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**Working Paper**

## Germany's Mezzogiorno revisited: Institutions, fiscal transfers and regional convergence

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No. 9

# Research Notes

## Working Paper Series

### Germany's Mezzogiorno Revisited: Institutions, Fiscal Transfers and Regional Convergence

This paper revisits the question: Will Eastern Germany become a new Mezzogiorno? The purpose of this work is to provide fresh economic perspectives on why the Former DDR has stalled in its convergence with the Old Lander. It builds upon established analysis that depicts how wages have been allowed to far outstrip productivity. The term 'Mezzogiorno' refers to the transfer dependent southern region of Italy.

The paper addresses three core issues:

- Chapter One describes the institutional background to German unification where the economic strategy of the West German government to the New Lander was one of replication. Evidence is put forward that this institutional mismatch is at the heart of the region's problems.
- Chapter Two presents a novel Ricardian model to illustrate how important imbalances in the region's economy may have been compounded by fiscal transfers and industrial adjustment. Evidence is then provided which suggests that the post-unification investment support programme can be linked to the collapse of the tradable sector.
- Chapter Three poses the question: Is the standard neoclassical growth theory appropriate for analysing East German convergence prospects and, if not, what is? One possible answer comes from the exciting new field of economic geography.

The implications of EU expansion further support the case for revisiting the Mezzogiorno question. The New Lander will have to compete with its eastern neighbours whose labour costs are as low as one-tenth of the pan-German level.

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# **Germany's Mezzogiorno Revisited: Institutions, Fiscal Transfers and Regional Convergence**

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## **Executive Summary:**

On the 26<sup>th</sup> July 2002, Germany's leading newspaper *Frankfurter Allgemeine Zeitung* ran with the headline 'Economists fear region will turn into German Mezzogiorno'. Their rationale: twelve years after German unification, the New Lander has yet to become self-sustaining despite DM 1.1 Trillion in subsidies to help level the playing field. The term 'Mezzogiorno' refers to the transfer dependent southern region of Italy.

In 1990, Chancellor Helmut Kohl famously promised that East Germany would turn into a 'flourishing landscape' within four years. Yet soon after the fall of the Berlin Wall, Hughes Hallett and Ma (1992) coined the term Mezzogiorno to depict the regions gloomier prospects. In a series of well-documented papers the authors conclude that convergence is likely to take 30-40 years. Such concerns are justified: unemployment in the East is now at it's the highest level since 1990.

The intention of this dissertation is to build upon the established analysis of the disappointing performance of the East German economy - namely that wages were allowed to far outstrip productivity. In doing this, it will revisit the question: 'Will Eastern Germany become a new Mezzogiorno?' The intention is to provide fresh economic perspectives to explaining why the Former DDR has stalled in its convergence with the Old Lander.

As suggested by the title, this essay has three core components. Chapter One develops the institutional backdrop to German unification where the economic strategy of the West German government to the New Lander was one of replication. It is shown that this institutional mismatch is at the heart of the region's problems. Chapter Two presents a novel Ricardian model to draw attention to important imbalances in the economy that may have been accentuated by the policy of subsidising construction. Chapter Three asks the question: Is the standard neoclassical growth theory appropriate for analysing East German convergence prospects and, if not, what is? One possible answer comes from the exciting new field of economic geography.

This ambitious search for novel approaches would appear to pay dividend. For example, from the point of view of the new economic geography, the fall of the Berlin Wall creates a unique testing ground wherein high transport costs between East and West Germany were suddenly and drastically reduced. Consequently, of the many reasons presented here that necessitate a return to the Mezzogiorno question, none could be more perturbing than the geographic and economic implications of the imminent expansion of the EU, where the New Lander will have to compete with its eastern neighbours; their labour costs are as low as one-tenth of the pan-German level.

## **Chapter One: Institutions**

### **Introduction: Great Expectations**

Research by Hare (2001) into the role of institutional factors in the transition process focussed on the question of timing and prioritisation of separate institutional entities like legal systems, property rights and labour policies. In contrast, East Germany's big-bang reform meant that it adopted West German institutional arrangements overnight. Such uniqueness lends itself to some interesting comparative research.

The economic strategy of the West German government to the New Lander was one of replication. Unlike its eastern European counterparts, the New Lander would be provided with effective state, credible macroeconomic conditions, powerful market forces, a functioning banking system and effective corporate governance. Baldwin et al. (1997) cites lowering of the Central and Eastern European 10's (CEEC10's) country-risk premia as the most important monetary gain of EU expansion – yet East Germany eliminated these risks overnight. The extension of West German institutions and the acquisition of East German enterprises by West German companies were expected to solve the key problems of transition. However, this process of replication has not solved the problems of the incorporation of a poor region into a rich country.

Indeed, pessimistic predictions of a transfer-dependent 'Mezzogiorno' economy identified by Sinn (1992) and articulated by Hughes Hallett and Ma (1993) would appear justified. Aggregate employment went down by a third. In the manufacturing sector, employment declined by two thirds, leaving a desert of industrial dereliction. Currently the East German absorption of goods and services is DM 675 billion, yet its GDP is only DM 452 billion. Absorption is 50% higher than production, a unique phenomenon in modern economics. Since unification, the West German government has transferred about DM 1.1 trillion to East Germany, a sum that has been mostly financed by public borrowing and forced Germany to violate the Maastricht Treaty.

What went wrong? The heart of the East German problem lies with the successful transfer of some but not all West German institutions. This chapter will begin by setting out the real facts concerning the labour market before proceeding to analyse the key areas of replication in the institutional framework of the New Lander, beginning with an analysis of the privatisation agency [Treuhandanstalt] and continuing with the critical issue of the industry-wide collective bargaining systems. Finally, a brief overview of the causes behind the unsuccessful replication of the company-paid training schemes and innovation-technology transfer systems will be considered.

## Unemployment: Hidden Realities

Table 1.1 summarises three main economic indicators for eastern and western Germany since reunification: GDP growth, unemployment and nonemployment. From 1992 through to 1994 eastern GDP growth was impressive, despite the loss of population. Growth slowed after 1994, however, and then fell below the West German level in 1997. The rise of the registered eastern unemployment peaked at almost 20%. The western unemployment rate on the same measure peaked at 11% in 1997, but has since shown an upward trend.<sup>1</sup>

**Table 1.1: Real GDP Growth, Unemployment and Nonemployment in Eastern And Western Germany, 1990-2000<sup>a</sup>**

Percent						
Year	GDP <sup>b</sup>		Unemployment		Non-Employment <sup>c</sup>	
	East	West	East	West	East	West
1990	-15.6	5.7	n.a.	n.a.	n.a.	n.a.
1991	-22.7	4.6	10.3	6.3	26.8	27.1
1992	7.3	1.5	14.8	6.6	34.0	27.1
1993	8.7	-2.6	15.8	8.2	35.1	27.9
1994	8.1	1.4	16.0	9.2	34.1	28.5
1995	3.5	1.4	14.9	9.3	33.4	28.7
1996	1.7	0.6	16.7	10.1	34.2	29.0
1997	0.3	1.6	19.5	11.0	35.0	28.5
1998	0.6	2.3	19.5	10.5	35.2	27.9
1999	1.0	1.6	19.0	9.9	34.8	26.9
2000	1.1	3.3	n.a.	n.a.	n.a.	n.a.

Sources: Deutsches Institut für Wirtschaftsforschung (DIW), German Federal Statistical Office, U.S. Bureau of Labor Statistics, and Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung.

a. Berlin is included with eastern Germany for GDP measures after 1990, but split into east and west for the unemployment measures.

b. Measured at market prices (including subsidies and net interest) using the European System of National Accounts in 1995 prices (after 1990) and the German national income and product accounts (for 1990).

c. Defined as 100 minus the employed share of the working-age population.

Table 1.2 encapsulates the significant demographic changes in the region's work force. Davies and Hallet (2001) report that between 1991 and 2000, Eastern Germany lost more than 700,000 in population and more than 910,000 in employment. The ratio of employment to total population fell from above 46% to 42%, almost 6 percentage points less than in Western Germany where the ratio has remained broadly consistent. Furthermore, Burda and Hunt (2001) report that the employment share of the Eastern working-age population (those aged between sixteen to sixty-five) declined from 83% in 1990 to 65.2% in 1999 compared to a consistent 73% in the West.

<sup>1</sup> These figures conceal even greater variations in unemployment rates in regional labour office districts of between 2.7% in Freising / Bayern and 22.6% in Neubrandenburg / Mecklenburg-Vorpommern. Thus, within the same country there are regions with extreme labour shortages and others with almost a quarter of the labour force out of a job.



**Table 1.2: Population and Employment (Annual Average in 1000's), 1991 and 2000****\* Provisional**

	Population			Employment			Employment / Population (in %)		
	1991	2000*	Difference	1991	2000*	Difference	1991	2000*	Difference
East Germany	14,631.8	13,924.0	-707.8	6,785.0	5,873.7	-911.3	46.4	42.2	-6.1
West Germany	65,352.4	68,219.0	2,866.6	31,669.0	32,656.6	987.6	48.5	47.9	-0.6
Germany	79,984.2	82,143.0	2,158.8	38,454.0	38,530.3	76.3	48.1	46.9	-1.2

*Source:* Arbeitskreis "Volkswirtschaftliche Gesamtrechnung der Länder".

However, identifying the true level of unemployment in Germany has become as much an art as a science. In a well-documented OECD Survey (1998), the true extent of 'hidden unemployment' in East Germany was exposed as 29.6%; almost double the headline figure. Yet, we can take this analysis a stage further using pan-German data from Commerzbank Economic Research (2002). By taking into account 'concealed unemployment' as those under job creation schemes or in early retirement, an additional 1.7 million can be added to their important September 2002 [election] forecast of 3.9 million.<sup>2</sup> Such calculations are important. Reducing unemployment to below the politically sensitive 4 million mark was made a pledge by the current administration. The cost of the job creation schemes was significant and its benefits, as will be shown later, largely ineffective. Hence, time-inconsistency causes much unemployment to become hidden.<sup>34</sup>

Table 1.3 compares how Germany's central European neighbours have fared on similar indicators. All countries considered suffered a sharp fall in initial output, which Roland (2000) believes was precipitated by price liberalisation. Burda and Hunt (2001) and Wurzel (2001) provide a clear verification that Eastern Germany's fall in GDP and employment were both more severe than those of its neighbours.

<sup>2</sup> This controversial calculation was endorsed by Horst Siebert (2002) when he stated: 'There are some 5.7 million jobless in Germany, if one counts those that are in job-creation programs subsidized by the Federal Labour Office'.

<sup>3</sup> It is also possible to read between the lines of the apparent increase of a reported 1 million 'gainfully employed' since 1998 which occurred without any shrinking in the unemployment rate. This is due to the hidden reserves that were not registered as unemployed due to the poor job situation; a problem made worse by the 2000-downturn. As a result, we have inverse trends at work where the number in employment has risen but the number of hours worked has not; consequently in mathematical terms there will be 180,000 fewer 'full time' jobs this year than in 1999.

<sup>4</sup> Another interesting dynamic which has been highlighted to this author by researchers at Goldman Sachs, yet has been ignored by academia, is the possibility of IG Metall deploying a negotiating strategy which favours more moderate wage deals in return for favourable retirement conditions.

