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Is the East Catching Up? The Development of Public Investment in East and West Germany

Dieter Vesper

Expanding and modernizing the infrastructure is generally regarded as essential for East Germany to catch up with the west. The question concerning the quality and quantity of the infrastructure in East Germany played a central role in the negotiations for both Solidarity Pact I and Solidarity Pact II. However, while only very sparse information and estimates were available on the level of state fixed assets for the negotiations in spring 1993, the decisions for Solidarity Pact II in 2001 could rely on a broader data base. Estimates by DIW Berlin on state fixed assets in East and West Germany played an important part.¹ They in turn were based on an estimated development in public investment for the years 1998 to 2004. A comparison of this with the actual development in east and west Germany shows considerable discrepancies between the forecast and the actual figures.

The method used for DIW Berlin's estimates

The public capital stock calculations are based on long-term state investment series. The estimates by DIW Berlin rely on computations calculations of the overall public budget, which is published by the Federal Statistical Office – albeit with a considerable time lag.² At the time, data on the individual areas of public responsibility was only available up to 1997; the development in 1998 were extrapolated using the 'cash accounts' in the public budgets.³

Extensive estimates had to be made for the years 1999 to 2004. The investment expenditure by the federal states was estimated from their medium-term fiscal plans, whereas the assignment to the individual areas of

¹ Cf. Bernhard Seidel and Dieter Vesper: 'Anlagevermögen der ostdeutschen Länder und Gemeinden – Noch erheblicher Nachholbedarf', in: *Wochenbericht des DIW*, no. 24/2000; Dieter Vesper: 'Zum infrastrukturellen Nachholbedarf in Ostdeutschland', in: *Wochenbericht des DIW*, no. 20/2001. The calculations by DIW Berlin only included those parts of the capital stock for which the federal states and the municipalities are directly responsible; investment by the Federal Government was not included.

² Statistisches Bundesamt: Fachserie 14, Reihe 3.1: 'Finanzen und Steuern, Rechnungsergebnisse des öffentlichen Gesamthaushalts'.

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responsibility was made using information on past years. As informative fiscal plans were not available for the municipalities a two-tier procedure was deemed appropriate. Firstly, the investment allocations to the municipalities by the federal states under their respective fiscal plans were taken as orientation, and secondly, the development in municipal revenues was estimated for the states individually, using macroeconomic data provided by the Federal Government, which, in turn, is also based on the states' medium-term fiscal plans.

Together with the estimates of the level of new borrowing, future scope for public expenditure was explored, whereby it was assumed that in view of their budgetary restrictions the municipalities would aim for balanced budgets, and that de facto investment would be a residual item. Clearly, the role of the local or regional economy was also important. The stronger it is, the higher is the revenue from trade tax, which in turn improves the municipalities' scope for new borrowing. In both cases more funds are available for local investment. Hence, it was assumed that the municipalities in the prosperous states, where tax revenue is high, would be investing on an above-average level.

On balance, growth in investment spending of a good 5% per annum was forecast for the prosperous West German states and their municipalities in the period 1998 to 2003, while a rate of 3% was forecast for the less prosperous states. For the East German states and municipalities the rate was expected to be almost static – though starting on a high level. The estimates were based on target projections by the Federal Government at that time.

On this basis, DIW Berlin calculated a capital stock for the East German federal states and municipalities in 2005 of slightly more than two thirds of the west German per capita level.⁴ The amount needed to catch up with the West was defined by the value the West German recipient states would reach through the financial compensation arrangements. A capital stock of 20 200 euros per inhabitant was calculated for these states, while the per capita figure for the East German states was 14 600 euros. On aggregate, this amounts to a sum just under 80 billion euros required for catching up. The overall result was achieved by offsetting the areas

³ Statistisches Bundesamt, Fachserie 14, Reihe 2: 'Finanzen und Steuern, Vierteljährliche Kassenergebnisse der öffentlichen Haushalte'. However, this set of data, which does give up to date figures, only covers construction expenditure and not the acquisition of mobile assets (equipment) by area of public responsibility. The detailing is also much less than in the 'calculation results'.

