery was evident in the whole region, particularly in the CIS. Thus, on balance, the first half of the 1990s was largely a period of decline, while the second half was marked by a gradual spread of recovery from the deep and long transitional depression, only briefly interrupted by the spillovers from the 1998 Russian crisis.

It is generally agreed that the depth and length of the decline has been greatest for the CIS countries, somewhat less for the Baltics, and much less in Central and Southeast Europe. Fischer and Sahay (2000), for example, give respective decline values through 1998 of about 54 percent, 43 percent, and 28 percent. Growth rates since recovery began have been quite high in general at 4–6 percent, but, except for a couple of oil economies (Azerbaijan and Turkmenistan), this falls short of the levels in East Asia and China during their boom years. Indeed, the best non-oil performer, Poland, has approached 7 percent growth in only two of eight years of growth. At the other end of the range, Ukraine had continuous decline through 1999, and several countries had an erratic pattern of growth followed by decline—Moldova, the Kyrgyz Republic, and Romania. Turkmenistan has only shown positive rates as a partial rebound after disastrous years of sharp decline. In summary, growth is spreading but there is a lot of variation across countries; it is too early to speak of sustained growth except in Central Europe and the Baltics; and even the better performers still fall short of the growth levels seen earlier in Asia.

Three broad categories of transition economies can be identified:[8] about 15–16 countries with consistent growth; 3 countries with sharp reversals, and about 5–6 countries with almost continuous decline until 1999. The first group includes the Baltics and Central Europe, in which the growth rates since recovery began have averaged approximately 4–5 percent—except for the brief but sharp dip in the Baltic countries after the Russian crisis. These cases form the strongest basis for the argument that better stabilization and structural reform policies produce better performance. Consistently positive growth is also observable in several CIS countries, but with rather different stories for each of them. Armenia and Georgia had strong rebounds from civil war periods; Azerbaijan had an oil-based expansion; growth in the Kyrgyz Republic is partly attributable to new gold production; and Belarus and Uzbekistan may have been special cases of delayed reforms, delaying the post-Soviet decline—at the very least, they provide fodder for debate (see Zettelmeyer, 1998, on the Uzbekistan "puzzle"). The second

which finds that using electricity consumption as a proxy for growth does not materially affect the results of growth empirics. The bias may be thought to mean that less reformed economies with more underground activity have higher growth than officially measured but, suprisingly, a recent paper by Åslund (2001) that tries to correct several measurement problems concludes that these corrections strengthen the positive correlation between growth and reforms. The issue nevertheless remains debatable.

[7]The CIS (Commonwealth of Independent States) comprises the following countries: the Republic of Armenia, the Azerbaijan Republic, the Republic of Belarus, Georgia, the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Moldova, the Russia Federation, the Republic of Tajikistan, Turkmenistan, Ukraine, and the Republic of Uzbekistan.

[8]The remainder of this section draws upon Havrylyshyn and others (1999).

Table 1. GDP Growth in Transition Economies by Country Group (Transition Time)

	First Years of Transition $T(1)$	Index (T(0) = 100)										Percent Change from Previous Period									Cumulative Growth Since $T(0)$	Number of Years of Decline Before Initial Recovery	Cumulative Decline since $T(0)$ Before Initital Recovery	Average Growth Since Initial Recovery
		$T(0)$	$T(1)$	$T(2)$	$T(3)$	$T(4)$	$T(5)$	$T(6)$	$T(7)$	$T(8)$	$T(9)$	$T(1)$	$T(2)$	$T(3)$	$T(4)$	$T(5)$	$T(6)$	$T(7)$	$T(8)$	$T(9)$				
Consistent growth																								
Central Europe	1990–92	100.0	94.0	85.6	85.8	87.5	91.2	96.2	100.0	. . .	. . .	–6.0	–9.0	0.2	2.0	4.2	5.5	4.0	. . .	. . .	4.9	2.7	–14.4	4.2
Baltic countries	1992	100.0	74.0	64.1	61.8	63.6	66.1	71.6	74.6	. . .	. . .	–26.0	–13.4	–3.5	2.8	4.0	8.3	4.2	. . .	. . .	–25.4	2.7	–38.2	4.6
CIS	1992	100.0	74.3	63.8	56.6	54.4	56.8	60.8	64.2	. . .	. . .	–25.7	–14.1	–11.2	–3.9	4.3	7.0	5.7	. . .	. . .	–35.8	3.5	–45.6	5.8
CIS excl. Belarus and Uzbekistan	1992	100.0	66.6	53.0	45.9	44.7	47.4	51.0	53.6	. . .	. . .	–33.4	–20.4	–13.3	–2.7	6.1	7.5	5.2	. . .	. . .	–46.4	3.3	–55.3	6.1
Southeast Europe	1992	100.0	92.0	83.6	82.1	81.1	81.8	83.0	85.4	. . .	. . .	–8.0	–9.1	–1.8	–1.2	0.8	1.5	2.9	. . .	. . .	–14.6	4.0	–18.9	1.7
Growth reversals																								
Southeast Europe	1990–91	100.0	85.8	76.4	74.2	76.5	80.3	85.3	81.5	80.7	. . .	–14.2	–10.9	–2.9	3.1	4.9	6.3	–4.5	–0.9	. . .	–20.3	3.0	–25.8	1.7
Little or no growth																								
CIS	1992	100.0	83.2	75.5	61.3	56.7	53.9	53.0	52.3	. . .	. . .	–16.8	–9.2	–18.8	–7.6	–4.9	–1.6	–1.4	. . .	. . .	–47.7	5.3	–47.7	0.5

Source: Havrylyshyn and others (1999), Table 15, Annex V.

group—Albania, Bulgaria, and Romania—saw early recoveries with reversals to negative growth, apparently related to inadequate reform efforts; followed by policy corrections and a new recovery at least for the first two. Finally, the third group, which encompasses much of the CIS including Russia and Ukraine, saw limited or no growth until 1999, well after the impact of the Russian crisis was overcome. The eventual strong growth of Kazakhstan and Russia was partly driven by favorable energy export prices, though the delayed cumulative effects of earlier reforms cannot be excluded as an explanation; the latter factor may have been even more important in Ukraine.

As of 1999 (2000 growth rates are preliminary), only four countries had reattained or surpassed their officially measured output levels in 1989.[9] Each of these was in Central Europe, with real GDP in 1999 in Poland exceeding that of 1989 by 22 percent, Slovenia and Slovakia exceeded 1989 growth by about 5 percent, and Hungary just reached its 1989 level. At the other extreme, with measured output still less than one-half the immediate pretransition level, were five CIS countries. One of these, Georgia (47 percent of 1991 output), has actually been growing for four years. The other four are all in the third grouping (little or no growth): Tajikistan and Turkmenistan (about 45 percent of the 1991 level), Moldova (40 percent), and Ukraine (41 percent).

While growth by 2000 was almost universal, there were clearly many differences in the record, and many different explanations. The general tendency that central European countries and the Baltics had better performance than countries of the CIS suggests the importance of better policy (stabilization and structural reforms) and different specific conditions such as wars, oil, or other natural resources, different starting points, or initial conditions. The very recent surge of growth in the CIS group is too short-lived to assess, but may reflect a rebound from very low levels of output reached after decline, perhaps analogous to the long-term convergence notion in growth empirics. Section III reviews more systematic econometric evidence, which has tried to elaborate and quantify the various determinants noted above.