**Table 1.3: Growth of Real GDP and Employment in Selected Central European Countries, 1989-2000**

Percent								
Year	Czech Republic		Slovakia		Hungary		Poland	
	GDP	Employment	GDP	Employment	GDP	Employment	GDP	Employment
1989	1.4	n.a.	1.4	n.a.	0.7	-0.6	0.2	-0.8
1990	-0.4	-0.9	-2.5	1.5	-3.5	-3.1	-11.6	-4.2
1991	-11.5	-5.5	-14.6	-14.4	-11.9	-9.6	-7.0	-4.3
1992	-3.3	-2.6	-6.5	0.3	-3.1	-9.3	2.6	-2.8
1993	0.6	-1.6	-3.7	-0.1	-0.6	-5.7	3.8	-1.7
1994	3.2	0.8	4.9	-4.2	2.9	-1.2	5.2	1.1
1995	6.4	2.6	6.9	2.1	1.5	-1.3	7.0	2.9
1996	3.8	0.6	6.6	3.3	1.3	-0.1	6.1	3.5
1997	0.3	-1.0	6.5	-1.1	4.6	0.0	6.9	1.3
1998	-2.3	-2.4	4.4	-1.2	5.1	1.6	4.8	1.4
1999 <sup>a</sup>	-0.2	0.4	1.8	-1.8	3.0	3.1	3.5	-1.5
2000 <sup>b</sup>	2.0	n.a.	2.0	n.a.	6.0	n.a.	5.0	n.a.

Source: European Bank for Reconstruction and Development, *Transition Report*, various issues.

a. Estimated.

b. European Bank for Reconstruction and Development projection.

### **Treuhandanstalt: Rapid Restructuring**

The EBRD [1999] and The World Bank [2002] continue to characterise the privatisation process in transition economies to be blighted by weak corporate governance structures and the underdevelopment of firms. Privatisation in East Germany contrasts with this, in that it took place rapidly and resulted in a pattern of clear outside ownership with the incentive to maximise profits and with the resources, in terms of finances and management, to carry out rapid restructuring.

The Treuhandanstalt was set up as a public trust to manage, hold and ultimately dispose of state property in the east. During its four years of operation, the Treuhand presided over the breaking up of enterprises and a complete collapse in their employment. At the beginning of its tenure, there were 4 million people employed in Treuhand enterprises – by the time it closed in 1994 there were less than 1 million people employed in ex-Treuhand firms. By the end of this intense period of privatisation and restructuring, the average labour force of an East German firm was well below that of West Germany.<sup>56</sup>

Despite its initial objective being to seek buyers for the core businesses of its enterprises, a more accurate picture of the Treuhand's task is to think of it seeking to buy restructuring plans for its portfolio of enterprises. Consequently, the agency chose to neglect the theoretically sound benefits of auctions and instead made use of

<sup>5</sup> The German solution was the complete carve-out of enterprises from the banking system and the centralisation of enterprises restructuring in the privatisation agency. Aghion et al (1997) contrasts this to the Polish approach where enterprise restructuring was delegated to the banks, which received subsidies to undertake monitoring.

<sup>6</sup> For a detailed analysis; see Carlin (1994)

contractual guarantees where the successful bidder would be legally bound to making sufficient investment-per-head to make the enterprise competitive at West German wages in three-to-five years. This arrangement included a discount on the current asset value according to the number of jobs guaranteed. However, it was also open to time-inconsistency problems, with no effective sanctions or monitoring of firm's restructuring behaviour.

In light of the massive loss of industrial jobs in East Germany, it is often asked if the speed of restructuring was too fast.<sup>7</sup> In complying with EBRD and World Bank consensus, the Treuhand imposed a hard budget constraint on the enterprises under its control. As most enterprises were effectively bankrupt at the point of unification, their access to liquidity, which was controlled by the Treuhand under a guaranteed loan system, reduced the scope of managerial resistance to restructuring.

Another way of answering this critical question would be to view the process from the internal perspectives of employers (insiders) and employees (outsiders). Employers' incentives to restructuring stemmed from capitalising on the opportunity to signal their own management qualities to the (pan-German) labour market via the Treuhand's audit committee external evaluation. Employee resistance to job shedding was reduced by compensation payments and the implementation of the West German welfare state. Hence both Wessis and Ossis had reason to neglect the adverse consequences of their actions.

Put in a historical context, there have been many accusations of negative and exploitative asset-stripping practices occurring under the Treuhand's watch. However, caution needs to be stressed here, as there are well-documented dangers associated with government intervention in trying to influence investors' behaviour with regards to their restructuring objectives. In its defence, Dyck (1997) provides a more balanced overview of the privatisation process, offering a more positive picture of high levels of investment and management transfer.

A more accurate criticism of the Treuhand privatisation policy is that it did not have a general employment subsidy as analysed and advocated at the time by Hughes Hallett and Ma (1993, 1994). Instead, a specific subsidy was applied which allowed the Treuhand to offset some of the cost of employment and, importantly, fulfil its obligation to control its own deficit. The significant cost of the job shedding was subsequently transferred onto the books of other government authorities. Furthermore, Sinn (1999) draws attention to the failed objective of the Treuhand, to make revenue by selling two thirds of the East German economy in the market

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<sup>7</sup> This question is raised in the context of Blanchard's (1997) seminal model of the 'Speed of Transition'. Roland (2000) provides a detailed argument that privatisation was indeed carried out too fast.

place. In fact, its end result was losses of more than DM 200 billion. The Treuhand can also be blamed for not participating in wage negotiations, thus neglecting the task of protecting the East German capital stock.<sup>8</sup>

### **Industry-Wide Collective Wage Bargaining: The Problem**

In the West German system of industry wide collective wage bargaining, employers support the tariff wage system as a counterweight to the power of skilled workers. The forceful replication of this institutional arrangement upon the east's labour market was, is and will continue to be the root cause of the economic failure of the New Lander. In short: wages were allowed to far outstrip productivity.

The wage developments in Eastern Germany are the outcome of many forces preventing wages from developing in line with productivity. The wage equalisation policies implemented by the Kohl administration at the time of German unification were driven by three main political factors: optimism in terms of convergence with the west, fears of major out-migration from east to west, and considerations about equity.<sup>9</sup>

The initial situation of the German monetary union is crucial to understanding the process of wage convergence since the fall of the Berlin Wall. While the east-for-west 1:1 exchange rate conversion is often said to have been the main problem, this is not the case as eastern wages were only about one third of western levels at the time of unification, which broadly reflected the productivity gap.

The disappointing performance of the region's economy since unification justifies an alternative view expressed by Akerlof et al (1991) and Sinn (1992), simulated by Hughes Hallett and Ma (1992, 1993 1994): namely that the intention of West German unions and employers' associations (who represented East German workers during the crucial negotiations of 1991) to price East German labour out of the market and to effectively prevent them from threatening their (Western) markets.

The crucial wage negotiations, which took place in 1991, were to fix the whole time path of eastern wages relative to the west. As the Treuhand had only just come into being, there were no private entrepreneurs to participate in the negotiations, hence the West German employers' association took their place. In what can only be described as proxy negotiations, where parties involved settled labour conditions for others, the dominant motive was to avoid any risk to West German jobs. Sinn (1999, 2000a, 2000b, 2001) maintains his original criticisms (1992, 1995) of the role of West German unions as they opted for an unprecedented 5-year contract, which was

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<sup>8</sup> Carlin (1994) also stresses that the policy of management buy outs could have had a broader base leaving an economy less dominated by subsidiaries of West German companies, crowding out the possibility of foreign ownership and interests in the New Lander.

to bind East Germans to their misfortune. Combining this with the effects of the currency conversion would have implied a twelve-fold increase in the wage rate from 7% to 85% of West German level. The result was explosive job destruction and massive unemployment.

Although wages had soared to 75% of the Western level by 1995, the acceleration tailed off as many East German employers left the employers' associations to escape the crippling wage agreements. Union membership in the east declined from 50% of workers in 1991 to about 22% in 2000, compared with a drop from 25% to 18% in the west over the same period. Table 1.4 highlights another equally important trend: the decline in the share of firms' party to collective-wage agreements and the rising fraction of workers not covered by such agreements. The binding of such agreements is weakened even more by opt-out clauses that are being used with increasing frequency in the east.

**Table 1.4: Membership of Employers' Associations and Below-Union Wages in Eastern Germany, 1993-2000<sup>a</sup>**

Percent

Item	1993	1995	1998	2000
Share of all firms that are members of an employers' association.	36	27	21	16
Share of all employees employed by firms that are members of an employers' association.	76	64	45	34
Share of firms paying below the union wage for their industry and region.	35	33	41	40
Share of employees who are paid below the union wage for their industry and region.	12	16	28	29

Source: DIW, *Wochenbericht*, various issues.

a. East Berlin is included with eastern Germany and West Berlin with western Germany.

Schnabel (1999) argues that the decline in influence of unions and employers' associations has resulted in an increased readiness on the part of workers and works councils to engage in US-style plant level concession bargaining in which workers accept below minimum wages to save their firm from bankruptcy. Kohaut and Schnabel (1999) estimate that this type of bargaining is becoming more important over time.

Although these trends of increasing flexibility in the eastern labour market should be welcomed, their effectiveness will be tainted by the equally ill-suited replication of the western levels of social assistance to the New Lander at the time of unification. The replication of the western social security system upon the New Lander takes away much of the pressure on unemployed people to move to areas where they could find work. Furthermore, the tax-benefit system in Germany often tends only

<sup>9</sup> von Hagen and Strauch (1999) also argue the political incentive by the Kohl government, who were trailing behind in the polls running up to the election in 1990 and allowed this 'equalisation' to happen to improve its re-election chances.

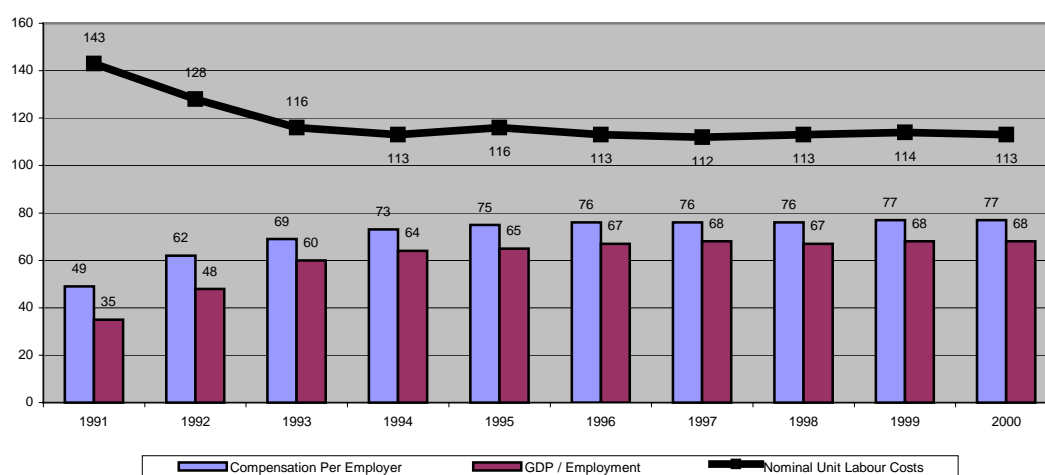
marginally – or sometimes not at all – to improve the income situation for those at the lower end of the wage scale when changing from unemployment to employment.