⁴ Together with important parameters like the average useful life of buildings and equipment and the course of their retirement from the accounts the stock of infrastructure capital can be calculated from the volume of realized annual investment.

where east Germany had an infrastructure advantage against those with shortcomings.

Considerable discrepancies between the projected and the actual economic development

Recent years have been marked by a considerable discrepancy between actual economic developments and the Federal Government's projections. In the cyclical upswing at the end of the 1990s the gap between the forecast and the actual development was still slight. The rapid downswing in 2000 came as a complete surprise; not only to the state decision makers, nor was the economic stagnation in the following years foreseen. As a result, the macroeconomic figures given by the Federal Government for estimates of tax revenues, or for estimates of state expenditures, in the years 2001 to 2004 were on average 30 billion euros a year too high.⁵ In addition, the fall in tax revenues from the changes to the tax laws, in particular the reforms of income and corporate tax, was considerably underestimated.

All this had serious effects on the state planning process, for the fiscal data had to be revised downward markedly several times. Unforeseen declines in tax revenues of the order of 7 to 8 billion euros a year enforced adjustments, particularly in the flexible areas of expenditure, mainly public investment in fixed assets (buildings and equipment), and in the financial flows for domestic investment.

Strong decline in investment by the states and the municipalities

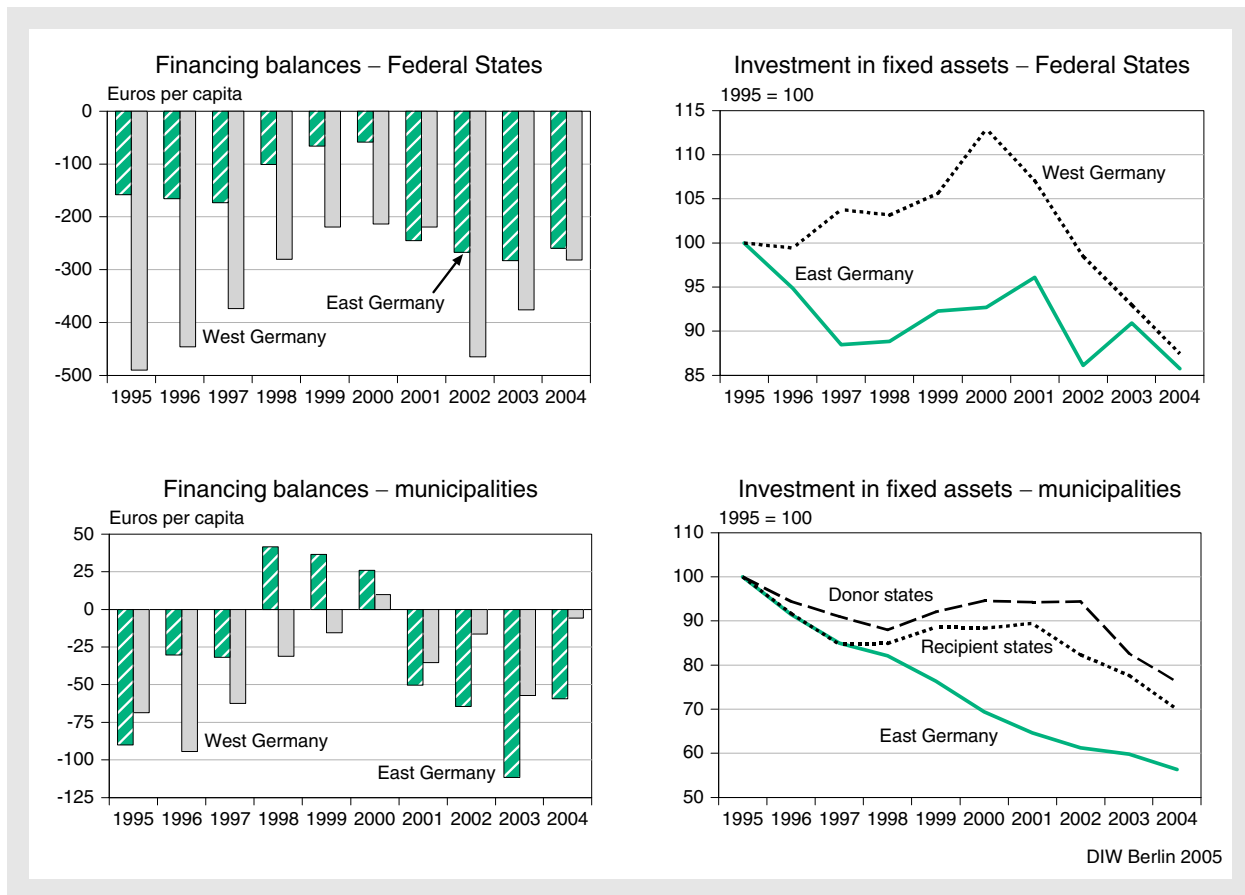
During the cyclical upswing at the end of the 1990s the states and municipalities had succeeded in noticeably reducing their budget deficits, and in some cases a surplus was actually achieved.⁶ Even the East German municipalities ended the year 2000 with a surplus (cf. figure). However, it was not only the cyclical upswing that brought the federal states and municipalities additional revenue – a moderate anticyclical expenditure policy also helped to improve their financial positions. Yet while the West German municipalities used the additional revenue created by the economic upswing to increase investment, their counterparts in East Germany