III. Empirics of Growth in Transition

The broader literature on transition has grown rapidly, and many recent articles address, at least peripherally, the issue of success, performance, and output growth. This survey focuses more narrowly on studies that undertake a quantitative analysis of growth determinants. Table 2 lists chronologically and summarizes 23 such studies, which form the core of this paper's analysis. As noted earlier, the focus is on non-Asian economies, that is, Central Europe, the Baltic countries, and

[9]The possible bias in official statistics understating growth, as noted in footnote 6, is in this case in the opposite direction. The actual level of GDP before recovery is in most cases probably exaggerated, owing both to the probable underestimation by official statistics of the size of the unofficial economy during the transition and to the likelihood that initial GDP was in most cases overstated since it did not reflect the welfare losses from disequilibrium pricing and associated shortages and queues. The recent paper by Åslund (2001) explores this in some detail, looking at underground activity as well as price distortions in Soviet period, inadequate negative valuation of useless products, etc.

the CIS.[10] The coverage varies, but generally covers the period since 1989, and in one case through 1998; thus, the sample size is as little as 18–20 observations (cross-section regressions) to as many as 225 (panel of 25 countries, 9 years).

Perhaps the first comprehensive study to ask the question "what determines differences in growth rates across transition countries" was that of de Melo, Denizer, and Gelb (1997).[11] The econometric specification there—with variables representing initial conditions, liberalization, or structural reform, financial stabilization—largely set the tone for specifications and indeed the general conclusions in later studies.

First, consider some aspects of coverage and methodology, summarized telegraphically in the last two columns of Table 2. Later studies naturally cover more years since 1990 and are, therefore, mostly panel regressions, in contrast to the early cross-country regressions. The difference in degrees of freedom is large; cross-section studies for this group of countries use average growth for several years and imply about 25 observations, often less, while analysis done in the late 1990s with 8–9 years of data and pooling can have as many as 200–225 observations. While one is tempted to heavily discount early and cross-section-only studies using OLS with nary room for a lag, a pleasant surprise pops up from this survey. The broad conclusions of the simpler studies—to wit, *the standard factor inputs are not important; stabilization is necessary; liberalization and structural reforms strongly affect growth performance, and unfavorable initial conditions can hinder growth*—are not dramatically altered in those studies with a large observation set and much more sophisticated econometrics. The broad robustness of these conclusions to coverage and methodology (see the subsection below on methodological difficulties) may be a testament to the overwhelming importance of these determinant variables, or the potential for simple methodology wisely used to yield powerful results, or both. Nevertheless, it is only the more sophisticated econometrics permitted by a large sample that can isolate the finer points of interpretations—for example, how unfavorable initial conditions result in sharper output declines early on but become less important in determining growth over time; or the fact that discipline of reforms yields immediate gains in a newly private sector even if there is continued total decline in GDP; or the increasing importance of too slow institutional development. We now review both the key findings of this literature and some of these finer points.

Key Findings

Stabilization

The *first* and largely noncontroversial conclusion is that stabilization is a necessary condition for recovery of output. Virtually all of the studies included some measure of stabilization—fiscal deficit, inflation, and, in a handful of cases,

[10]Some of the studies—Fischer, Sahay, and Végh (1996, 1998), and Berg and others (1999)—also include Mongolia.

[11]A first version of this was presented at the First Dubrovnik Conference on Transition, June 1995, and eventually published in the 1997 conference volume.

Table 2. Summary of Empirical Studies Explaining Growth in Transition

	Variables Used, By Type					Method and Results		
Authors (Year)	Initial conditions (IC)	Liberalization or reform	Stabilization/ inflation	Factors (investment, exports, labor)	Institutional variables	Years	Methodological peculiarities	Key findings on growth
De Melo, Denizer, and Gelb (1997)	• income proxy for over industrialization • war	• World Bank index	• inflation			1989–94 cross-section	• separate equation for growth, inflation • switching regressions	• over-industrialization moderately significant • liberalization promotes growth • stabilization is necessary
Sachs (1996)		• EBRD reform index				1989–95 cross-section	• 0.025	• reforms very significant
Selowsky and Martin (1997)	• (differentiation CE, FSU) • war	• World Bank index	• inflation			1990–95 panel	• lags	• liberalization highly significant • contemporaneous effect of reform negative in FSU
Åslund, Boone, and Johnson (96)	• FSU dummy • war	• World Bank index	• inflation			1989–95 cross-section	• .025 • GDP growth adjusted to capture under-reporting of private output	• 1989–95 growth: FSU and war dummies dominate explanation • 1995 growth: Stabilization and reform most significant • reform worsens decline but gives earlier recovery
Fischer, Sahay, and Végh (1996)	• initial income • trade disruption 1992	• World Bank index	• fiscal deficit • exchange regime dummy			1992–94 panel	• fixed effects	• country effects significant • fiscal deficit significant only by itself • all other variables also significant

Table 2. *(continued)*

Authors (Year)	Variables Used, By Type: Initial conditions (IC)	Liberalization or reform	Stabilization/ inflation	Factors (investment, exports, labor)	Institutional variables	Method and Results: Years	Methodological peculiarities	Key findings on growth
Hernández-Catá (1997)	• time trend • regional dummies • war • time under communism • national resource wealth	• World Bank index	• inflation			1990–95 panel	• state/private sector model to derive specification	• inflation and liberalization most significant • war and wealth significant, but other initial conditions less
Wolf (1997)	• industrial share • distance to market • length of central planning • war • FSU dummy	• World Bank index • radical reformers dummy	• inflation • fiscal deficit • exchange regime	• inv. share • export growth		1991–95 panel	• 2-stage LS, instrumented on sector enrollment, urbanization and industrial share; • growth function of reforms and initial conditions • including non-linear functional forms • lags	• stabilization necessary • degree of reforms significant • investment and exports *not* significant • initial conditions not significant except war
De Melo, Denizer, Gelb, and Tenev (1997)	• initial conditions cluster: macro distortions and over-industrialization • "regional tensions"	• World Bank index			• political freedom	1990–96 panel	• principal components to derive clusters of initial conditions • 3-equation model: liberalization, inflation, growth • lags and interaction	• initial conditions most important but negative influence declines over time • (Lagged) reforms still most important in growth

Brunetti, Kisunko, and Weder (1997)	• 1992 income • 1992 secondary enrollment	• trade share • government consumption share	• inflation		• World Bank survey data: - predictability - political stability - property rights - judiciary reliability - corruption	1993–95 cross-section	• institutional variable average of several ("credibility of rules") • serial test of institutional with control • "political rights" as instrument	• institutional variable generally significant • almost none of policy, initial conditions variables significant • problem of insufficient data
Loungani and Sheets (1997)	• war • year dummies	• World Bank index	• fiscal deficit • inflation			1991–94 panel	• inflation equation includes central bank independence • fixed effects	• fixed effects negative for 1991–92 • fiscal negative and significant • inflation affects growth and depends on central bank independence
Fischer, Sahay, and Végh (1998)	• 1992 dummy	• World Bank indices: internal, external, private environment	• fiscal • exchange regime			1992–95 panel	• fixed effects	• fixed effects highly significant • tight fiscal, fixed exchange rate, reforms all significant • internal liberalization not significant
Havrylyshyn, Izvorski, and van Rooden (1998)	• de Melo, Denizer Gelb, and Tener (1997) clusters • initial income • degree of industrialization and deviation from average.	• de Melo, Denizer Gelb, and Tener (1977) to 1994 EBRD after • components: price liberalization, ease of entry, external, legal • share of government	• inflation	• investment share • export growth	• EBRD legal	1990–97 panel	• separate decline (1990–93) and recovery (1994–97) • fixed effects and lags	• fixed effects significant • initial conditions important early • stabilization, reforms most important • liberalization effect at first, strongly and later • legal reforms significant