Sinn (2000) provides an excellent illustration of the true extent of distortion created by social aid programmes. In East Germany, an individual receives about €9,146 a year in state aid and a family of five receives €16,022. In a country where the annual average income net of social security contributions is about €16,000, these figures are definitely too high. It defies all economics logic that the authorities are trying to establish a market economy in the New Lander when the minimum income guaranteed through social welfare systems is equal to average net-of-tax wage income.

Figure 1.1 illustrates compensation, productivity and unit labour costs together over time. The main handicap for growth and employment in Eastern Germany is evidently clear: unit labour costs have been 13% higher on average than western levels since 1996. In 2000, compensation per employee had a level of 77% and GDP over employment a level of 68% relative to West German levels respectively. This holds, in spite of an average weekly working time in 1999 of 38.9 hours in the East compared to 36.8 hours in the West.

**Figure 1.1: Compensation, productivity and nominal unit labour costs in Eastern Germany (current prices, Western Germany = 100), 1991-2000**

Source: Arbeitskreis "Volkswirtschaftliche Gesamtrechnung der Länder"; Davis and Hallet's (2001) own calculations.



The government's response to the explosive effect on unemployment was to commence on an array of Active Labour Market Policies (ALMP's). Substantial research from the OECD suggests that one can dismiss the highly expensive ALMP's as being largely mismanaged, mistargeted, ineffective and irrelevant for a modern market economy.<sup>1011</sup> The consequence of the wage equalisation policies is that there

<sup>10</sup> See OECD (1999a, 1999b), Fay (1996), Martin (1999) and Wurzel (1999, 2001)

<sup>11</sup> According to a survey by the German Federal Labour Office (1999) of companies from east and west, some 14% of the western replies and 22% of the eastern ones thought that the wage subsidies they

is now a considerable risk that East Germany will become a transfer dependent Mezzogiorno economy for the foreseeable future.

Is there an alternative? In their self-explanatorily titled paper 'East Germany Since Unification: Wage Subsidies Remain a Better Way', Begg and Portes (2000) maintain Hughes Hallett and Ma's (1992, 1993) the original case for wage subsidies as a preferred solution to the wage equalisation policies.<sup>12</sup> They argue, convincingly, that a simple, unconditional path for a declining subsidy would have maximised the political costs of defaulting on its subsequent removal and minimise the economic opportunities for moral hazard. In reference to the productivity differentials visible in Figure 1.1; they argue that the case for wage subsidy should not be abandoned; rather that it is the best method to counter the evident market failure that still exists.

### **Company Funded Training System: Uneconomical**

West German companies invest heavily in general and specific training under an intuitional framework that is supported by the tariff wage system that prevents the poaching of skilled workers. External certification and access to the internal labour market of large companies provides young people with the incentive to invest in training. However, the base of companies is too small to provide sufficient investment in firm training places.<sup>13</sup> Carlin (1999) reports that only West German owned companies in East Germany train in the West German target range with trainees comprising 6% of employees. This figure becomes more ambiguous to interpret when you consider that half of the new firms in 1994 were subsidised in this respect. In support of this, there has been a noticeable trend in recent academic research that highlights a shortfall in the skills and qualifications associated with a successful capitalist economy, such as management, marketing and commercial skills.<sup>14</sup>

### **Innovation and Technology Transfer System: Lagging in its Infancy**

Industry associations foster standard-setting and help to minimise relational problems arising from incomplete contracts when companies need to cooperate in innovation. However, long-term relationships are difficult to develop. East German independent firms lack access to technology diffusion networks. Table 1.5 shows that existing firms and universities in the east devote between 75% and 100% of the level in Western Germany. However, given the weak economic structure in Eastern

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receive over-compensated for the lower productivity of the supported workers they had hired. Also, of those surveyed, 28% in the west and 30% in the east said they would have hired the same worker anyway, even without financial support. Furthermore, 17% in the west and 22% in the east answered that, without support for the person they hired, they would have employed another person instead.

<sup>12</sup> See also Akerlof et al. (1991)

<sup>13</sup> Ragnitz (2001) finds that firm size alone accounts for 17 percentage points of the raw productivity gap.

<sup>14</sup> See, for example, Burda and Hunt (2001)

Germany, there is a major gap when indicators are related to total population. A joint-evaluation of the various Regional Policy Programmes designed to counter this is outwith the scope of this essay, but would provide interesting avenues for future research.

**Table 1.5: Indicators on R&D in Eastern and Western Germany**

Percent

	East	West	West=100
R&D employees as % of all employed (1997)	3.49	4.24	82
R&D expenditure as % of total revenue (1997))	1.86	2.44	76
Patent registrations per 100,000 inhabitants (1995-98)	70	249	28
Private R&D expenditure in DM per inhabitant (1995-98)	215	792	27
Expenditure of universities in DM per inhabitant (1995-97)	1631	1724	95
Academic and artistic employed per 100,000 inhabitants (average 1995-1998)	214	248	86

*Source:* DIW/IWH/IFW 2000, p.15; Pohl 2000, p.228.

### **Conclusion: Mezzogiorno Revisited**

The European Commission (2002) has recently argued that two-thirds of the German economy's underperformance can be attributable to the difficulties in integrating the New Lander with the Old. Institutional mis-match is at the heart of this, which, particularly in the context of 'hidden unemployment', has proved to be more severe than the authorities would like to admit. Whilst a western political, legal and macroeconomic framework has been successfully replicated, the costs to the east of transferring western wage bargaining and social security systems remain.

In looking for causes, the legacy of Treuhandanstalt presents a mixed picture. The Treuhand duly fulfilled its (privatisation) role in accordance with the Washington consensus. Nevertheless, hindsight has shown that it may have been guilty of pursuing misguided incentives that lead to it privatising 'too fast'. Ultimately, the flawed wage-equalisation policies continue to undermine the prospects of the region. Consequently, the firms based in the New Lander were unable to produce profitably at tariff wage rates and the incentive to invest in the region was lowered. In light of this, two other components of the western institutional framework failed to deliver the productivity gains to justify the equalisation of wages: training and technology transfer. Taking all these factors into consideration, one can conclude not only that this institutional mis-match is more severe than previously believed, but also that it will in turn be harder to resolve. At best, a very slow process of convergence of the East German economy to the level of output per capita of the West should be expected.



## **Chapter Two: Fiscal Transfers and Industrial Adjustment**

### **Introduction: Transferring Distortions**

In this chapter, fiscal transfers and industrial adjustment in the New Lander are analysed using a standard Ricardian model, which ranks domestic industries by their comparative efficiency vis-à-vis their counterparts in the outside world. Goods are produced directly from basic labour with fixed production coefficients, which however, may differ between trading partners. Evidence is then provided to support the model's key predictions; that the effects of fiscal transfers from west to east causes the increase in East German expenditure to be diverted away from tradables to fund a rapid expansion in nontradables – namely construction – that further accentuates the contraction of the tradable sector of the economy.

This Ricardian framework strengthens the view of the European Commission (2002), who argues that the generous tax and subsidy framework given to the construction industry at the time of unification was misplaced. Not only did it produce a shortfall in revenues, but provoked a boom in the early 1990s and a bust ever since. A million apartments now estimated to be empty in the east, provides clear evidence that these allowances were a clear misallocation of resources. Under the Ricardian model presented here, the expansion in nontradables would have happened anyway, without the need for government intervention.

Following this, extensive evidence is presented to support the model's core conjectures and justify the Commission's criticisms. To begin with, it is considered that both the distribution of investment and composition of employment were diverted away from tradables and toward nontradables – in line with the model's predications. Then, in explaining the contraction of the export sector, it is considered that economies of scale may have heightened the damage done by the distortion-effect of the transfers.

This economies-of-scale effect lends itself to the new economic geography approach discussed in Chapter 3, as does the subsequent analysis of the boom and bust of the construction sector where there is support for a core-periphery pattern emerging. The chapter concludes by presenting some possible directions for future research in what appears a largely ignored approach to the Mezzogiorno question. Reference is made to the concept of a 'comparative advantage in nothing' where – in an extreme case – the nontraded sector may go to comprising the whole of the economy.

### Ricardian Model of Labour Productivity: Imbalances

The Ricardian Model presented by McKinnon (1993) assumes that, before unification, each industry in West Germany could be exactly matched with a counterpart industry in East Germany producing qualitatively the same good. However, the industries of the two countries differ in technological proficiency (conveniently indexed by labour productivities) in varying degrees for different industries. Let  $a_i$  and  $b_i$  be output per worker in the  $i$ th industry for West and East Germany, respectively. The index  $i$  is defined such that  $i = 1$  is relatively the most efficient East German industry, through all  $m$  tradable goods until  $i = m$  which, is the most efficient West German industry such that:

$$a_1 / b_1 < a_2 / b_2 < \dots < a_k / b_k < \dots < a_m / b_m. \quad (2.1)$$

On average, suppose that output-per-worker in West German tradables industries is, say, twice as high as in East Germany and that this is counterbalanced by the wage level in West Germany being twice as high. The Dornbusch, Fisher and Samuelson (1977) Ricardian model with a continuum of goods, assumes consumption tastes in east and west are identical and homothetic in income, and prices are evenly balanced across industries. In this way, one could find some intermediate industry  $k$  where  $a_k / b_k = 2$  and which, having equal production costs in both countries, produced goods that are just on the borderline of not being traded. Once unification has opened up both regions to trade, all industries where  $a_i / b_i > 2$  would be located in Western Germany and those where  $a_i / b_i < 2$  would be located only in Eastern Germany. When there was no net capital flow between the two Germanys - i.e. balanced trade - then:

$$\sum_{i=1}^{k-1} (p_i x_i^b) = \sum_{i=k+1}^m (p_i x_i^a) \quad (2.2)$$

Where  $p_i$  is the (common) price of the  $i$ th commodity,  $x^a$  represents exports from west to east, and  $x^b$  represents exports from east to west.

The real exchange rate is denoted by  $\theta$ , the ratio of real wages between the two Germanys in free trade equilibrium. For the  $k$ th industry, which is the dividing line determining the flow of trade, output could equally well be produced in either country. Wage costs of producing the  $k$ th output would be the same whether it was produced in West and East Germany such that:

$$p_k = w_a / a_k = w_b / b_k, \quad \text{or} \quad \theta = a_k / b_k = w_a / w_b \quad (2.3)$$

Where  $w_a$  is the common currency throughout West Germany and  $w_b$  is the common wage throughout East Germany (presuming that all labour does not immediately move to higher wage area). Thus the real exchange rate  $\theta$  is the just ratio of labour

productivities in the marginal  $k$ th industry and is also the wage ratio. Under balanced trade in our particular example,  $\theta = 2$  reflects the fact that real wages are twice as high in West as East Germany (the average difference in technical efficiency across all  $m$  industries). In effect, an increase in  $\theta$  represents a real appreciation of the shadow West German Mark, expanding the number of tradable industries where East Germany is the low cost producer relative to West Germany.