⁵ Cf. 'The World Economy and the German Economy in the Autumn of 2004', in: *DIW Economic Bulletin*, vol. 41, no. 11, November 2004.

⁶ Only the territorial states are considered here, the city states have not been included in the analysis owing to their very different structures.

Figure

The Development in Financing Balances and Investment in Fixed Assets by the Federal States and Municipalities 1995 to 2004



Sources: Federal Statistical Office; DIW Berlin calculations.

cut back their investment spending drastically, although departing from a much higher level. A strong downward trend in investment is evident in the east German budgets right from the mid-1990s.

During the cyclical downswing in 2001 and the economic stagnation in the following years the financial situation deteriorated markedly for the federal states and municipalities in both East and West Germany. The problem was intensified by the extensive tax reductions and the consequent loss of tax revenue, and the reaction was on the expenditure side. Cutbacks in expenditure in the East German states' budgets were reflected in lower allocations to the municipalities, causing massive reductions in municipal investment. Investment expenditure was reduced much more in East Germany than in the West, where, in turn, investment spending declined much more in the less prosperous states than in the donor states. This development continued until 2004; in 2003 investment expenditure by the federal states and the municipalities fell by a good 7%.

In fact, investment expenditure by the federal states and the municipalities did not expand by just under 4% annually in the period 1998 to 2004, as had been assumed in the estimate by DIW Berlin; quite on the contrary, it shrank by 3% a year (cf. table 1). In 2004 the gap between the estimated and actual investment expenditure was nearly 11 billion euros (cf. table 2). The volume of investment actually realized during that period is therefore clearly lower than was expected at the time. If the annual discrepancies between the estimated and the actual figures are added up, the gap is more than 24 billion euros, which corresponds to 13% of the investment expenditure originally estimated for this period. Hence, the value of the capital stock of the federal states and the municipalities in 2005 must enter the calculations at a level much lower than previously calculated.⁷

Table 1

The Actual Development in Expenditure on Buildings and Mobile Assets by Area of Public Responsibility 1998 to 2004