Table 2. *(continued)*

	Variables Used, By Type				Method and Results			
Authors (Year)	Initial conditions (IC)	Liberalization or reform	Stabilization/ inflation	Factors (investment, exports, labor)	Institutional variables	Years	Methodological peculiarities	Key findings on growth
Christoffersen and Doyle (1998)	• war • dummies for 1992	• World Bank index	• inflation	• export markets growth		1990–97 panel	• proxy for exports = growth in markets • search for inflation threshold	• inflation, reform significant • inflation-output threshold 13–15 percent for the entire sample, but may be lower for later years • no evidence that disinflation caused output losses (with one exception) • export markets significant
Berg, Borensztein, Sahay, and Zettelmeyer (1999)	• urbanization • repressed inflation • natural resources • overindustrialization • trade share • per capita income (PPP terms) • share of agriculture • initial growth • time under communism • state of pre-transition reform • war	• World Bank index updated by EBRD: • (internal, external private environment) • private share	• fiscal deficit • inflation • exchange regime			1990–96 panel	• fixed effects, lags, interactive • differential effect on private and state • exclusion tests	• initial conditions significant (but have minor effect in explaining cross-sectional variation in growth), as are stabilization variables, but structural reforms pre-eminent • structural reforms have little negative effect • no one policy variable passes exclusion, but at least one macro and one structural variable must be present • greater speed of reforms, more growth

Campos (1999)	• initial income • CIS dummy	• government share		• investment share • schooling • population growth		1990–97 cross section, panel	• Barro and Levine-Renelt specifications	• low R^2 values even in panel • investment, schooling not significant, sometimes • initial income, CIS most significant; but income not significant if CIS is incl.
Havrylyshyn and van Rooden (2000)	• MDGT clusters: • overinclusive distortions	• World Bank index updated by EBRD	• inflation		• principal components: (legal, political overall) using survey by EBRD, World Bank, Heritage, Freedom House, Euromoney	1990–98 panel	• lags • time dependence of variables • institutional variable available for more than one year	• stabilization, liberalization significant • institutions significant but not pre-eminent • importance of initial conditions declines over time • importance of institutional increases over time
Kaufman, Kraay, and Zoido-Lobaton (1999)					• 300 indicators aggregated into 6 clusters using unobserved components model	1990–95 cross-section (178 countiries; OECD, non-OECD)	• instrumenting governance	• accountability, instability, government effectiveness, regulatory burden, rule of law, highly significant (graft not significant)
Berkowitz and De Jong (2000)	• income • shadow profits • share of defense	• new enterprises				47 regions of Russia, 93-97	• new enterprise instrumented by degree of privatization, price liberalization, tax rates, decentralization of power)	• strong correlation new enterprises and growth, therefore price liberalization, privatization, deregulation positive effect • higher defense share has ***positive*** effect

Table 2. *(continued)*

Authors (Year)	Variables Used, By Type: Initial conditions (IC)	Liberalization or reform	Stabilization/ inflation	Factors (investment, exports, labor)	Method and Results: Institutional variables	Years	Methodological peculiarities	Key findings on growth
Campos (2000)					• civil society • quality of bureaucracy • rule of law • accountability and transp.arency	1990–97 panel	• interaction among variables • time dummy • sample split into CEE and CIS	• all but accountability significant • in Central and Eastern Europe, ROL, CIVIL dominate • in CIS, Ro2, qual. bur. dominate • for per capita, almost no significance
Zinnes, Eilat, and Sachs (02)	• large number of initial conditions • soft vs. hard used to group countries dummies	• price liberalization • capital markets • tax reform • land reform • bank comp.			• implied in capital market, agency effect • a composite variable, including (i) hard budget constraints; (ii) bankruptcy courts; (iii) EBRD legal.	1990–97 panel	• output per cap • fixed effect by region • interactive of privatization degree and agency climate	• stabilization, reform, and initial condition all of some importance • privatization alone almost no effect • privatization plus institutional/competitive environment very significant • need minimum threshold of competition, agency effectiveness to get privatization benefits
Moers (00)	• initial income • industrial share • CMEA trade • War	• World Bank index • EBRD index • private share	• inflation	• secondary schooling • tertiary schooling	• World Bank, CEER, EBRD, Euromoney, etc. survey sources –rule of law –investment law –property rights –civil society	1990–95 cross-section	• serial testing of institutional variables with other control variables	• stabilization and liberalization significant alone; • institutions significant alone but not with above control • variables correlation of liberalization and institutions make impossible separating effect

Fischer and Sahay (2000)	• share of agriculture • over-industrialization • time under communism • secondary school • trade dependency • natural resources • distance from EU	• price liberalization • private share • small-scale privatization • EBRD reform	• inflation • fiscal balance		1990–98 "unbalanced panel"	• initial conditions tested separately for importance	• stabilization and structural reform beneficial to growth • small-scale privatization and liberalization contributed more to growth than large-scale privatization • among initial conditions, years under communism and secondary school enrollment explain nearly 50 percent of growth performance
De Broeck and Koen (2000a)				• K, L	1990–98 for: Czech Republic, Hungary Poland, and Slovakia	• Total factor productivity calculation and growth decomposition	• productivity dominates factor expansion • manufacturing main engine, with large intersectoral shifts
De Broeck and Koen (2000b)				• K, L	1971–97 U.S.S.R. and FSU	• Total factor productivity calculation • Contribution of sectoral reallocation assessed	• USSR republics exhausted potential by 1990 with TFP = 0 or negative • output collapsed as capital, labor fell sharply • total factor productivity through 1997 strongly negative, explains 6.6 percentage points of 7.9 percent fall in output • sectoral reallocation of inputs failed to raise productivity

exchange rate anchor—and the results are almost always significant: that stabilization contributes to growth, or at least that growth does not occur until stabilization is achieved. A majority of the studies use only an inflation variable to reflect stabilization, positing (and finding) a negative sign in growth regressions. The few that include both inflation and a fiscal deficit (Wolf, 1997; Loungani and Sheets, 1997; Berg and others, 1999) show varying results. Berg and others find that "fiscal balance survived [exclusion tests] in most models," (p. 50) but the contemporaneous effect is puzzling as it implies that "tight fiscal policies sustain production in the state sectors but negatively impact the private sector." Loungani and Sheets concluded that "fiscal deficits have tended to be stimulating" (p. 10), while Wolf reaches the contrary conclusion, as do Fischer, Sahay, and Végh (1996 and 1998b)—though the latter find the fiscal variable loses statistical significance in presence of other explanatory variables, in particular liberalization. From the above, one concludes that the empirical literature is nearly *unanimous on the negative impact of inflation on growth but has not been able to disentangle the separate effects of fiscal deficits and inflation on growth*. This may be explained by either (or both) of two difficulties. First, the regressions are *not* in most cases derived from a structural model of growth in transition and they exclude a simultaneous determination of inflation and growth, though some do estimate separate equations for inflation, in which fiscal deficits generally show up significantly and, as expected, positively correlated (de Melo, Denizer, and Gelb, 1997; Fischer, and Gelb, Sahay, and Végh (1998b); Åslund, Boone, and Johnson, 1996). Second, fiscal deficits may be too narrowly measured, and underestimate the "public sector deficit," which includes off-budget transfers, tax easing, central bank credits, and/or accommodation of directed credits by banks plus—most important for CIS countries—arrears problems.

Only a handful of studies consider the role of exchange rate anchors explicitly. Fischer, Sahay, and Végh (1998b), in particular, test for fixed exchange rate regimes with a dummy variable and conclude that "a fixed exchange rate and smaller fiscal deficits seem especially important in reducing inflation and raising growth rates." It is important to note that, in their model, the fixed-rate variable is negative and significant in the inflation regression, and positive and significant in the growth regressions that do not include inflation as a separate variable but in which the fiscal variable loses significance in presence of other explanatory variables. Thus, the impact of the exchange rate anchors on growth could be indirect only, working through the inflation stabilization effect. Recall that most other growth regressions have inflation as an argument in the growth equation. Thus the specification, not being in structural form, may not fully capture the mechanisms of effects on growth. Another missing variable here may be arrears, as noted; if a peg is intended to enforce fiscal discipline but this is achieved by running arrears, the coefficient estimate for a peg without an arrears correction will be at best weakened. Nevertheless, other studies, while somewhat more skeptical of the clear conclusion about fixed rates, do not fundamentally contradict it. Cottarelli and Doyle (1999) explore the possibility of disinflation causing output losses and find that such difficulties only occur in presence of exchange rate pegs, but even then, "the losses seem likely to be due to undervalued pegs, rather than pegs per se."