This textbook Ricardian model is often advocated to transition economics under the assumption that  $\theta$  is a sufficient control variable to secure the necessary adjustment. The rationale is that, no matter how technically inefficient East German industries might be, one could always find an  $\theta$  sufficiently high that industries 1 through  $k-1$  could begin exporting profitably and absorbing labour at the outset of the liberalisation process. This benefits of this profitable activity need to be offset against the costs of the contraction and closure of  $k+1$  to  $m$  industries (mirrored in the west) as a result of opening up to free trade. On balance, the rationale for the Ricardian view is that buoyancy of East German output in internationally competitive industries would go a long way to easing the industrial distress.

Will capital flows affect the acuteness of the problem of industrial adjustment, and can we use them to expand upon this analysis? Putting aside long run effects on the capital stock and labour productivity (which are outside the simple Ricardian model), we are left with the short-run effects of the transfer itself on their pattern of industrial production. Consequently, for the transfer to be effective, Eastern Germany must run a trade deficit with Western Germany corresponding to the increasing expenditure made possible by the transfer.

Whether such a deficit would worsen the industrial contraction in East Germany depends on whether or not we limit the analysis to tradable only goods. If we were to limit the analysis to traded goods, neither country's production pattern will deviate from the free trade equilibrium prevailing in the absence of a capital transfer.<sup>15</sup>

$$T = \sum_{k=k+1}^m (p_i x_i^{\sim a}) - \sum_{i=1}^{k-1} (p_i x_i^{\sim b}) \quad (2.4)$$

Where  $p_i$  is the common price of the  $i$ th commodity as before, but  $x^{\sim a}$  is now the increased level of exports from West Germany, where  $x_i^{\sim a} > x_i^a$ , and  $x^{\sim b}$  is the reduced level of exports from East Germany, where  $x_i^{\sim b} < x_i^b$ . Nevertheless, production in industries 1 to  $k$  in East Germany and  $k + 1$  to  $m$  in West Germany would remain

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<sup>15</sup> This is because tastes are identical and expenditure shares constant in the two Germanys and all disposable income must be spent on tradable goods, the decline in demand by West Germans for goods 1 to  $m$  will be exactly offset by increased spending by East Germans for these same goods.

unchanged, the same as in the absence of the capital transfer. Thus the capital transfer itself imposes no additional adjustment burden of industrial redeployment.

However, suppose now there is a nontradable sector, where a substantial part of each country's disposable income is spent, which exists in each country. From our initial assumptions, we can imagine each Germany spending  $\alpha$  (where  $0 < \alpha < 1$ ) of its disposable income on tradables and  $(1-\alpha)$  on nontradables (which could be as much as 40-50%). Thus, upon receipt of the capital transfer, some of the increased East German spending will be diverted away from tradables 1 to  $m$  to the nontradable good, which we shall denote by  $n$  (again, mirrored in the west).

Consequently, the production in the nontradable sector in East Germany will expand relative to both its previous autarkic equilibrium level and relative to its level under free trade with or without the transfer. Thus, according to McKinnon, the initial effect of the capital inflow is to force a further contraction in the range of tradable outputs produced in East Germany. Remembering that aggregate demand for the two Germanys remains initially unchanged for each tradable good in the face of the transfer, the nontradable sector can only expand by bidding up wages to attract labour away from the tradable sector, forcing up the international prices of tradable products in East Germany. The result is further contraction in the range of outputs produced in East Germany. As represented in (2.1) the borderline good between exporting and importing shifts to the left:

$$a_1 / b_1 < a_2 / b_2 < \dots < a_j / b_j < \dots < a_k / b_k < \dots < a_m / b_m. \quad (2.5)$$

The index  $j$  now denotes the new borderline industry, and  $j < k$  after the capital transfer. Moreover the real exchange rate for East Germany – its relative wage – appreciates:

$$\theta' = a_j / b_j = w'_a / w'_b < a_k / b_k = w_a / w_b = \theta \quad (2.6)$$

Where the prime represents equilibrium in the presence of nontradables.

### **Investment and Employment: Following the Money**

Table 2.1 highlights the massive investment subsidies that were paid by the Kohl Government in various forms. An alternative explanation to the Ricardian model may be that the investment incentives embedded in these subsidies was so large that they actually made the cost of capital negative for most types of investment.

**Table 2.1: Investment Support Programs**

DM Billion

	1991	1992	1993	1994	1995	1996	1997	1998
Tax Allowances	1.04	4.19	4.89	4.44	3.62	2.41	1.74	1.32
Depreciation	3.40	4.90	6.30	7.10	9.10	9.50	6.82	7.00
Allowances								
Investment	7.52	6.38	6.98	6.70	5.08	6.27	4.48	2.37
Subsidies								
ERP Loans	8.15	6.12	6.02	4.10	3.58	3.58	3.17	1.52
KfW Loans	5.92	6.34	3.79	2.05	2.14	2.14	1.91	0.72
DtA Loans	3.52	3.88	3.19	3.16	2.47	2.47	2.07	0.83

Note: 1998: first 6 months. Sources: ERP (European Reconstruction Program); KfW (Kreditanstalt für Wiederaufbau) DtA (Deutsche Ausgleichsbank)

The economic implication of the negative cost of capital was dramatic because capital changed from being a factor of production to being an economic good. Hosting capital became a service, which firms offered to a well-paying government. Firms reacted to this fundamental change of regime by operating at a point of their production possibility frontier where they sacrificed labour productivity in order to make possible an abnormal increase in capital intensity.

Table 2.2 shows the sectoral distribution of investment since unification.

**Table 2.2 Distribution of Investment**

Percent

	Manufacturing	Trade, Transportation	Services (excl. Residential Housing)	Residential Housing	Government
1991	32.3	22.0	10.3	17.1	17.0
1992	31.1	21.1	9.7	18.1	18.9
1993	27.8	19.5	14.1	20.2	17.7
1994	23.8	18.0	16.1	24.2	17.4
1995	22.6	15.7	18.0	27.7	15.8
1996	21.2	15.7	17.5	29.5	15.5
1997	21.0	16.3	16.3	30.5	15.2
1998	21.4	16.2	16.4	29.4	15.9

Note: All entries in percent of total annual investment. Source: Council of Economic Advisors, various issues

In the early years of transition, manufacturing attracted the largest part of investment, followed by trade and transportation. Over time, however, residential housing became the main destination of new capital. This reaction provides initial support of the Ricardian model: a shift away from tradables to nontradables in the industrial pattern of the New Lander.

Table 2.3 strengthens justification of the Ricardian model further by showing changes in the composition of employment in Eastern Germany: the competitive wage bidding between sectors may well be exposed here.

**Table 2.3 Composition of Employment in Eastern Germany 1991, 1995 and 2000<sup>a</sup>**

Percent

Sector	Employment					
	1991 (Exc. Berlin)	1991 Berlin Only	1995 (Exc. Berlin)	1995 Berlin Only	2000 (Exc. Berlin)	2000 Berlin Only
Agriculture and forestry	7.3	6.0	4.0	6.0	3.6	6.0
Industry, excluding construction	29.3	20.7	16.9	14.0	16.1	11.7
Manufacturing	25.8	18.9	15.0	12.4	14.8	10.6
Construction	10.3	7.7	17.4	9.1	13.4	7.0
Trade, eating and drinking establishments, transportations	20.5	26.2	22.4	24.0	23.7	22.4
Banking, financing, leasing and business services	6.0	12.5	9.2	16.6	11.8	19.9
Public and private services	26.6	32.2	30.1	35.7	31.3	38.5

Source: Burda and Hunt's (2001) own calculations based on data from AKVGR (2001).

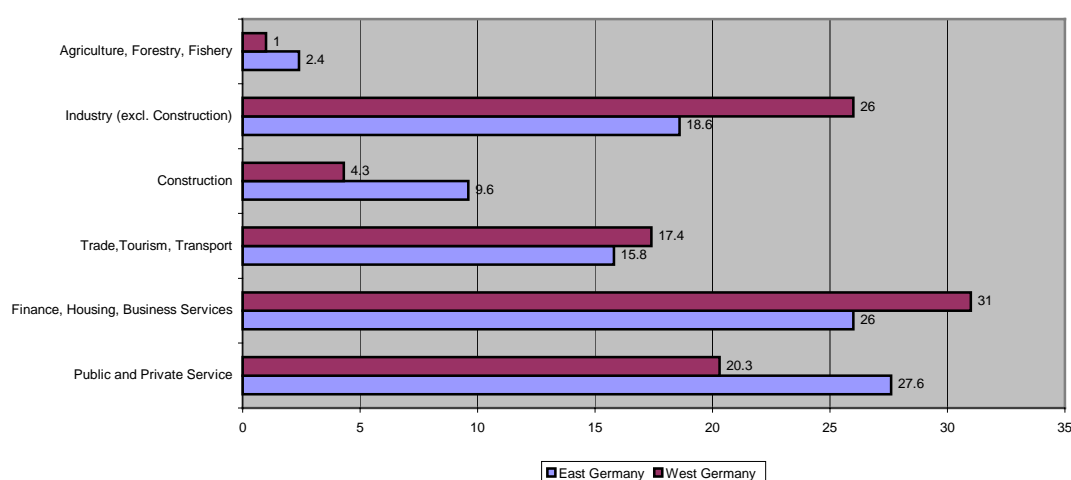
a. Numbers may not sum to 100 because of rounding.

Manufacturing's share in employment has collapsed to only 15% where as construction has risen to 17% in the east in 1995. The data also shows that the construction boom has peaked. Thus the relatively constant level of employment since 1993 conceals significant sectoral shifts.

Indeed, the European Commission draws attention to this issue in a recent publication. The authors, Davis and Hallett (2001), highlight the skewed economic growth of the region towards nontradables by showing that construction's share of gross value added (GVA) in the east was still more than double that of the west. In contrast, the share of (tradable) industry in total GVA in Eastern Germany is still more than 7 percentage points below its share in Western Germany (See Figure 2.2).

**Figure 2.2: Share of Sectoral GVA in East and West Germany in 2000 (in percent)**

Source: Arbeitskreis "Volkswirtschaftliche Gesamtrechnung der Länder".



### **The Tradables Export Sector: From Contraction to Collapse**

The weakness of East Germany's export sector can be seen from the relative trade shares of the region. The European Commission reports that, in 1991, barely 6% of the East's output was exported outside of Western Germany. From this low level it fell further to around 5% of GDP in 1993 and 1994. It has since doubled to reach a meagre 10% in 2000. While this marks relatively high export growth rates, it has to be contrasted with a much higher export rate in the West of 25% of GDP in 1989, which dropped to around 18% in 1993 and returned to 25% in 2000. East Germany's exports per capita remain at a level of less than 30% of West Germany.

From a geographic perspective, unification can be interpreted as a drastic reduction in transport costs in the face of adverse and uneven distribution of firms across space. Combine this with unfavourable unit labour costs explained in Chapter One and it is no surprise that the manufacturing sector was to be hit hard. The presence of agglomeration economies, especially as the dominant West German market is adjacent, would force major restructuring of the industrial landscape. In an enlightening contrast to the former GDR, Miegel & Kunze (1997) show that the share of the manufacturing sector in Czech GDP has not shrunk in a manner akin to East Germany's experience, and is about the same as in West Germany.

Brakman, Garretsen and Schramm (1999) look beyond the unfavourable unit labour costs scenario and examine to what extent economies of scale can also explain the developments at an industry level in East Germany. The index of Pratten (1988) is used to rank and compare the change in employment in two sets of five industry groups. The five industry groups ranking highest benefit most from economies of scale compared with the five industries ranking lowest in their benefit from economies of scale as shown in Table 2.5.