In million euro

Area of responsibility	1998	1999	2000	2001	2002	2003	2004
Government and central administration	1 784	1 789	1 753	1 760	1 679	1 585	1 465
East German territorial states	696	564	514	462	425	400	390
West German territorial states	1 088	1 225	1 240	1 298	1 254	1 185	1 075
Donor states	802	928	950	1 011	981	930	845
Recipient states	286	297	290	286	274	255	230
Public safety and order	1 397	1 454	1 483	1 542	1 565	1 485	1 445
East German territorial states	434	429	394	405	373	365	345
West German territorial states	963	1 024	1 090	1 137	1 191	1 120	1 100
Donor states	736	760	844	883	934	860	840
Recipient states	227	264	246	255	257	260	260
Legal system	480	475	504	463	405	353	325
East German territorial states	106	155	165	192	137	125	120
West German territorial states	374	320	339	271	268	228	205
Donor states	319	261	274	216	199	174	154
Recipient states	55	60	65	54	69	54	51
Schools	4 310	4 166	4 097	4 360	4 004	3 785	3 593
East German territorial states	1 113	1 030	919	823	633	603	591
West German territorial states	3 197	3 136	3 178	3 537	3 371	3 182	3 002
Donor states	2 521	2 454	2 437	2 673	2 633	2 509	2 336
Recipient states	677	682	741	865	738	673	666
Universities and other research	2 252	2 287	2 254	2 079	1 866	1 955	1 895
East German territorial states	598	638	619	658	553	530	500
West German territorial states	1 655	1 648	1 635	1 421	1 312	1 425	1 395
Donor states	1 287	1 288	1 233	1 118	1 053	1 100	1 120
Recipient states	367	360	403	303	259	325	275
Culture	749	758	766	773	697	654	603
East German territorial states	259	246	234	210	180	169	158
West German territorial states	490	512	532	563	517	485	445
Donor states	405	414	431	462	447	422	390
Recipient states	86	98	101	101	71	63	55
Social security	351	330	325	319	757	713	675
East German territorial states	81	62	67	65	164	166	160
West German territorial states	270	269	258	254	594	547	515
Donor states	215	214	201	195	466	425	400
Recipient states	55	55	58	59	128	122	115
Sports and leisure	1 150	1 193	1 212	1 250	1 188	1 132	943
East German territorial states	429	405	359	338	283	235	205
West German territorial states	721	788	853	912	905	897	738
Donor states	561	620	672	723	721	725	620
Recipient states	160	168	181	189	184	172	118
Municipal services	4 340	4 008	3 792	3 435	3 025	2 613	2 348
East German territorial states	659	548	472	382	387	336	302
West German territorial states	3 681	3 461	3 320	3 053	2 639	2 277	2 046
Donor states	3 105	2 888	2 837	2 613	2 371	2 050	1 859
Recipient states	576	572	483	440	268	227	186
Transport and communications	6 710	7 122	7 433	7 239	6 829	6 372	5 680
East German territorial states	2 127	2 174	2 059	1 993	1 986	1 853	1 677
West German territorial states	4 583	4 947	5 374	5 245	4 843	4 519	4 003
Donor states	3 278	3 537	3 909	3 830	3 581	3 248	2 969
Recipient states	1 305	1 410	1 465	1 416	1 262	1 271	1 034
General property and capital stock, special assets	1 066	983	1 066	917	876	771	683
East German territorial states	416	314	318	276	257	226	176
West German territorial states	650	669	748	641	619	546	507
Donor states	511	534	587	494	473	389	382
Recipient states	139	135	161	147	146	156	125
Others	3 484	3 312	3 507	3 497	3 814	3 267	3 176
East German territorial states	1 484	1 382	1 370	1 303	1 322	1 692	1 627
West German territorial states	2 000	1 929	2 137	2 194	2 492	1 574	1 550
Donor states	1 487	1 454	1 525	1 641	1 847	1 036	983
Recipient states	513	476	612	553	644	538	567
All areas of responsibility	28 074	27 876	28 193	27 633	26 706	24 684	22 832
East German territorial states	8 401	7 947	7 489	7 106	6 700	6 700	6 251
West German territorial states	19 673	19 929	20 704	20 527	20 006	17 984	16 581
Donor states	15 227	15 352	15 899	15 859	15 706	13 869	12 898
Recipient states	4 446	4 577	4 805	4 668	4 300	4 115	3 683

Sources: Federal Statistical Office; DIW Berlin calculations.

Table 2

Absolute Differences between the Estimated and Actual Development in Investment Expenditure 1998 to 2004