Hernández-Catá (1997) also finds "results provide some—but not much—support for the view that fixed nominal exchange rates have contributed (to output growth but perhaps indirectly) by helping to bring down inflation."

Liberalization and Structural Reforms

The second set of findings concern liberalizing reforms; virtually all the studies that include a reform variable have affirmed the de Melo, Denizer, and Gelb result on the strong and positive role of liberalization and structural reforms. Whether the model was a simple one relating only to growth and some index of structural reforms (Sachs, 1996; Selowsky and Martin, 1997), or a more complex one reflecting also the effects of stabilization, initial conditions, and conflicts (as in Åslund, Boone, and Johnson, 1996; Fischer, Sahay, and Végh, 1996; Hernández-Catá, 1997; de Melo, Denizer, and Gelb, 1997; Havrylyshyn, Izvorski, and van Rooden, 1998; and Berg and others, 1999), the conclusion was firm: more reforms are associated with better growth performance. The results are not without clear country exceptions, Belarus and Uzbekistan being the key ones today, Bulgaria and Romania earlier. Belarus remains an understudied case, but three points suggest the numbers overstate performance or its sustainability. Much of its growth was based on exports to Russia bartered for energy and other products; its largely unreformed system meant a high degree of directed credits to the economy and a much higher inflation than its neighbors; and after the Russia crisis, its exports and growth fell sharply.[12] Zettelmeyer (1998) shows for Uzbekistan that structural and macroeconomic policies alone cannot explain the better-than-average performance and finds initial conditions, in particular the low degree of industrialization and cotton export potential, helped cushion the decline and perhaps promote an early recovery. Fischer and Sahay (2000) point to the directed credits and vulnerability of Russia-oriented exports. Bulgaria and Romania, despite limited structural reforms and stabilization, saw an early growth recovery, probably fueled by directed credits, but the unsustainability of such growth was made clear by the collapse in 1996–97. Related to these exceptions, Åslund, Boone, and Johnson (1996) observe an interesting dichotomy in the literature concerning the pace of reforms: while theoretical work on transition has often shown a gradual pace might lead to less early decline of output (e.g., Aghion and Blanchard, 1993, Dewatripont and Roland, 1995), empirical studies generally conclude that fast and early reforms result in early and sustained recovery.

The strong findings on stabilization and structural reforms would appear to vindicate, at least broadly, the major elements of the Washington Consensus (which as footnote 4 noted *does* incorporate institutional development notwithstanding statements of critics). An important policy question is whether some of the components are more important than others (e.g., privatization) or whether, as Aziz and Wescott (1997) conclude for all developing countries, it is the package that counts. The results for transition countries tend to confirm the view that all

[12]Furthermore, as IMF (2002) reports, a methodological problem with the industrial production index results in an overestimate of 1–2 percentage points.

policies matter to some extent, as does institutional development, though some components are found to be separately important. Furthermore, when the reform variable is a single aggregate index, its coefficient is invariably significant; when components of liberalization (price, internal, external liberalization, privatization or private sector share) are considered separately, the results are more mixed. Thus Fischer, Sahay, and Végh (1998b) find that aggregate liberalization is highly significant, but separately external liberalization or private sector environment (including banking) are less so, while internal liberalization (prices, and competition environment) is not significant, though still positive. Havrylyshyn, Izvorski, and van Rooden (1998) use these three components plus a legal reforms index of the European Bank for Reconstruction and Development (EBRD), but argue further that the underlying structural relations differ in the period of decline (1990–93) and recovery (1994–97).[13] They in fact find different effects of liberalizing reforms; internal/price liberalization has at first a negative effect—which is consistent with the Kornai and Blanchard views of the necessary early decline in the old sectors. But the common view that the early pain is quickly rewarded with substantial gain is also confirmed, the coefficient being clearly positive for the second period.

The "no pain, no gain" view finds strong support in many studies, in particular, Åslund, Boone, and Johnson (1996); Wolf (1997); Hernández-Catá (1997); and Heybey and Murrell (1999). In contrast, Berg and others (1999) make an important contribution on this issue by using more sophisticated lag structures and separating out public and private sector. They conclude that "effects of structural reforms are mostly positive from the beginning." Their separation of public/private may help clarify that, while the larger old sector continues to decline in response to reforms, this decline is not large and in some cases is ambiguous. For example, components of reform such as external liberalization may have an immediate positive impact on state sector growth. On the other hand, the smaller new sector reacts to hard-budget signals of reform immediately and unambiguously. Thus, in early years, there may be negative growth, but Berg and others interpret this not as the "pain of reforms," but as costs of incomplete reforms. This is a useful refinement, which is not fundamentally at odds with the rest of the literature. Finally, on the separate effects of components, it is notable in Havrylyshyn, Izvorski, and van Rooden (1998) that for the second, or recovery period, every one of four elements is separately significant, but when the aggregate index plus one of the elements is included serially to test for the possibility of combined effects, only internal liberalization remains significant—both in the decline period when it is negative and in the recovery period when it is positive. For all these separate elements, the coefficient is larger in the recovery period, suggesting the cumulating payoffs to growth over time. This may help explain the strong CIS recoveries of 1999–2001 despite the plateauing of reform efforts there since 1997.

Consider next privatization, which of course has been very controversial in itself, and highly criticized by many, perhaps most vocally in Stiglitz (1999). The

[13]Havrylyshyn and van Rooden (1998) update data to 1998 and confirm the Havrylyshyn, Izvorski, and van Rooden (1998) results for the recovery period.

vast empirical literature on effects of privatization in transition has been recently reviewed in Havrylyshyn and McGettigan (2000), as well as Djankov and Murrell (2000). While, not surprisingly, there remain substantial arguments about whether privatization could have been done better, avoiding the worst of insider-privatization inequity and subsequent stagnation, the evidence of these two surveys suggests that in many—if not all—cases, improved performance and increased efficiency ensued. The effect was stronger when outside control could be more effective, as with foreign investors, or in de novo enterprises whose resources frequently came from idle capital and labor of old enterprises. This suggests privatization has indeed led to reallocation and *X*-efficiency gains. But the evidence is far from overwhelming and leaves plenty of room for the view that all is not well with privatization.[14] In particular, the evidence is limited on two important dimensions: Havrylyshyn and McGettigan (2000) conclude in their survey that research has paid too much attention to the method of privatization and not enough to the "institutions of an appropriate enabling market environment," and has also largely ignored the contribution of de novo enterprises.

A glance at the third column in Table 2 (Liberalization or Reform) does indeed show that use of privatization as an explanatory variable in growth does not generally consider the market environment, or method, or de novo enterprises. True, one of the reform indices used by several studies covers broadly the element "private sector environment," but it is a general category in the EBRD indices comprising several subcomponents including progress in restructuring of state firms. For what it is worth, the results are usually statistically significant. The separation of public/private may have clarified that, while the larger old sector continues to decline, the smaller new sector reacts to hard budget signals of reform immediately. Thus, in early years, there may be negative growth in total but, as noted, Berg and others interpret this not as pain of reforms, but as costs of incomplete reforms. By separating public and private sector, they show reforms have some initial negative effect on public sector, but are immediately offset by gains in private sector. Thus, the bigger the private sector share, the larger the positive impact on growth.