**Table 2.5: Change in employment in manufacturing industry groups with high or low economies of scale in East Germany**

<b><i>Strongest economies of scale</i></b>	1991-1995	1995-1997
Motor vehicles	-54	0
Other vehicles	N/A	-22
Chemicals	-68	-9
Metals	-76	-12
Office machinery	-89	-33
Total	-68	-13
<b><i>Weakest economies of scale</i></b>		
Leather goods	-89	-33
Footwear and clothing	N/A	-25
Timber and furniture	-50	0
Textiles	-80	0
Food	-45	+1
Total	-60	-1

Source: Pratten (1988, p. 82), data of the Statistisches Bundesamt

Table 2.5 shows that employment in the five industry groups ranked highest has decreased more than in the five industry groups ranked lowest, both in the first years after German unification and in recent years. This is in accordance with the hypothesis of modern theory of trade and location - that more firms are pulled out of the periphery as economies of scale increase - and also with empirical findings of localisation of industries characterised by strong economies of scale at the EU core (see Chapter Three).

### **The Nontradable Sector: Constructing a Boom-to-Bust Scenario**

The New Lander saw its construction investment more than double in real terms between 1991 and 1994 only to fall back by more than 30% in the period up to the year 2001. Nevertheless, in 2001 construction in the east remains 40% higher than in 1991. Where as residential construction is still up by almost one fifth, non-residential construction performance is worse, down by 10% compared to 1991 and 20% compared to its 1994 peak. In the industry sector alone, real construction investment fell from €22.57 billion in 1993 to €16.46 billion in 2000.

Subsidy induced misallocation of investment – which adversely affects the productivity of the economy's capital stock – is perhaps most conspicuous in residential construction. Wurzel (2001) states that in 2000 almost one million flats in Eastern Germany stood empty – twice as many as in 1993. This reflects migration from old to new homes as well as migration to the west as well as too much construction. Prior to desertion, many of the old flats were renovated with the help of public sector funds. Now to reduce mounting overcapacity, old homes are being dismantled, with the government covering the cost of demolition. Meanwhile, the



rehabilitation of sparsely populated areas necessitates the establishment of new infrastructure, an expensive incongruity.<sup>16</sup>

These specific developments in the nontradable construction sector can be contrasted against the weak market position of the tradable export sector. A mere 3.7% of total German exports came from firms in East Germany in 1998. For example, the share of exports to total sales of the manufacturing and mining sector is 34.3% in West Germany; it is only 17.4% in East Germany. Moreover, investments have concentrated in industries producing for the regional and local market (see Dietrich, Ragnitz, Rothfels et al., 1997).

It is plausible to consider that the new economic geography has a role to play here. The retreat of East German firms to the nontradables sector provides supportive evidence that they were squeezed out of industries where economies of scale matter because of the small size of their home market. As a result, they retreated to the nontradables sector, in which localised production and service is important. To conclude, and keeping in mind the forthcoming arguments made in Chapter Three, both the collapse of the manufacturing sector and the retreat to the nontradable sector in East Germany are consistent with the establishment of a core-periphery pattern in Germany.

### **Conclusions: A Comparative Advantage in Nothing?**

Sinn (1995, 2000) and Begg and Portes (2001) have all independently criticised the overly intensive subsidisation of construction and its consequences for industrial adjustment in the New Lander. However, the application of the Ricardian model, with the conjecture that the expansion on nontradables like construction was inevitable, remains largely untouched in economic circles. The findings in this Chapter strengthen the case for further research into the Ricardian effects of fiscal transfers on industrial adjustment. Indeed, one has to look beyond the economic field to find evidence of such a study. In his seminal social and political textbook on unification, Turner (1998) uses a model of locational competition to provide evidence of competitive wage bidding as a way of retaining manufacturing (tradable) workers.

Ziesemer (1999) provides - to the best of this authors' knowledge - the only other known attempt to apply the Ricardian model constructed by Dornbusch, Fischer and Samuelson (1977) to East Germany. In one of his models, and in line with economic geography, iceberg-type transport costs are introduced. In addition, each

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<sup>16</sup> With regards to this worryingly apparent vicious circle of never-ending infrastructure investment, the devastating floods of August 2002, and the expensive process of repairing the damage, can only make matters worse.

country will stop importing some of the goods in which the comparative advantage is small: this generates a non-traded goods sector. If transport costs are sufficiently large the size of the non-traded sector may go towards a limit comprising the whole economy and the comparative advantage vanishes. In his paper, it is proposed that some parts of East Germany's road infrastructure is so bad that trade is indeed unprofitable because of high transport costs. The case is obviously relevant to Chapter Three although not associated with the wage increases emphasized in Chapter One.<sup>17</sup>

What directions could future research into the model take in the context of the Mezzogiorno question? Within the framework set out in this Chapter, and in the work of Ziesemer – a theoretically promising starting point, would be to test the Ricardian model's hypothesis that the expansion of the nontradable sector in the region can only be achieved by bidding up wages to attract labour away from the tradable sectors to the detriment of the region's competitiveness. To extend and advance upon this Ricardian analysis would require several modifications. For example, the model lacks a labour market, hence a wage arbitrage condition would allow for equilibrium migration and allow attention to be focused specifically on the industrial adjustment of the region.

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Ziesemer (1999) derives several other interesting cases of the 'comparative advantage in nothing' for East Germany. These include the case where Western wage levels and prices are replicated in the East but lower productivity in all sectors, (in accordance with Chapter One), leading to negative profits and 100% unemployment also in the Ricardian model. What makes these pessimistic models appear interesting is the distinct possibility of the imminent withdrawal of subsidies from the New Lander, (under strict EU Competition Law) which are behind so much of the ill-fated optimism.

## **Chapter Three: Regional Convergence**

### **Introduction: Growth Theory in Transition**

Is the standard neoclassical growth theory appropriate for analysing East German convergence prospects and, if not, what is? The answer to the first part of this question is relatively straightforward; it is argued that the neoclassical synthesis, which relies heavily on distortion-free 'price is right' assumptions, is inappropriate for the time being. Whilst the existence of interim alternatives, such as mapping (where the growth experiences of the Old Lander are used to predict the convergence prospects of the New), prevents abandoning the neoclassical theory completely, the new economic geography theory is put forward as a strong candidate to answer the second part of this question.

The new economic geography approach to addressing the East German convergence question begins with its theoretical foundations: Krugman's (1991) seminal core-periphery model. Despite its plausibility, the central pessimistic prediction of the model of a single location with manufacturing activity is clearly not in accordance with the facts about spatial distribution of manufacturing activity in Germany. However, it is argued that the fall of the Berlin Wall, when transport costs between regions fell dramatically, provides a unique testing ground in which new economic geography theories can be explored further.

The third part of this chapter does exactly that. The Hanson-Helpman model provides a significant advancement on Krugman's work, particularly in the context of East Germany. In this model the micro foundations are the same as Krugman (1991), with the only distinction being the inclusion of a homogenous non-tradable good (housing) at the expense of a homogenous tradable good (agriculture). This extension to the model thus allows for a richer menu of equilibrium spatial distributions of economic activity than in the original core-periphery model.

The final section builds upon the attractiveness of this geographic approach, which is still in its formative stages, and considers future directions for academic research in this field. Attention is also drawn to the contradictory evidence supporting a spatial wage structure, discussed in this Chapter, and the industry-wide collective wage bargaining discussed in Chapter One. It is suggested that the Helpman-Hanson approach may offer valuable insights into employees 'opting out' of the pattern wage contract scheme.

### **The Solow Model and Regional Convergence: Conditional?**

The standard Solow (1956) neoclassical growth model is the conventional way of explaining convergence across countries and between regions. Let  $s$  be the constant saving rate, where  $0 < s < 1$ . In a closed economy, savings are equal to gross investment, and gross investment in turn is equal to the net increase in capital stock plus depreciation. Written in per capita terms, the net increase in the capital stock is given by:

$$\dot{k} = s \cdot Af(k) - (d + n) \cdot k \quad (3.1)$$

Where  $k$  is the capital stock per person.  $Af(k)$  is the production function in per capita terms,  $\delta$  is the depreciation rate and  $n$  is the exogenous rate of population growth. The parameter  $A$  reflects the level of technology. Under Solow, all three constants ( $\delta$ ,  $n$  and  $A$ ) are exogenous. Equation (3.1) is the fundamental differential equation of the Solow model which, given  $k_0$ , describes the dynamic behaviour of capital. If we divide both sides of (3.1) by  $k$ , we get an expression for growth rate of the capital stock,  $k$ :

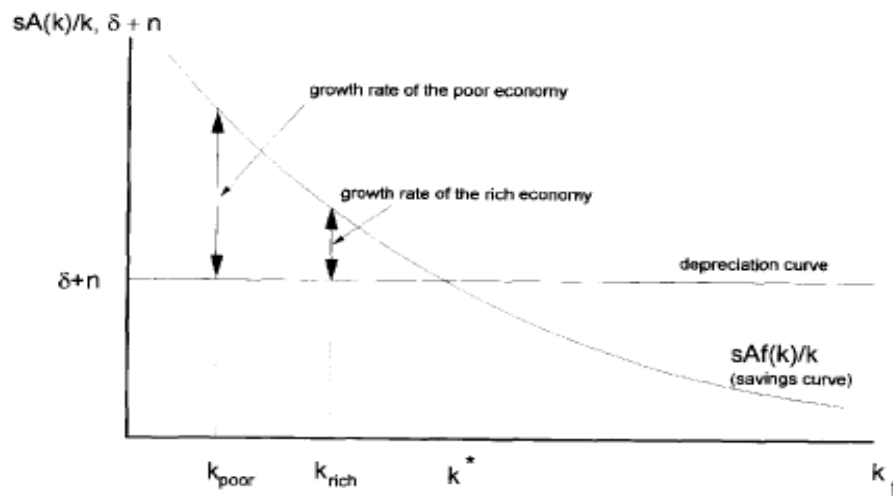
$$\gamma_k = s \cdot Af(k)/k - (d + n) \quad (3.2)$$

Given  $k_0$ , the behaviour of the economy can be analysed as shown in Figure 3.1. The figure displays two functions: the depreciation curve  $(\delta + n)$ ; and the savings curve  $s \cdot Af(k)/k$ . Equation (3.2) indicates that the growth rate is the difference between the two. The neoclassical assumption of diminishing returns to capital ensures that the saving curve is downward sloping. The Inada conditions ensure that the savings curve is vertical at  $k=0$  and it approaches the horizontal axis as  $k$  tends to infinity. The intersection between the two curves is unique and is referred to as the steady state capital stock.

From a convergence point of view, the critical point is that the savings curve is downward sloping. This implies that if both East and West Germany had a similar level of technology ( $A$  and  $\delta$ ) as well as similar savings rates and population growths ( $s$  and  $n$ ), then they would converge to a single steady state. Figure 3.1 shows that the growth rate of the poor economy (East Germany) is larger than the growth rate of the rich economy (West Germany). Hence if the only difference across Germany is the initial capital stock, the neoclassical model predicts convergence in the sense that poor regions will grow faster than rich ones

The intuition behind the prediction of convergence in the neoclassical model is that, because of diminishing returns to capital, each addition to the capital stock generates larger additions to output when the capital stock is small. The opposite is true when the capital stock is large.