In million euro

Area of responsibility	1998	1999	2000	2001	2002	2003	2004	Cumulative 1998-2004
Government and central administration	-407	-420	-371	-340	-215	-88	106	-1 735
East German territorial states	-137	-87	-42	5	41	76	103	-40
West German territorial states	-269	-333	-329	-345	-256	-164	3	-1 694
Donor states	-260	-210	-214	-237	-160	-95	41	-1 135
Recipient states	-10	-123	-116	-108	-96	-70	-38	-559
Public safety and order	-268	-253	-272	-301	-289	-196	-90	-1 670
East German territorial states	-91	-93	-63	-78	-46	-30	4	-397
West German territorial states	-177	-160	-209	-223	-243	-166	-94	-1 273
Donor states	-151	-107	-175	-184	-201	-129	-65	-1 013
Recipient states	-26	-53	-34	-39	-42	-37	-29	-260
Legal system	-158	-148	-185	-146	-110	-62	-22	-831
East German territorial states	-1	-59	-71	-100	-47	-35	-28	-343
West German territorial states	-156	-89	-113	-46	-63	-27	6	-488
Donor states	-136	-74	-94	-35	-33	-14	15	-369
Recipient states	-21	-15	-20	-11	-30	-13	-9	-119
Schools	-280	60	275	215	795	1 265	1 752	4 081
East German territorial states	-132	73	171	270	477	547	620	2 027
West German territorial states	-149	-13	104	-55	318	717	1 132	2 054
Donor states	-142	-77	85	24	243	545	916	1 595
Recipient states	-7	63	19	-79	75	173	215	459
Universities and other research	397	574	487	647	719	625	780	4 228
East German territorial states	75	108	114	58	145	172	210	882
West German territorial states	322	466	373	589	573	452	570	3 346
Donor states	260	383	337	466	437	370	427	2 680
Recipient states	62	83	35	123	137	83	143	667
Culture	-144	-139	-145	-133	-38	29	116	-454
East German territorial states	-25	-38	-30	-7	25	41	60	26
West German territorial states	-119	-101	-115	-127	-62	-12	55	-481
Donor states	-100	-85	-98	-111	-77	-38	18	-490
Recipient states	-20	-16	-17	-16	15	26	37	10
Social security	-34	20	37	60	-364	-299	-237	-818
East German territorial states	-10	7	1	3	-95	-95	-86	-275
West German territorial states	-24	14	36	57	-269	-204	-152	-543
Donor states	-21	13	37	58	-201	-144	-101	-358
Recipient states	-3	1	-1	-1	-69	-60	-51	-185
Sports and leisure	-83	-366	-359	-359	-258	-150	96	-1 479
East German territorial states	-42	-154	-112	-91	-33	23	67	-343
West German territorial states	-42	-213	-246	-267	-224	-173	30	-1 136
Donor states	-34	-184	-207	-224	-191	-159	-16	-1 014
Recipient states	-8	-29	-39	-43	-33	-15	45	-122
Municipal services	-383	202	605	1 205	1 853	2 564	3 141	9 188
East German territorial states	-28	144	215	312	321	401	477	1 842
West German territorial states	-355	59	390	894	1 532	2 163	2 663	7 346
Donor states	-298	24	247	683	1 121	1 681	2 113	5 570
Recipient states	-58	35	143	211	411	482	550	1 775
Transport and communications	-581	-835	-1 021	-608	-18	797	1 868	-398
East German territorial states	-117	-216	-128	-70	-55	133	393	-59
West German territorial states	-464	-619	-893	-538	37	664	1 475	-339
Donor states	-367	-503	-752	-468	-62	523	1 042	-587
Recipient states	-97	-116	-141	-70	99	140	433	248
General property and capital stock, special assets	-54	28	-39	110	117	255	399	817
East German territorial states	-3	49	39	78	98	140	205	605
West German territorial states	-52	-20	-77	33	19	116	194	212
Donor states	-43	-43	-78	18	5	107	147	112
Recipient states	-9	23	1	15	14	9	47	99
Others	1 083	1 721	1 635	1 835	1 751	2 536	2 953	13 515
East German territorial states	261	385	373	438	435	125	280	2 297
West German territorial states	822	1 336	1 262	1 397	1 317	2 411	2 673	11 218
Donor states	682	1 101	1 153	1 213	1 210	2 169	2 427	9 955
Recipient states	141	235	109	184	106	242	246	1 263
All areas of responsibility	-912	445	647	2 186	3 943	7 275	10 859	24 444
East German territorial states	-249	118	466	818	1 264	1 499	2 306	6 222
West German territorial states	-663	327	181	1 368	2 679	5 776	8 554	18 222
Donor states	-609	239	240	1 203	2 092	4 817	6 964	14 946
Recipient states	-54	88	-59	165	588	959	1 590	3 276

Source: DIW Berlin calculations.