One of the most recent studies on privatization (Zinnes, Eilat, and Sachs, 2001, in this Special Issue of *IMF Staff Papers*) goes much farther in trying to disentangle the effects of formal change of ownership and the market environment facing firms. The market environment is measured by a composite (and subjective) index reflecting a true change of the firms' objective function to profit maximization, a true hard budget constraint, and an effective agency climate. The results in panel regressions for output levels (instead of growth rates) are compelling. Change of ownership alone has virtually no effect; combined with a strong environment index (a multiplicative variable), the effect is positive and highly significant, but there is a minimum threshold for the market environment index before one sees a positive impact of the change of ownership. Zinnes, Eilat, and Sachs may be overly rhetorical in claiming that the insignificance of change of owner-

[14]Nellis (2001) considers all these factors and the evidence, and presents some counterarguments to the revisionist critics like Stiglitz.

ship variable implies a "failing grade" for the Washington Consensus. First, the Washington Consensus clearly talks of the role of the state in providing legal, market institutions, and property rights.[15] Second, Zinnes, Eilat, and Sachs are not able to show a strong *negative* effect of privatization in a poor market environment. Their study is, nevertheless, a powerful statement about the crucial importance of the institutional changes needed to achieve a competitive hard-budget environment and good corporate governance. This jargon boils down to saying, you need good institutions to ensure that the new Kornai market incentives truly lead to the Blanchard optimal reallocation of resources.

While it is often stated that new enterprise formation is critical, perhaps because of data difficulties only one substantial econometric study relating growth and new enterprise formation has been done. Berkowitz and De Jong (2000), using data from 47 regions of Russia, obtain results strongly supportive of the conventional view and affirm the more qualitative assessment of Åslund, Boone, and Johnson (1996) of the early growth surge in Poland.

Initial Conditions

A *third* set of conclusions relates to initial conditions (e.g., overindustrialization and price distortions in Soviet period) and other factors specific to countries such as wars; it is generally agreed these do have a country-specific effect, though different studies attribute a different magnitude of importance. De Melo, Denizer, and Gelb (1997) group many different initial conditions into two clusters with principal components analysis and find a substantial impact; while Åslund, Boone, and Johnson (1996) argue that the more inward-looking and generally overindustrialized economies in the former Soviet Union faced a bigger hurdle than did Central Europe. Fischer and Sahay (2000) conclude that the length of communism and distance from Western Europe plus other initial conditions "go far in accounting for performance." But other studies suggest that the effect declines over time, and with refinement of variable measurement. Berg and others (1999), applying lags and exclusion tests, conclude that achievement of stabilization and progress in structural reforms (i.e., policies) explain most of the differences between the better growth performance of Central and Eastern Europe and the poorer performance of the CIS countries. Initial conditions do have a limited impact, but this is strongly adverse only in early years, diminishing quickly over time (with a half-life of five years). Havrylyshyn, Izvorski, and van Rooden (1998) also find that initial condition variables are significant—even when crudely measured by share of industry—but they go on to show that these effects not only decline over time, but they also are not immutable effects and could have been offset with a greater effort at reforms. Thus, for example, in Ukraine, the higher industry share compared to the CIS average did contribute to a lower growth rate,

[15]It often takes fresh blood and someone uninvolved in heated academic debates to cut to the heart of the matter; Moers (1999), in a preliminary Ph.D. paper, concludes: "Thus it seems not so much the case that policies of the "Washington Consensus" are wrong, but rather they are incomplete, or at least not balanced enough" (p. 37).

but that difference in growth could have been made up by achieving a level of the reform index only slightly higher (on a scale of 0–1.0, a rise from 0.57 to 0.65)—about equal to Kazakhstan's. This result is disputable, of course, being based on a linear impact of reforms; if there are positive nonlinear effects, or threshold levels, it would mean that a larger leap forward on reforms may be required to offset initial conditions, but, at the same time, the eventual impact on growth would then be greater.

Rather than estimate the impact of initial conditions on growth, another way of looking at this issue is to hypothesize that initial conditions play an indirect role through the politics of determining how committed a government is to stabilize and undertake structural reform. Fischer and Sahay (2000) recognize this but do not model it explicitly. Wolf (1997) takes this approach in a clear, simultaneous two-equation model, and de Melo and others (1997) also address this, with a separate regression explaining the degree of liberalization achieved. Both studies conclude that reforms are affected by initial conditions, but more analysis needs to be done to determine if any additional separate effect on growth exists.

Institutions

The *fourth* set of conclusions concerns institutions: put simply, they matter too and increasingly so over time. Despite the fact that both proponents of the Washington Consensus and of the institutionalist school discussed the need for institutional development in the early 1990s (Fischer and Gelb, 1991; Murrell, 1992), the first group of growth studies did not attempt to include institutional variables—perhaps because of the lack of data. Since 1997, the reverse has been true, with most studies incorporating some such measure, usually based on surveys of policy environment (Freedom House, Heritage Foundation, Transparency International, *Wall Street Journal,* World Bank), and most finding strong evidence that these variables are significant and generally of the expected sign. One interesting peculiarity is that some studies that purport to "correct" the omission of institutions in studies explaining growth either omit the other explanatory factors altogether (Kaufmann, Kraay, and Zoido-Lobaton, 1999; Campos, 2000), or find poor results for the other policy variables (Brunetti, Kisunko, and Weder, 1997; Moers, 1999). Moers clearly admits this is odd and explains that it is attributable to an econometric problem, given the small cross-country samples and high correlation of liberalization indices and institutional development. Despite this, he still concludes that macroeconomic stabilization is important. But Havrylyshyn and van Rooden (2000) using time series for institutional variables, undertake panel regressions for much larger observations sets and, with a principal components analysis, form three clusters of institutions: legal, political, and overall. They are able to obtain regression results that retain the significance of stabilization, liberalization, and initial conditions variables, and in addition show that institutional variables are also separately significant. Using a time multiplicative transformation, they further demonstrate that, while initial conditions become less important over time, institutions become increasingly important. That is, early growth can be stimulated by stabilization and liberalization even if institutional

development lags, but, as time goes by, sustaining growth requires continuous institutional improvement; this is consistent with the result on privatization of Zinnes, Eilat, and Sachs (2001).

Factor Inputs

The *fifth and final* set of conclusions demonstrates the unimportance of traditional factor input explanations for growth, differentiating transition economies from others covered in the large recent literature on growth (a good overview is in Barro and Sala-i-Martin, 1995). Wolf (1997); Havrylyshyn, Izvorski, and van Rooden (l998); Campos (2000); and De Broeck and Koen (2000a) all conclude that investment has *not* been a significant determinant of growth—the last study being based on factor decomposition and total factor productivity calculations. This should not be so surprising given the short period of time since recovery began in transition countries and, as Havrylyshyn and others (1999) note; "for over-industrialized, distorted, and inefficient transition economies, recovery only comes after some elimination of the wasteful old production . . . and usually cannot be based on a large investment effort to build the new before the proper incentives for efficient resource use are in place" (p. 17). The conceptual framework noted in Section I and in Figure A1 in the Appendix strongly suggests a sequence of various efficiency improvements, with traditional factor input expansion coming only later. Indeed, the best guess one can make about why most of the studies did not even include variables representing factor inputs (and guess one must, as none explain this) is that they considered—quite sensibly it turns out—that these were not important explanatory variables. The bottom line here is that growth in transition—in a so far rather short period of less than a decade—is more a special short-run phenomenon than the conventional long run considered in the general literature. Thus, it is not surprising that expansion of factor inputs have not yet been important.

Further suggestive evidence comes from trends in the investment to GDP ratio discussed in Havrylyshyn and others (1999). Of the 17 countries with sustained growth to date and adequate data on investment, the most common pattern for the investment of GDP ratio is a decline from the central plan period levels of 30 percent and more to near 20 percent or even lower. Further, for the 17 countries, an upturn in the ratio of investment to output preceded the recovery in only 3 cases, while it coincided with the beginning of recovery in 5 countries and actually lagged the upturn in output in 9. It is therefore not surprising that the econometric specification of recent empirical studies on growth during transition, while broadly analogous to those of the new growth theory, ignores the long-term factors such as investment, and focuses on efficiency-improving factors such as macro policies, structural reforms, and property rights climate.