**Figure 3:1 Convergence and the Solow Model**



There is already a well-developed body of work relating the Solow model to the issue of regional growth and convergence; for example Sala-i-Martin (1996) applies a neoclassical growth model to analyse convergence across developed economies. Using regional data sets to analyse regional convergence in income per capita, he finds that there is  $\beta$ - and  $\sigma$ -convergence across regions of the US, Japan and Europe.<sup>18</sup> The speeds of  $\beta$ -convergence are extraordinarily similar across countries: about 2% per year. It is also shown that the interregional disparity in income in all countries has shrunk over time. In seeking alternative explanations to the neoclassical model, the author rules out measurement error, government cohesion policies, migration, and perfect capital mobility. Consequently, he argues that the neo-classical model with or without perfect capital mobility and technology diffusion provides the likeliest explanation of the convergence phenomena.

### **The Neoclassical Model and The Mezzogiorno Question: Appropriate?**

The optimism expressed as to the convergence prospects of the New Lander at the time of unification were embedded in the neoclassical concept of convergence. Yet, although some convergence did occur between 1991-1995, the clear lack of convergence since indicates that the region is not behaving in accordance with the model. In its defence, Sinn (2000) argues that the neoclassical model is still relevant for Germany, but that prices, wages and other market forces could not function due to the kinds of distortions already highlighted in Chapters One and Two. However,

<sup>18</sup> The author defines two concepts of convergence:  $\sigma$ -convergence and  $\beta$ -convergence.  $\beta$ -convergence is where poor economies tend to grow quicker than wealthy ones. This is in contrast to  $\sigma$ -convergence, where the dispersion of real per capita income across groups of economies tends to fall over time.

this approach to analysing the region's prospects falls foul of accepting the model's shortcomings, and then proceeding to expect success in its explanatory power.

In a political and historical context, it is understandable that the unprecedented nature of German unification would question the validity of using a 'standard' model like Solow for East Germany. Likewise, much of its underlying economic assumptions appear to be violated: competitive factor markets, constant returns to scale and a time invariant production function augmented by technical progress. Furthermore, estimates of total factor productivity (TFP) growth can be distorted by fiscal transfers and industrial adjustment, which can create large differences in measures of output per unit of input across sectors of an economy. Finally, the Solow model assumes a representative firm economy in which changes in output are explained with changes in capital and labour, where as much of the productivity increase in Eastern Germany has resulted from a dramatic wringing out of large, inefficient firms: creative destruction.

The applicability of Solow models to transition economies raises even more concerns. Polanec (2001) highlights two interesting features of transitional output dynamics: a substantial output decline in all transition economies, and diverging experiences across these economies. In his paper he tests the neoclassical growth model on the data set of 24 transition countries for the period 1989-1999 using cross-section and dynamic panel data estimation techniques. The empirical results show only mixed support for the neoclassical growth model.

Consequently, since former command economies are not yet fully developed market economies and continue to undergo major structural changes, one is tempted to agree with Hughes Hallett and Ma (1993, 1994) that the neoclassical growth theory has nothing to add to our understanding of the convergence prospects except in the very long run. An alternative approach is that of Wagner and Hlouskova (2001), who apply an indirect approach of mapping Western European growth experience to the CEEC10 accession states, projecting their growth prospects and hence the time required to narrow the income gaps to European Union levels.<sup>19</sup> This approach amounts to mapping onto the CEEC10's the stable structural relationships that are both prevalent in the EU and considerably more suitable for the neoclassical model. This mapping approach could prevent the abandonment of the neoclassical synthesis by initially mapping the growth experiences of the twelve federal states of the Old Lander to the six federal states of the Former DDR.

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<sup>19</sup> See also Fischer, Sahay and Vegh (1998)

### **The Core-Periphery Model: Go West**

The lack of convergence between East and West Germany in recent years justifies an analysis of the convergence process by means of economic theories that do not per se predict convergence. As has already been explained, there are reasonable grounds to think that there is more to the convergence process in Germany than just 'getting the prices right'.

In this section, it is argued that the disappointing economic performance might be the result of agglomeration dynamics. German unification can be considered as a case in which high transport costs between East and West Germany were suddenly and drastically reduced. At the start of the unification, initial conditions were such that West Germany was the core and East Germany the periphery. According to neoclassical theory this state of affairs must be temporary. According to modern theories, however, the adverse initial conditions for East Germany could turn out to be permanent.

Krugman's (1991) seminal Core-Periphery model lays the foundations for a geographical perspective on the Mezzogiorno question. Unlike the traditional Ricardian comparative advantage explanation for trade or the Hecksher-Ohlin relative factor endowment argument, Krugman's core-periphery model emphasises the relative influences of transport costs, returns to scale and the amount of footloose industry not tied down by resources.

The model's assumptions can be summarised as follows: two locations, West (the manufacturing core) and East (the agricultural periphery). Secondly, two factors: farmers (a proportion  $1-\pi$ ) and manufacturing workers ( $\pi$ ). Third, two goods: agriculture, which is homogeneous with constant returns to scale and perfect competition and manufacturing which is differentiated with increasing returns to scale and is monopolistically competitive. The model uses a Cobb-Douglas utility function  $[U = C_M^\pi C_F^{1-\pi}]$  with constant elasticity of substitution where  $\sigma$  is the elasticity of demand for a good. The concept of the 'iceberg good' implies  $\tau < 1$  equals the fraction of the good that arrives.

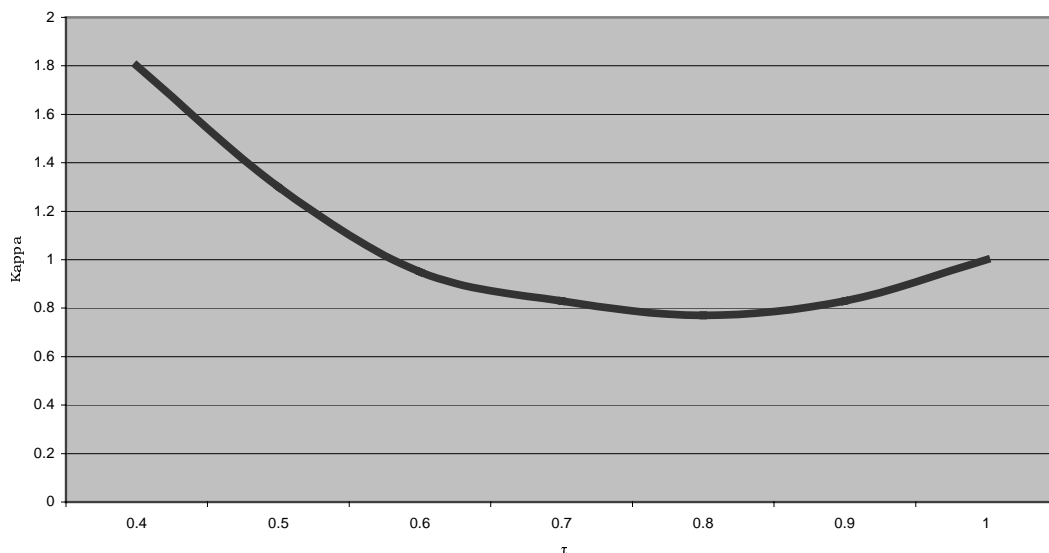
The model exhibits two spatial forces that work in opposite directions. Firstly, firms wanting to be near the larger market and workers wanting access to manufactured products drive centripetal forces, which attract production to the core. Secondly, centrifugal forces push production to the periphery, as firms want to serve the peripheral agriculture market. This is encapsulated in the Kappa value below:

$$K = (\tau^{\pi\sigma} / 2) [(1 + \pi)\tau^{\sigma-1} + (1 - \pi)\tau^{-(\sigma-1)}] \quad (3.3)$$

$K$  depends on  $\pi$ , the income share of manufacturing;  $\tau$ , the inverse of transport costs; and  $\sigma$ , which is the inverse of economies of scale. If  $K < 1$  a core-periphery equilibrium is sustainable. In the context of this model, the critical question is how do the parameters change relative to each other to keep  $K$  the same? To this question, the model provides three answers:

1. A higher share of manufacturing in income makes a core-periphery pattern more likely. This is because defecting firms need to pay higher wages and the relative size of the core market becomes bigger.
2. A core-periphery situation is sustainable only when transport costs are small. In the case of Europe transport costs are high, which fits in with this model. Europe is not a strong core-periphery situation like the US.
3. Reducing  $\sigma$  makes it easier to sustain a core-periphery pattern. Thus, when scale economies are higher firms tend to agglomerate more.

Figure 3.1: Core-Periphery Model 'Kappa as a Function of  $\tau$ '  
 $\tau = 0$  (High Transport Costs)  $\tau = 1$  (Low Transport Costs)



A fourth factor, wage rigidities, can be added to the cost-side of this model to make it more specific to Germany. As explained in Chapter One, Germany has a high degree of wage-bargaining coordination across sectors that, along with weak competition in goods and services, explain the final third in Germany's economic weakness in the 1990s.<sup>20</sup> Calmfors and Driffill's (1988) pioneering work on wage bargaining structures predict a 'hump-shaped' relation of unemployment and the centralisation of wage bargaining. The cruxes of their analysis being that only the extremes, fully centralised and pure firm level bargaining, produce employment-friendly outcomes by taking outside competitiveness into account. The upshot of this, to the New Lander, is twofold: the excessive wage agreements are likely to be



more damaging and the adverse spatial effects are likely to be longer lasting, as the labour market is hindered in finding its geographically appropriate market clearing wage-level.

The key implication of the core-periphery model for German unification is that lower transport costs should generate more localisation in industry. That is to say, paradoxically, unification will actually generate greater geographic disparity.<sup>21</sup> A further implication of the core-periphery model for European integration is that it may lead toward the “mezzogiornification” of Germany, where the East specialises in, say, textiles while the west takes advantage of the already existing agglomeration of heavy industry. Although this is simply the long-run exploitation of comparative advantage, in the short run it may create adjustment problems.

The implications of the core-periphery model are not clear-cut as there can also be more than one core, in which case integration can actually expand a smaller peripheral area’s output at the expense of the bigger area. As transport costs are low and economies of scale are high, the initial model would suggest – pessimistically – that a single core economy is indeed likely, with agglomeration occurring in the West. However, Krugman’s third factor, the proportion of footloose industry, provides a counterbalance to this, which may allow for multiple core structures. Given that Berlin is now the political capital with a high density of immobile Government and Public Sector activity, this may well attract agglomerating forces of its own.

### **The Helpman-Hanson Model: Nontradables Matter**

The central prediction of the core-periphery model – a single location with manufacturing activity – is clearly not in accordance with the facts about spatial distribution of manufacturing activity in the US or any other industrialised country. Furthermore, it lacks some of the spatial characteristics of agglomerations, which have been found to be very relevant empirically – most importantly the tendency of prices of local (non-tradable) goods to be higher in agglomerations. Krugman and Venables (1995) relaxed the complete agglomeration by imposing no labour migration between regions; similarly in (1996) they assume two manufacturing sectors, each of which sells and buys more to firms in the same sector than to firms in other sectors.<sup>22</sup>

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<sup>20</sup> See European Commission (2002). According to the study, around two-thirds of Germany’s growth gap to the EU is directly or indirectly attributable to unification.