The development by areas of state responsibility

Investment activity by the federal states and the municipalities is concentrated on a few areas. Around 60% is spent on schools, universities, municipal services (especially sewage and waste disposal) and transport.

A study of the trend over time shows that in East Germany investment in government and the central administration, in public safety and the legal system, and in sports and leisure pursuits, has developed more strongly than originally assumed. DIW Berlin expected investment in some of these areas not to increase but to decline. This was because it had become apparent as early as the mid-1990s that East Germany had taken the lead in these areas. By that time, many town halls, parliament buildings and ministries in east Germany had in fact been built or restored to a very imposing and correspondingly expensive standard.

However, less than estimated at the time by DIW Berlin was invested in schools and universities, a more important area quantitatively, and in municipal services. That is surprising, for the schools in particular had been classified as greatly in need of improvement. However, the decline in the population made a big difference here, and the need to catch up must be estimated as less than forecast. In transport, on the other hand, where most investment is being made, the actual development has been largely as forecast.

Conclusion

The persistent economic stagnation and the extensive tax reductions have caused enormous falls in tax revenue since 2001, and this has led to drastic reductions in public investment expenditure. Investment in the public sector has been reduced by more in East than in West Germany, albeit from a much higher level. Altogether, investment expenditure in East and West Germany has developed much less strongly than was previously assumed by DIW Berlin when calculating how much was needed for the public infrastructure in East Germany to catch up.

If the cumulative differences between the estimated and the actual investment expenditure in West and East Germany are shown in relation to the number of inhabitants, the per capita figure for east Germany is 459 euros, but it is only 206 euros for the less prosperous West Ger-

⁷ However, in interpreting these results it must be remembered that particularly in the 1990s a number of tasks were taken out of the public budgets in the course of formal or material privatization. More exact statements on this are not possible from the currently available statistics.

man states. If these figures are roughly calculated as fixed assets at replacement cost, the per capita capital stock in East Germany was not at the beginning of 2005, as calculated earlier by DIW Berlin, 14 587 euros, with 20 185 in West Germany, but only 14 128 and 19 979 euros respectively. Hence, the degree of adjustment is not 72.3% it is 70.7%. In other words, as investment activity by the East German states and municipalities has been lower than originally assumed there is a need for a further 3.4 billion euros in investment over the amount estimated earlier by DIW Berlin.⁸

In view of the strongly declining investment activity in East Germany that figure may seem low. But it must be borne in mind that the West German figure has also shrunk drastically. Moreover, the gap would be much wider if the number of inhabitants in the east German territorial states had not declined so strongly. In fact, it is half a million lower than was assumed at the time. The decline in the population reduces the need for infrastructure to catch up, even if it is taken into account that the changes in the demographic development cause adjustment costs, for instance to reduce capacities, or if investment requirements depends less on the number of inhabitants than on other factors, such as the size of an area. The greater-than-expected decline in the population reduces the additional need to catch up by 600 million euros to 2.8 billion euros.

East Germany thus still has a considerable backlog in its public infrastructure, making the level of funding under the Solidarity Pact II appear justified. These funds should enable the gap in the infrastructure to be reduced further, making it less and less a brake on growth in East Germany – all the more if the additional funds allocated to the East German states for 'measures to promote the economy' are mobilized.⁹ In view of the strong decline in investment expenditure in recent years, and in view of the continued weakness in growth, the duration of Solidarity Pact II should be reduced, which would temporarily increase the flow of funds. Not least, that would also ease the adjustment crisis for the East German construction industry.

⁸ This figure was reached by subtracting the cumulated per capita differences between the east German and the less prosperous west German states (459 – 206 euros) and multiplying by the number of inhabitants in east Germany (13 566 million).

⁹ By decision of the Federal Parliament the East German states were awarded an additional amount of about 50 billion euros for measures of this kind (known as Basket 2). However, it has not yet been clarified in which form these funds will flow. For mixed financing (e.g. university construction, regional economic promotion, infrastructure investment under Art. 104a, Para. 4 of the Basic Law) there is the (vague) intention of putting the funding on a different basis in the long term. But the East German states were assured under the Solidarity Pact II that the funds will continue to flow on the same level as before; per capita the East German states are at present receiving twice as much as the West German states.