Some Common Methodological Difficulties

As the studies listed in Table 2 address a common question (what explains growth in transition countries), it is not surprising that they have to contend with common analytical difficulties concerning measurement and choice of modeling

structure. Here we explore some of the main methodological difficulties and differences and how these may affect some of the results described above.

The first *measurement problem* concerns valuation of output. With the exception of Loungani and Sheets (1997), all the studies content themselves with official GDP values, notwithstanding the consensus view that unofficial activity may account for as much as 40–45 percent of total output in some countries. The reasons given include, in particular, the unavailability of consistent estimates of unofficial economy for the full sample of countries over an extended period. While this is understandable, it may still be troublesome if there is reason to believe that growth in the official sector differs substantially from growth of the unofficial sector. Loungani and Sheets do a great service on this score by demonstrating for a smaller sample of countries that using an index of electricity output (perhaps the most common estimator of total output) does not change the results of growth equations. Hernández-Catá (1997) includes a correction variable (ratio of measured output to power consumption); the results on the major policy variables are not materially affected, but the variable is significant and replaces the role of the FSU and war dummies—suggesting that the biggest underreporting is in those cases. Key writings on the unofficial economy (Johnson, Kaufmann, and Shleifer, 1997) fully confirm the latter point and emphasize that strong sustainable growth only comes in a policy environment that induces shadow activities to become open and official. At a minimum, this implies that in the recovery and positive GDP growth period, shadow activities become relatively less important. It does also imply, however, that in the decline period official output falls more rapidly than total output, which further implies that estimated coefficients of explanatory variables such as initial conditions or liberalizing reforms overstate the negative impact on output in the early period. As already noted, Åslund (2001) makes some very rough corrections for this as well as several Soviet-accounting problems, and claims that the correction strengthens the positive effect of reforms. This issue deserves more analysis.

Looking more closely at unfavorable initial conditions that are found to have a negative effect and to decline over time, correction of the unofficial GDP bias is unlikely to do more than imply an earlier fading away of these negative effects. A more important modification of conclusions *could* come about on the hypothesis of "no pain, no gain"—that is, reforms inevitably cause early pain. Most studies, with the exception of Berg and others (1999), conclude that, while reforms have unquestionably a positive influence on growth in the long run, the short-run effect is negative, as closures or cutbacks by inefficient producers are faster than expansion of new efficient production is elsewhere. It is possible that correcting official GDP data gives a lower output fall and/or higher positive growth; thus the negative effects may be less strong and a ceteris paribus estimate of the reforms coefficient would yield a positive value. The puzzle remains, since GDP correction has not been done for a systematic large sample to allow its use in growth empirics. Berg and others came to their "no pain at all" conclusion *despite* the fact that they use official GDP data. In the end, however, all analysts agree that reforms are good for growth, whether or not they cause some pain early on, so the logical puzzle may have limited impact on policy implications.

Measurement difficulties also occur with fiscal deficits, as already noted, and this may be part of the reason why the literature cannot give clean results on how state-sector finances, broadly defined, affect growth. But the conclusion about inflation control is universal and one could not ask for stronger empirical support on the crucial role of stabilization. Indeed, it may not be necessary to have solid econometric estimates of *how* financial imprudence by governments—be it budget deficits, off-budget operations, tax relief, or soft credits—contributes to inflation. Once it is accepted that inflation harms growth, the policy argument for fiscal prudence, transparency, and credit tightness is sufficiently well grounded.

Perhaps the measurement difficulty that leads to the most serious problem for policy conclusions is that relating to institutions. Not only the transition literature, but also the general literature on institutions, has great difficulty coming to grips with what exactly it is one means by institutions, and how they can be objectively measured.[16] Studies that do consider institutions are broadly in consensus that the ex post measurement problem is not overwhelming, and the subjective indices are sensible. But if institutions are but a state of being (subjectively) measurable by surveys, it is difficult to be as concrete in policy recommendations as with monetary and fiscal measures. This serious policy dilemma is beyond the scope of this paper.

The *modeling difficulties* for transition countries are in principle substantial, but in practice may not comprise a serious impediment to drawing valid and useful conclusions. The general literature on growth itself includes ongoing debates about the right structural form to capture the spirit of the new endogenous growth theory (Barro and Sala-i-Martin, 1995) or the right methodology (cross-country, time-series, panel—see, for example, Quah, 1999). When one turns to transition economies and their recovery in the short run, as opposed to the medium- and long-term equilibrium path, the difficulties mount. Consider Figure A1; the point *CPI* represents the starting point before transition begins with Soviet level inefficiency in the allocation between goods and factors, plus *X*-inefficiencies for pure wastage.

Any reasonable reading of what has to happen—and in retrospect generally did happen—suggests several events of output decline or expansion occur before a new market-determined equilibrium is approached and before an equilibrium path of growth (arrow 5 in Figure A1) is embarked upon. First, output will fall to a lower level of capacity (*CPU*) compared to *CPI*; then it could of course rebound toward *CPI* (arrow 1). The important gains of Russia and Ukraine in import substitution since their August 1998 devaluation are of this kind, though clearly preceded by some minor restructuring. But any such rebound is probably hidden in a simultaneous move involving the many resource shifts that Blanchard (1997) theorizes about and which a vast literature on restructuring (reviewed in Djankov and Murrell, 2000) describes. These resource shifts include technical efficiency gains, or moves toward the efficiency frontier (arrow 2); perhaps illustrated by

[16]See Fukuyama (2000) for a general view of the institutional measurement problem. Kaufmann, Kraay, and Zoido-Lobaton (1999) is a good comprehensive source for the myriad efforts to use survey data that measure institutional development.

improvements in efficiency of Polish state enterprises as documented by Belka and others (1995); gains from achieving efficient factor proportions (arrow 3)—the labor-shedding and resultant increases in labor productivity as shown in De Broeck and Koen (2000a and 2000b); and finally the gains from less production of unwanted goods and the shift of resources to production of other goods (arrow 4)—the sectoral shifts noted in Berkowitz and De Jong (2000) and the product-line shifts as described in EBRD (1997). All of this adds up to a complex, but eventually clear, picture reminiscent of Harberger's (1998) vision of the growth process, as a "thousand and one little changes" at the firm level that happen daily and add up to measured growth in GDP.

Modeling this for econometric analysis seems a daunting task and it is therefore no surprise that virtually all the growth regressions reviewed here take an ad hoc (but we would say sensible) approach to specification, with only limited efforts to derive a structural form from first principles. There are two exceptions. Hernández-Catá (1997) starts with a standard production function with a state and private sector, the latter with higher productivity. Liberalization increases share of the private sector, but time lags in resource allocation result in underutilization of capacity. As inflation and certain state variables (initial conditions) can affect both the liberalization and the pick-up of capacity, the model is readily modified to a form identical to other studies with no factor inputs, but instead policy variables like reforms, inflation/stabilization, exchange regime, and initial conditions variables or dummies. Berg and others (1999) begin with a three-equation model in which the growth equation already omits factor inputs on the right-hand side while the two other equations reflect policy determination and structural changes since transition, to capture the possible changes in impact of policies or initial conditions on growth as transition progresses. In the econometrics—which is unquestionably the most detailed of all the studies—only the first equation is estimated, the other two providing a rationale for using certain instrumental variables and for a methodology of "general to specific" estimation, which allows the large panel data set to choose the proper specification. Table 2 includes a summary of what variables they use in the end to derive conclusions.