<sup>21</sup> This has implications for European Monetary Union, in that Europe may actually become less of an optimal currency area. Optimal currency area theory suggests that countries have less to lose in adopting a single currency if their output mixes are similar. However, as shown above, the core-periphery pattern suggests that European countries are going to experience a widening output mix.

<sup>22</sup> See also Fujita et al. (1999) Chapter 14

Under this scenario, complete agglomeration is now less likely, because favourable cost and demand linkages benefit firms in the same sector while competition in product and labour markets harm all firms equally. Fujita et al. (1999) modify this further so that the production function is increasing (in labour) and concave, which implies that agglomeration drives up wages in the core region, making it attractive for firms to relocate to a peripheral region where labour costs are lower. For high trade costs, there is (equal) spreading of industrial activity, for intermediate levels of trade costs there is full as well as partial agglomeration, and for low trade costs there is a return to spreading.<sup>23</sup> Therefore, given the observation that full agglomeration is not in accordance with the facts, new economic geography models based on forward rather than backward linkages, and with no interregional labour mobility, appear to be useful models for empirical testing.

The model developed by Helpman (1998) and Hanson (1998, 1999) encapsulates this, combining the best of both worlds: demand linkages and inclusion of nontradable consumption goods. The price of housing in the Helpman (1998) model, which increases with agglomeration, is analogous to the rising wages in Puga's (1999) model. This applies equally when there is no interregional labour mobility, with agglomeration arising from intricate input-output linkages between firms (Krugman and Venables 1995, 1996).

Brakman, Garretsen and Schramm (2001) assess the empirical relevance of the Helpman-Hanson Model, against possible alternative explanations of the regional distributions of economic activity in Germany by testing for the existence of a spatial wage distribution. In this model the micro foundations are the same as Krugman (1991), hence the inclusion of a homogenous non-tradable good (housing) at the expense of a homogenous tradable good (agriculture) is the only distinction. The extension of the core model thus allows for a richer menu of equilibrium spatial distributions of economic activity than in the core-periphery model when transportation costs fall, agglomeration remains a possible outcome but now also renewed spreading and partial agglomeration are feasible.

We begin by constructing three (out of five) equilibrium conditions for Wages, Price Index and Income respectively:

$$W_r = \left[ \sum_s Y_s I_s^{\varepsilon-1} T^{D_{rs}(1-\varepsilon)} \right]^{1/\varepsilon} \quad (3.4)$$

$W_r$  is the region  $r$ 's nominal wage rate,  $Y$  is income,  $I$  is the price index for manufactured goods,  $\varepsilon$  is the elasticity of substitution for manufactured goods.  $T$  is the transport cost parameter and  $T_{rs} = T^{D_{rs}}$ , where  $D_{rs}$  is the distance between

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<sup>23</sup> This spreading effect will be hindered by the aforementioned wage rigidities that exist throughout the unified Germany.

locations  $r$  and  $s$ . Transport costs  $T$  are defined as the number of manufactured goods that have to be shipped in order to ensure that one unit arrives over one unit of distance.

Given the elasticity of substitution  $\varepsilon$ , it can be seen from (3.4) that for every region wages are higher when demand in surrounding markets ( $Y_s$ ) is higher (including its own market), when access to those markets is better (lower Transport costs  $T$ ). Also, regional wages are higher when there is less competition for those varieties the region wants to sell in those markets (this is the extent of the competition effect, measured by the price index  $I_s$ ).

$$I_r = \left[ \sum_s \lambda_s (T^{Drs})^{1-\varepsilon} W_s^{1-\varepsilon} \right]^{1/(1-\varepsilon)} \quad (3.5)$$

Equation (3.5) gives the equilibrium price index for region  $r$ , the price index is higher if a region has to import a relatively larger part of its manufactured goods from more distant regions. Note that the price index  $I$  depends on the wages  $W$ .

$$Y_r = \lambda_r L W_r \quad (3.6)$$

Equation (3.6) simply states income in region  $r$ ,  $Y_r$ , has to equal the labour income earned in that region, where  $\lambda_r$  is region  $r$ 's share of the total manufacturing labour force  $L$ . In order to find out if a spatial wage structure exists, Hanson uses two more conditions:

$$P_r H_r = (1 - \delta) Y_r \quad (3.7)$$

Equation (3.7) states that the value of the fixed stock of housing equals the share of income spent on housing, where  $P_r$  is the price of housing in region  $r$ ,  $H_r$  is the fixed stock of housing in region  $r$ ,  $(1-\delta)$  is the share of income spent on housing, and  $\delta$  is the share of income spent of manufacturing goods.

$$\frac{W_r}{P_r^{1-\delta} I_r^\delta} = \frac{W_s}{P_s^{1-\delta} I_s^\delta} \quad (3.8)$$

Equation (3.8) assumes that the wages are identical in the economies long run equilibrium. This implies that labour has no incentive to migrate (interregional labour mobility is solely a function of interregional real wage differences).

The importance of a nontradable housing sector as a spreading force is implied by (3.8). A higher income  $Y_s$  implies, *ceteris paribus*, higher wages in region  $r$ , see equation (3.4) but it also, given the stock of housing, puts an upward pressure on housing prices  $P_r$ , (equation (3.7)). Combining (3.7) and (3.8) allows us to express the price index in terms of the housing stock, income and nominal wages.

The equilibrium condition for the housing market can be written as  $P_r = (1-\delta) Y_r/H_r$  and this expression for  $P_r$  is then substituted into equation (3.8) which defines the price index  $L_r$  in terms of  $W_r$ ,  $Y_r$  and  $H_r$ . Substituting this into (3.4) results in the benchmark wage equation for estimation and empirical analysis.

$$\log(W_r) = k_0 + \varepsilon^{-1} \log\left(\sum_S Y_S^{\varepsilon+(1-\varepsilon)/\delta} H_S^{(1-\delta)(\varepsilon-1)/\delta} W_S^{(\varepsilon-1)/\delta} T^{(1-\varepsilon)D_{rs}}\right) + err_r \quad (3.9)$$

Where  $k_0$  is a parameter and  $err_r$  is the error term. Equation (3.9) includes the three central structural parameters of the model, namely share of income spent on manufactures,  $\delta$ , the substitution elasticity,  $\varepsilon$  and the transport costs,  $T$ . Given the availability of data on wages, income and housing stock, and a proxy for distance, equation (3.9) can be estimated.<sup>24</sup>

In their analysis, the authors try to find evidence of whether or not new economic geography models are in principle able to describe the spatial characteristics of the German economy using the wage equation before testing three alternative strategies: land prices as a proxy for house prices, and estimating a wage equation without invoking the real wage equalization. They extend this research further by incorporating fiscal transfers and rigid labour markets into the model. They find that the Helpman-Hanson model confirms the idea of a spatial wage structure. Interestingly, this evidence of a spatial wage structure contradicts the objective of industry-wide wage bargaining discussed in Chapter One.

### **Conclusion: Whatever Moves You?**

Extensions to the Helpman-Hanson approach carried out by Brakman et al. produced two concerns that merit further research. The first is that in their wage equation with the housing stock as an independent variable, the share of income spent on manufacturing is too large; this renders the housing sector irrelevant as a spreading force. In layman's terms, this means that no matter how far rents fall in Berlin, the banks in Frankfurt will be making no plans to move there.

The second concern is that when land prices are used instead of housing stock, the spatial wage structure seems only to depend on the fixed distribution of housing stock because the no 'black hole' condition is no longer met. This implies that, with a fixed spatial distribution of nontradable goods (e.g. housing), changes in transportation costs will not lead to changes in existing core-periphery patterns in

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<sup>24</sup> The dependent variable is the wage rate measured at the US country level. Hanson (1998) finds strong confirmation for the underlying model to the extent that the three structural parameters are significant and have the expected sign, which, in terms of equation (3.9) means that there is a spatial wage structure.

Germany. From the perspective of the Mezzogiorno question, this would not be very good news.

Given the unique qualities that Germany possesses in terms of research into the new economic geography, there is a robust debate to be advanced as to where this research could go next. For instance, models like the above which use housing costs as a explanatory variable frequently have to rely on trade as a substitute for commuting and migration which may hinder their explanatory power.<sup>25</sup> An alternative is to focus on wage and non-wage costs. In this example the basic spatial wage equation to be estimated is:

$$\log(w_j) = \alpha_1 \cdot \log \left[ \sum_{k=1}^J Y_k \cdot e^{-a_2 \cdot d^{jk}} \right] + \alpha_3 \quad (3.10)$$

Where  $w_j$  is the nominal hourly wage in city-district  $j$ ,  $Y_j$  is the value added of all sectors in city-district  $j$ ;  $d_{jk}$  is the distance between city-districts  $j$  and  $k$  with distance measured in minutes of travel by car. In order to cope with the asymmetries that exist between the Old and New Lander, dummies for East German city districts could be added. Furthermore, adding  $d_{jEU} / Y_{EU}$  and  $d_{jCEEC10} / Y_{CEEC10}$  to this equation could accommodate spatial effects of access to trading partners in the EU and CEEC10. Here,  $d_{jEU}$  is the distance between the German city-district  $j$  and the capital of the EU member state;  $Y_{EU}$  is defined as the GDP of member state EU multiplied by the ratio GDP of all German city-districts to German GDP.

Beyond these specific concerns, the academic rationale for extending research into the new economic geography of Germany since unification is two fold: (1) A comparative analysis to establish which, of the many new economic geography models, is 'best' for analysing Germany after the fall of the Berlin wall in 1989; (2) From a policy maker's perspective, evidence of spatial wage structures in a country, which is renowned for its pattern wage contracts, may well provide a valuable insight into the behaviour of East German firms who choose to 'opt out' of the industry wide wage bargaining framework. From the point of view of German policy makers, such advancements in this field need to be urgently stressed as EU expansion is now less than two years away, where the New Lander will have to compete with the CEEC10 where labour costs are as low as 1/10 of the pan-German level.

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<sup>25</sup> If you allow for disequilibria situations you can use the model to predict (ex-post if you want) migration flows. You expect migration from low to high (real) wage locations.