All other studies, if less formal, tend to specify quite similar regression equations, and have more or fewer variables depending on whether they are strict cross-sections or panels. As Table 2 and the preceding discussion conclude, these different studies reach more or less similar broad conclusions on the importance of various factors and how the effects of initial conditions fade over time. However, more complex questions—such as the importance and timing of particular elements of reform, ideal policy combinations, and differential impacts of structural reforms and stabilization over time (the "no pain, no gain" debate)—are only addressed by studies with panel data, which have more possibility for econometric fine-tuning. But the greater methodological sophistication does not resolve all debates. For example, consider the two studies that are based on more formal derivation from structural equations. Hernández-Catá strongly concludes that reforms initially have a negative effect on output as state sector losses are *not* immediately offset by private sector expansion. Berg and others find evidence of a negative effect on the state sector, but the associated losses are more than offset

by contemporaneous private sector expansion. Similarly, Hernández-Catá finds only weak support for fixed exchange rates, while Berg and others show strong evidence that fixed exchange rates are important. It is not the intent here to resolve these differences one way or another; since the results use different models, periods, and econometric techniques, comparing them is difficult. The use of a more formally derived model and more thorough econometric analysis helps illustrate subtler points, but does not change the broad conclusions of what matters for growth, and resolves some but not all the debated issues.

IV. Conclusions: Considerable Consensus, Some Debates, and Some Puzzles

What is most striking about this survey of empirical studies analyzing determinants of growth in transition is the wide scope of consensus compared with the limited range of continued debate or puzzles. It is agreed that no royal road to growth exists but that a wide range of good policies is needed, including financial stabilization, market liberalization, and market-friendly government rules and institutions. One should not misunderstand this, however, since the wide agreement on what policies are needed to achieve strong sustainable growth still leaves large differences in views on how to implement these policies, what sequence to follow, and what relative importance to give to each. Many of these large differences are explored elsewhere in this Special Issue of *IMF Staff Papers*. Here, the emphasis remains on the determinants, and this section summarizes the key points of consensus, some of the outstanding debates, and a handful of interesting puzzles.

Five Points of Consensus

The overwhelming area of consensus is that *traditional factor inputs* have no role in explaining growth over time and across countries. The empirical evidence confirms the short-run nature of both the decline and the recovery, as well as the clear perception that Soviet-type economies were well inside their production frontiers and off their comparative advantage equilibrium. Investment ratios have no explanatory power or significance to speak of; their trend over time suggests almost a reverse causation—that is, they begin to rise only after growth has begun to recover. Efficiency gains appear to be the main, if not sole, source of growth. It is, of course, implausible that efficiency improvements come without new investment, but this paradox is easily resolved. The econometric analysis finds no significance of *aggregate* investment in the output recovery, which in no way denies the contribution of individual investment projects in spurring growth in sectors and firms. Nor does the result deny that aggregate investment will become increasingly critical in sustaining growth as the recovery proceeds and the new equilibrium growth path of a market economy is reached.

There is little or no argument that a *decline in output was inevitable*, and that it had to be about as large as the 20–25 percent fall seen in most of Central Europe;

whether the stronger decline farther east was also inevitable or could have been mitigated by better policy is discussed below under "Debates."

There is equally *strong consensus* that *financial stabilization*, in particular inflation control, *is a necessary first step* before sustainable growth can occur. But it is also agreed that stabilization is not sufficient, and thus *market liberalization* or structural reform (correction of various price and qualitative distortions of central planning) are identified in many econometric studies as *the most important factor*—though the statistical measure of "relative importance" varies. It is difficult to conceptualize the precise meaning of attributing "most" importance to one determinant, given the solid evidence that other factors—like initial conditions, stabilization, and some minimum of institutions—are also necessary. A fair statement might be that, given some minimum of these other factors, the differences in growth performance are attributable in particular to differences in the progress on market reforms. Related to this is the conclusion on the role of privatization and expansion of the private sector. Empirical evidence suggests it was on balance beneficial to growth, though some debate continues as noted below.

There is slightly *less consensus on initial conditions, though no one disagrees that they have some, at least initial, at least minor impact*. The evidence is clear that the negative burden of Soviet inheritance (excess industrialization,[17] energy inefficiency, inertia of price distortions, geographical and historical distance from the market, civil wars) does have a hindering effect on growth, albeit not clearly separate from its indirect effect as a brake on speedy reform implementation. The econometrics also reveals that this effect is less important than stabilization and structural reform, declines over time, and can be offset by stronger progress in transition.

On institutional development, there is a *somewhat surreal consensus*, with all *agreeing that good institutions are one of the necessary components* in the recipe. For what it is worth, studies by proponents of the Washington Consensus and its critics all obtain the same strong, econometric results ex post: institutional indices have significant and positive coefficients. But the debate is not on whether institutional development–like patriotism is a good thing, but on *what it comprises* and whether it should be added to the transformation recipe *before, during, or after* the stabilization and liberalization.

Five Continuing Debates

The least well resolved—*and arguably most important—continuing debate concerns the timing and sequencing of institutional reforms*. From a historical perspective, it is difficult to assess empirically a relevant counterfactual: had there been greater and/or earlier efforts on developing effective judicial, rule-of-law, conditions, easier entry, stronger exit rules, and competition, would there have

[17]It is fair to ask why the very high human capital of the military-industrial complex should not have been a *favorable* initial condition. One interpretation would be that it was, but poor policy implementation precluded quick and effective utilization of this comparative advantage endowment. We are not aware of any study that looks at this.

been even better performance? The only, very weak, suggestive econometric evidence is the result in Havrylyshyn and van Rooden (2000) that the impact of institutions increases over time. In other words, good economic policies (macro and micro) may be enough to get growth started even with poor institutions, but as time goes on, institutional development must proceed apace or growth will falter. This is, however, only suggestive evidence, and much more empirical analysis would be needed to move to consensus even on the history. For a future policy perspective, the lesson that more weight should be given to institutions is clear, but two dilemmas remain. First, what *exactly* is to be done by policymakers and particularly by outside parties such as the IMF and the World Bank? Second, there is insufficient hard empirical evidence to refute the alternative view that institutions must come *first* and only then should liberalization and privatization proceed.

An *equally difficult debate continues on the speed of reforms, or gradualism vs. Big Bang*—and it is reflected in this Special Issue of *IMF Staff Papers*. Little explicit analysis has been done, with the exception of Heybey and Murrell (1999) on the one hand arguing speed does not help, and Berg and others (1999), on the other hand showing it does. A large part of the problem is defining speed—and the two studies do it slightly differently. Another difficulty is whether an earlier start or faster speed is more important. Given the wide consensus that antireform vested interests (the most important being new capitalist rent-seekers) have captured the process in many countries, it is hard to deny a hypothesis that, say, Ukraine and Russia, might have needed an even bigger Big Bang in the mid-1990s to get same effect as Poland did in 1989–90. In support of those who say speed is less important than the accumulated, absolute level of reforms reached, there is suggestive evidence from the high rates of growth finally achieved in CIS countries in 1999–2000—and apparently continuing. It will be useful in a few years to ask how much this is attributable to cumulative benefits of reforms, exogenous effect of energy prices, a sharp rebound from the very low levels reached (recall Armenian and Georgian growth in the mid-1990s), or finally the long-term convergence effects described in the general growth literature.

Does "distance from the market" matter or, more usefully, how does it matter? The empirical evidence on such initial conditions as years under communism and geographical distance from Western Europe is strong, and seems to say Poland or the Czech Republic were inevitably better placed to perform better than Ukraine or the Kyrgyz Republic. The fact that these immutable conditions—or "hard conditions" as Zinnes, Eilat, and Sachs (2001) usefully categorize them—makes the issue all the more important. But such a view is troubling in several respects. First, it is not yet clear from the literature whether these conditions affect growth performance directly, or only indirectly through the political economy effect of slower if not actually frozen reforms. Second, even on the latter interpretation, there are many other considerations of perhaps greater importance, such as the anchor effect of EU accession prospects. Finally, there is a potentially malevolent misinterpretation of this distance hypothesis. In many of the slower reformers, the old and new interests that oppose reforms often find it very convenient to use such an argument to delay reforms. Observers of transition should be very cautious of

statements such as "the populace has a Soviet mentality, they are not ready for the market"; often these statements reveal that the speaker is not ready for a real, competitive market economy in which capitalism is an opportunity for all the people and not just a few.