## References

- Aghion, Philippe, Olivier Blanchard and Wendy Carlin (1997) 'The economics of enterprise restructuring in Eastern Europe' in J. Roemer (ed) *Property Relations, Incentives and Welfare*, Macmillan, 1997, pp. 271-318
- Akerlof, George A, with Andrew Rose, Janet Yellen and Helga Hessenius (1991) 'East Germany: in from the Cold: The Economic Aftermath of Currency Union' *Brookings Papers on Economic Activity*, 1991:1
- Baldwin, Richard E, Joseph F. Francois, Richard Portes (1997) 'The Costs and Benefits of Eastern Enlargement: The Impact on the EU and Central Europe' *Economic Policy*, No. 24, pp. 125-176, April 1997
- Blanchard, Olivier (1997) *The Economics of Post-Communist Transition* Oxford, Clarendon Press
- Blien, U. Blume, L. Eickelpasch, A. Geppert, K. Maierhofer, E. Vollkommer, D. Wolf, K (2001) 'Einflussfaktoren der Regionalentwicklung' *Studie von IAB/DIW* im Auftrag der KfW
- Brakman, Steven, Harry Garretsen and Marc Schramm (1999) 'The relevance of modern trade and growth theory for convergence between East and West Germany' *CESifo Conference Paper*
- Brakman, S, H. Garretsen, and M. Schramm (2000) 'The Empirical Relevance of the New Economic Geography: Testing for a Spatial Wage Structure in Germany' *CESifo Working Paper*, No. 395
- Brakman, S, H. Garretsen and M. Schramm (2001) 'New Economic Geography in Germany: Testing the Helpman-Hanson Model' *HWWA Discussion Paper* 172
- Burda, Michael and Jennifer Hunt (2001) 'From Reunification to Economic Integration: Productivity and Labour Markets in Germany' in *Brookings Papers on Economic Activity*, 2001:1
- Calmfors, L and J Driffil (1988) 'Bargaining Structure, Corporatism and Macroeconomic Performance' *Economic Policy*, 6, pp. 14-47
- Carlin, Wendy (1994) 'Privatisation and deindustrialisation in East Germany' in Saul Estrin (ed) *Privatisation in Central and Eastern Europe*, London Longman, 1994 pp. 127-153
- Carlin, Wendy, Andrea Boltho and Pasquale Scaramozzino (1997) 'Will East Germany become a new Mezzogiorno?' *Journal of Comparative Economics* Vol. 24, pp. 241-264

- Carlin, Wendy (1999) 'The new East German economy: problems of transition, unification and institutional mis-match' *German Politics*, Vol. 7, No.3, December 1998. Published as well in C. Flockton and E. Kolinsky (eds) (1999) *Recasting East Germany*, Frank Cass, London, pp. 14-32
- Commerzbank Economic Research (2002) 'Before the General Election: Taking stock of four years of Red-Green Government' *Commerzbank German Economic Monthly* April / May 2002
- Davies, Sarah and Martin Hallet (2001) 'Policy responses to regional unemployment: Lessons from Germany, Spain and Italy' *Economic Papers* No.161. December 2001, European Commission, Brussels
- Dietrich, V., J. Ragnitz, J. Rothfels et al. (1998) 'Wechselbeziehungen zwischen Transfers, Wirtschaftsstruktur und Wachstum in den neuen Bundesländern', *Abschlußbericht -, Sonderheft 1/1998*, IWH, Halle
- Dornbusch R., S. Fisher, and P. Samuelson (1977) 'Comparative Advantage, Trade and Payments in Ricardian Model with Continuum of Goods', *American Economic Review*, Dec. 1977, also in *Exchange Rate and Inflation*, Chapter 14
- Dyck, I.J.A (1997) 'Privatisation in Eastern Germany: Management Selection and Economic Transition' *American-Economic-Review*, 87(4), pp. 565-97
- European Bank for Reconstruction and Development (1999) 'Ten Years of Transition', *EBRD Transition Report*, London
- European Commission (2002) Directorate General for Economic and Financial Affairs: 'Germany's growth performance in the 1990's' *European Economy Economic Papers*, No.170, May 2002, European Commission, Brussels.
- Fay, R.G. (1996) 'Enhancing the effectiveness of active labour market policies: Evidence from programme evaluations' in *OECD Countries, Labour Market and Social Policy Occasional Papers*, No.18, OECD, Paris, 1996
- Federal Labour Office (1999) [Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit (IAB)], 'Betriebliche Einstellungshilfen – Erste Ergebnisse zu Förderstrukturen und betrieblichen Rahmenbedingungen', *Werkstattbericht* 6/1999, Nürnberg
- Finn, Michael (2002) 'Economists fear region will turn into German Mezzogiorno' *Frankfurter Allgemeine Zeitung*, July 26, 2002
- Fischer, S., R. Sahay and C.A. Vegh (1998b) 'How far is Eastern Europe from Brussels?' *IMF Working Paper* 98/53.

- Fujita, M., P. Krugman and A.J. Venables (1999) 'The Spatial Economy: Cities, Regions and International Trade', Cambridge, MA and London, MIT Press
- Hanson, G.H. (1998) 'Market Potential, Increasing Returns, and Geographic Concentration' *NBER Working Paper 6429*, Cambridge Mass
- Hanson, G.H. (1999) 'Market Potential, Increasing Returns, and Geographic Concentration', *mimeo*, University of Michigan (revised version of Hanson, 1998)
- Hare, Paul, G (2001) 'Institutional Change and Economic Performance in the Transitional Economies' in *UNECE Economic Survey of Europe in 2001*, Issue 2, pp.77-99
- Helpman, E (1998) 'The Size of Regions', in D. Pines, E. Sadka and I. Zilcha (eds.), *Topics in Public Economics*, Cambridge University Press
- Hughes Hallett Andrew and Yue Ma (1992) 'East Germany, West Germany, and their Mezzogiorno Problem: An Empirical Investigation', *CEPR Discussion Papers 623*
- Hughes-Hallett, Andrew and Yue Ma (1993) 'East Germany, West Germany, and their Mezzogiorno Problem' *Economic Journal 103*, pp. 416-428
- Hughes Hallett Andrew and Yue Ma (1994) 'Real Adjustment in a Union of Incompletely Converged Economies: An Example from East and West Germany' *European Economic Review*, 38(9), 1731-61, December 1994
- Hughes-Hallett, Andrew, Yue Ma and Jacques Melitz (1996) 'Unification and the Policy Predicament in Germany' *Economic Modelling*, pp. 519-544
- Kohaut, Susanne and Schnabel, Claus (1999) 'Tarifbindung im Wandel' in *IW-Trends*, Jg. 26, H.2. S. pp. 63-80
- Krugman, P (1991) 'Increasing Returns and Economic Geography' *Journal of Political Economy*, 3, pp. 483-499
- Krugman, P. and A. Venables (1995) 'Globalisation and the inequality of nations', *Quarterly Journal of Economics*, Vol.110, pp. 857-880
- Krugman, P. and A. Venables (1996) 'Integration, Specialization, and Adjustment', *European Economic Review*, Vol. 40, pp. 959-967
- Martin, J. (1999) 'What works among active labour market policies: evidence from OECD countries' experiences' *Labour Market and Social Policy Occasional Papers*, No.35, OECD, Paris, 1999
- McKinnon, R. I (1993) 'The Order of Economic Liberalization' John Hopkins University Press



- Miegel, M., and C. Kunze (1997) 'Wirtschaftlicher Strukturwandel und Produktivitätswachstum im Zuge des marktwirtschaftlichen Umbaus in ostdeutschland und in der Tschechischen Republik', *Transformation/Leipziger Beiträge zu Wirtschaft und Gesellschaft*, 7, Leipziger Universitätsverlag, Leipzig
- OECD (1998) 'Economic Survey – Germany 1998', Paris
- OECD (1999a) 'Economic Survey of Germany 1999', Paris
- OECD (1999b) 'Jobs Strategy: Assessing Performance and Policy', Paris
- Portes R. and Begg D. (2001) 'Eastern Germany since unification: wage subsidies remain a better way', in Riphahn R et al. *Employment policy in transition: the lessons of German integration for the labour market*, pp.140-153, Springer Verlag 2001
- Pratten, C (1988) 'A Survey of the Economies of Scale', in *Commission of the European Communities, Studies on the Economics of Integration, Research on the Cost of Non-Europe*, Vol. 2, Luxembourg, pp. 11-165
- Puga, D. (1999) 'The rise and fall of regional inequalities', *European Economic Review*, Vol. 43, pp.303-334
- Ragnitz, J. (2000) 'Kapitalausstattung ostdeutscher Arbeitsplätze: Rückstand nicht überbewerten', in *Wirtschaft im Wandel*, Heft 9/2009, S. 254-258
- Roland, Gerard (2000) 'Transition and Economics: Politics, Markets and Firms', *MIT Press*, 2000
- Sachverstaendigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung 1999. Jahresgutachten 2000/01 – Chances auf einen höheren Wachstumspfad; Wiesbaden
- Sala-i-Martin, Xavier (1996) 'Regional cohesion: evidence and theories of regional growth and convergence', *European Economic Review*, 40, 1325-1352
- Sašo (2001) 'Is the Neoclassical Growth Theory Relevant to Transition Experience?' *CEPR Transition Economics Workshop for Young Academics*
- Schnabel, Claus (1999) 'Tarifpolitik in Ostdeutschland zwischen gesellschaftlichen Zwängen und ökonomischer Rationalität', in Wiedemann, E. et al. (Hrsg.), *Die arbeitsmarkt- und beschäftigungspolitische Herausforderung in Ostdeutschland*, Nürnberg 1999, pp. 451-474
- Siebert, Horst (2002) 'German Economy's Structural Deficits Leave It Uncompetitive on World Markets' *Frankfurter Allgemeine Zeitung*, March 12, 2002
- Sinn, Hans-Werner (1992) 'Jumpstart: The Economic Unification of Germany', MIT Press, Cambridge, Mass., and London, England 1992, (Second English edition, MIT Press 1993)

- Sinn, Hans-Werner (1995) 'Factor Price Distortions and Public Subsidies in East Germany', *Centre for Economic Policy Research Discussion Paper No. 1155*, May 1995
- Sinn, Hans-Werner (1999) 'EU Enlargement, Migration, and Lessons from German Unification' *CESifo Working Paper Series 182*, CESifo, Munich
- Sinn, Hans-Werner (2000) 'Germany's Economic Unification - an Assessment after Ten Years' *CESifo Working Paper, Series 247*, CESifo, Munich
- Sinn, Hans-Werner and Frank Westermann (2001) 'Two Mezzogiornos' NBER Working Paper 8125
- Solow R.M (1956) 'A Contribution to the Theory of Economic Growth' *Quarterly Journal of Economics*. Vol. 70 (1) pp. 65-94
- Turner, Lowell (1998) 'Fighting for Partnership: Labour and Politics in Unified Germany' Ithaca, New York, Cornell University Press, 1998
- von Hagen, Jürgen and Rolf R. Strauch (1999) 'Tumbling Giant. Germany's Experience with Maastricht Fiscal Criteria' *ZEI Discussion Paper B99*
- von Hagen, Jürgen and Rolf R. Strauch (2000) 'East Germany: transition with Unification – Experiments and Experiences' *CEPR Discussion Papers No. 2386*
- Wagner, Martin and Jaroslava Hlouskova (2001) 'The CEEC10's Real Convergence Prospects' *CEPR Discussion Paper 3318*
- World Bank (2002) 'Transition - The First Ten Years: Analysis and Lessons for Eastern Europe and the Soviet Union' January 2002
- Wurzel, Eckhard (1999) 'Getting Germany back to work' *OECD Observer*, February 04, p.199
- Wurzel, Eckhard (2001) 'The Economic Integration of Germany's New Lander' *OECD Economics Department Working Paper, No.3079*
- Ziesemer, Thomas (1999) 'How to Apply Trade Theory to the German Unification? Making sense of comparative advantage in nothing', in *Herausforderungen an die Wirtschaftspolitik an der Schwelle zum 21. Jahrhundert*. Festschrift für Lutz Hoffmann zum 65. Geburtstag. Edited by Irmgard Nübler and Harald Trabold, Duncker und Humblot, Berlin 1999, S.239-51

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