While, so far, *privatization has been found to be generally beneficial*, and it seems at least no worse than continued public ownership, *there remains both a strong perception and some empirical evidence that "badly done" privatization can actually be harmful*. The perception is particularly strong in many of the CIS countries, where the inequity of privatization favoring a privileged few—a perception with considerable truth—may lead to even more damaging indirect effects as the populace opposes further market reforms. The empirical evidence of actually negative effects is limited—as in the Zinnes, Eilat, and Sachs article—but too compelling to ignore altogether.

Finally, let me turn to the debate on *how much pain may be caused in the early part of the transition*. As discussed earlier, most analysts are of the view that some early pain is inevitable, as stabilization and reform starts, but that the eventual benefits compensate for this and vindicate the aphorism of "no pain, no gain." The analysis by Berg and others, by separating public and private sector, contradicts the general views as it finds the benefits of reform are seen immediately in the private sector and, of course, the aggregate value of these benefits increase equally as the share of the private sector grows. The contradiction may be more semantic than substantive. Transition is not instantaneous; hence the good policies themselves and subsequent results take some time. In the meantime, the old (i.e., public) sector undergoes the pain of closure and cutbacks of employment probably faster than new expansion occurs in private. Thus, transition is inevitably painful. But it, nevertheless, remains the case, as Berg and others argue, that it is not reforms that give the negatives (the pain), but the lack or slowness of reforms. As soon as reforms (including privatization) are made, their positive impact is immediate.

A Handful of Puzzles

Perhaps the first puzzle that future analysis might eventually answer is *why the transformational recession was quite as deep as it was*, even in Central Europe. As noted, there may still be a debate about why it was greater in the CIS and Baltic countries, but a lot of insight has been gained on this *relative* performance; the puzzle is about the *absolute* decline; was the 20 percent or so seen minimally in the Czech Republic, about what one should have expected in the Kornai transformational recession, about equal to the amount of "useless" or negative value-added Soviet production? In a sense, Berg and others (1999) do propose an answer, saying initial conditions explain not only the variation across the group, but the actual decline as well, and that policy reforms do *not* have any further negative impact on output levels. Åslund (2001) also addresses this, and is strongly skeptical that the decline was anything like official GDP shows. But the vast majority of analyses concur the decline was large and often say or imply it has been surprisingly large. This may not ever be adequately answered as it is difficult to envision the correct counter factual, never mind measure it.

Apart from transitional factor inputs, *two variables surprisingly did not show econometric significance: exports and foreign direct investment*.[18] Qualitative assessments of the more successful performers in Central Europe and the Baltic countries, in contrast, attribute a considerable role to both these variables. Foreign investments have been substantial, especially in the more advanced transition economies, as the article by Garibaldi, Mora, Sahay, and Zettelmeyer (2001) in this Special Issue of *IMF Staff Papers* shows. Perhaps the problem is an econometric one, as these two variables may be strongly correlated to each other and to the "good policy" variables, thus hindering efficient estimation.

A continuing puzzle remains on the *low decline and high growth of Belarus and Uzbekistan*. Certainly, the authorities of these countries and many critics of the standard reform school continue to point to these cases as successful gradual reforms. But even official figures show that growth there has slowed a lot, while the rest of the CIS show an accelerating trend. To resolve this issue, it will require either a clear reversal as was seen earlier in Bulgaria and Romania, which also had positive growth with limited reforms, or much more compelling explanation by one school of thought or the other. One quite unexplored hypothesis is that stronger central discipline has permitted a recouping of some of the loss from the 1960s Soviet-level efficiency that occurred in the Brezhnev and subsequent periods. But even if a convincing case is eventually made that retention of central plan discipline mitigates any negative effect, these two countries are likely to remain, in practice, the exception rather than the rule.

APPENDIX

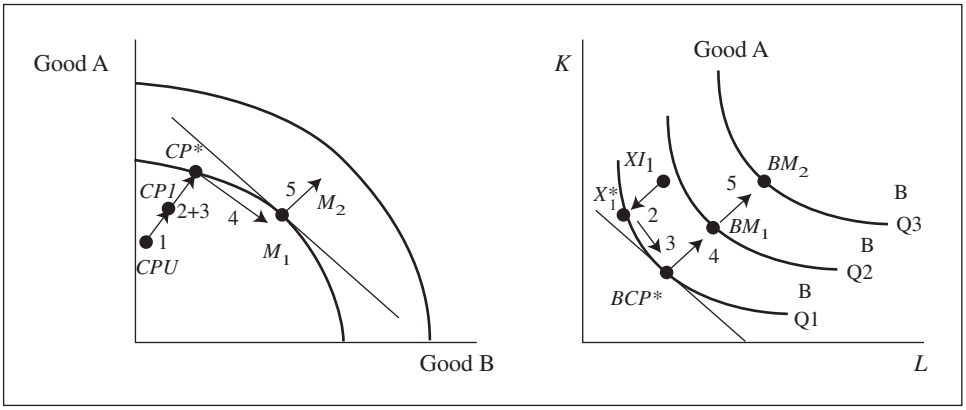
Efficiency Improvements, Reallocation, and Investment as Proximate Sources of Growth in the Transition: A Conceptual Framework

The mechanism or proximate sources of growth in the recovery phase of transition is illustrated in Figure A1.

- *CP** represents the point of potential production on the production possibilities functions (*PPF)* under central planning if full capacity is utilized, factors are not wasted (as at XI_1, at which more *K* and *L* are being used to produce 1 unit of good *B* than at the efficiency frontier), and shadow prices of *K* and *L* are reflected in the central plan's factor allocation. In this case, the only error under *CP** is to ignore world prices.
- *CPI* is the point where factor and technical inefficiency of central planning also exist, but capacity is fully utilized; historically this is roughly equivalent to pre-1990 production.

[18]Cotarelli and Doyle (1999) do show significant and positive coefficients for an export proxy, growth of the *markets* for a given country's exports, but this is a rather indirect and, hence, insufficiently, compelling result. A few other studies that did include export growth found no significance.

Figure A1. Growth in the Recovery Phase of Transition



- *CPU* reflects a decline in production levels (as in post-1990), and lower utilization of existing capacity.
- XI_1 is inside the efficiency frontier of the unit isoquant for good *B*; *K* and L are used wastefully relative to the theoretical best practice point for central planning, XI_1*.
- M_1 is a point on the *PPF* "inherited" from resource accumulation during the period of central planning. No *aggregate net* investment is necessary in moving to M_1, but there could be gross new investment in the expanding sector, so that allocation among goods can change, reflecting adjustment of production (allocation) to world prices.
- M_2 is an efficient goods allocation point with new net investment.

Using Figure A1, five types of changes (structural shifts) can be defined that provide growth in the sense of more output for a given level of factor availability, and more factor inputs.

1. Recovery from capacity underutilization (from *CPU* to *CPI*).
2. Technical efficiency or *X*-efficiency gains = movement to efficiency frontier by eliminating wasteful usage of production factors (from *CPI* to *CP**, and from XI_1 to XI_1*).
3. Efficiency gains from achieving optimal factor proportions (from XI_1* to *BCP**, and also from *CPI* to *CP**).
4. Resource reallocation gains (from *CP** to M_1, that is, production of more *B* and Less *A*, hence, also *BCP** to BM_1.
5. Net factor-expansion gains (from M_1 to M_2, and from BM_1 to BM_2, plus an analogous shift to a higher level isoquant for good *A*).

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