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MNCs IN THE PERIPHERY:

DaimlerChrysler South Africa (DCSA),
Human Capital Upgrading, and Regional Economic Development*

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Abstract

This paper is a case study of a larger research project that analysed the relationship between human capital in host economies and international capital inflows. It describes how DaimlerChrysler upgraded human resources in the area around its East London plant in one of South Africa's least developed provinces where the company manufactures the Mercedes

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C-Class model for export. It shows the extent and depth of the upgrading along and beyond the automotive supply chain, and its repercussions on local education and training institutions. Finally, it analyses how and why this virtuous interaction between FDI and local industrial development in the short and medium term may in the absence of proper regional economic planning turn into a much less desirable outcome in the longer term.

Keywords: FDI, human capital, automotive industry, developing countries, South Africa

1 Introduction

When multinational firms shop the globe for possible investment locations, local capabilities are among the key variables influencing their decision. Everything else being equal, more highly developed human capital attracts more sophisticated foreign direct investment. But the relationship between human resources and capital flows is not confined to the situation pre-entry. Post-entry, foreign investors influence the demand for and the supply of skills. For example, they may approach a local training institution in order to obtain customised courses that produce graduates with a set of skills and competences the firms need, or influence the capabilities of their local suppliers along the value chain.

The relationship between human resources and, more generally, local capabilities on the one hand and FDI on the other bears particular relevance for developing and latecomer countries because it suggests that investments in human capital help absorb foreign technologies whose exploitation, in turn, may spur growth. Thus, ensuring that people get a good basic education and lifelong training opportunities is not just a sensible goal in its own right but also contributes to a country's ability to reap gains from globalisation.

This paper results from a larger study that hypothesised the two-way relationship between local capabilities and FDI as alluded to above and tested the influence of FDI on human resources on a panel data set of 111 countries, 1970-2004 (te Velde 2005). It illustrates the econometric results through a case study of DaimlerChrysler's plant in East London in South Africa's Eastern Cape Province. In the interest of presenting the richness of the case study, Section 2 reviews relevant literature only briefly. Section 3 compares inward direct investment (IDI) in South Africa with other developing and latecomer countries, profiles the peripheral character of the host region, and describes key characteristics of the foreign investor. Section 4 presents methodology and data of the case study, followed by the analysis in Section 5. Section 6 concludes with insights for policy.

2 FDI and human capital

Increased competition from liberalised trade and investment regimes provides incentives for firms to upgrade their production capacities and technological capabilities. Skills and competences of people are key in this respect. Of course openness will not lead automatically to more sophisticated local capabilities but the alternative to upgrading is what some call the low road of development, namely a specialisation in low-skill intensive production. For a summary of the main propositions of the new trade and growth theories in this regard, see Te Velde (2005) who also reviews a range of empirical studies (cf. UNCTAD 1994). In this context, Romer (1990) describes the logic behind low-income traps. Te Velde's (ibid.) own empirical analysis finds a positive link between FDI and school enrolment in countries with a higher initial skill endowment, one more result to dispute unconditional catch-up optimism. Narula and Dunning (2000) offer an evolutionary perspective through the investment development path where human capital graduates to successively higher levels of absorptive capacities which in turn influences the kind of FDI the country attracts and the degree to which the entity benefiting from the investment can absorb and make use of it. Obviously, the motivations of multinational firms to invest in local human resources differ with respect to the rationale that lies behind the investment in the first place (Dunning 1993). Thus, natural resource seekers that send miners underground to dig up diamonds are less likely to invest in skill upgrading than efficiency seekers that export electronic components to global markets.

Case studies addressing the impact of multinational firms on general education, formal training, or on-the-job coaching are relatively rare. In a recent example, Carrillo (2004) analyses the interplay between global sourcing strategies in the automotive industry and local cluster upgrading in the context of national and local industrial policy initiatives. He finds that the presence of GM and Delphi in Mexico helped bring about a network of firms in which accelerated learning benefited especially engineers and technicians. For a review of other examples from the automotive industry, see Lorentzen and Barnes (2004).

2.1 The relevance of the case study

Daimler-Benz (DB) started making cars, including commercial vehicles, in the Eastern Cape for the South African market in 1958 (for a history of the industry, see Black 2001). In the 1990s it began to export cars manufactured in East London to Australia and also assembled passenger vehicles for Honda and Mitsubishi Colt pick-ups. At the time, annual output of Mercedes Benz was 12,000 units. Hence, similarly to the six other assemblers in South Africa (SA), DB essentially ran an operation whose economic and financial logic was predicated upon an import substitution regime in which protection against outside competition facilitated extremely low production runs. The attendant inefficiencies were passed on by way of high consumer prices for finished vehicles.

When the South African government from the mid-1990s tried to promote the export orientation of the automobile industry through the Motor Industry Development Plan (MIDP), DB was among the first assemblers to react. In November 1998, after its takeover of Chrysler, it announced a USD 146.7million investment, later increased to USD 182 million, in the East London operation. This was aimed at expanding capacity and to build a new paint shop (*Wall Street Journal* 1998). The announcement was significant not only insofar as it reacted to an industrial policy aimed at convincing multinational assemblers to strengthen and deepen their South African operations, but also because in that year the industry was in relatively dire straits, not least because of a 25 per cent drop in sales and widespread industrial disputes.

In the six years since the investment, DCSA has become one of the most successful assemblers in South Africa. The current C-Class belongs to the most popular upmarket models on the domestic market. East London has won the successor generation to this model and is poised to expand exports both in terms of volume and geographical destination. Prominently, cars produced in East London will in the future also be exported to North America. Of course, DCSA's investment wasn't always in for a smooth ride. Shortly after winning an export contract for 17,000 passenger vehicles a year, destined for the UK, Japan, and Australia - and, thus, for the first time, for the global market - strike action on its assembly line led to media speculation that DC might pull out of the country (*Financial Times* 2001). Yet that never happened and indeed DCSA, along with BMW and

VW, is a trailblazer in terms of foreign direct investment (FDI) into South Africa, defying the “bad neighbourhood syndrome” occasioned by the political crisis in Zimbabwe, crime, the spread of HIV/Aids, complicated immigration procedures, and the more general Afro-pessimism that appears to prevent foreign multinationals from committing to the continent even when host-country conditions are favourable (Degli Innocenti 2000; for evidence on Afro-pessimism, see Asiedu 2001).

DCSA’s investment thus epitomises much of what makes the analysis of the interaction between globalisation and local capabilities interesting and relevant. First, on the back of a longstanding involvement in the country that was primarily aimed at the domestic market, it made a strategic decision to turn its East London operation into a global production site, thus completely altering the range of models it produced and the quality standards and cost parameters to which it manufactured them. This involved a reconsideration of the skills and competences of its own workforce, that of its suppliers, and of the human resource potential in the Eastern Cape and indeed the country at large. Since in principle DC had the option to invest elsewhere, South Africa must have had certain location-specific advantages that swayed the decision in its favour. This, in short, is the hypothesised causal link from education to globalisation, namely how and why the (human) resources of a location influence the investment behaviour of a MNC *pre-entry*, both initially and over time.

Second, historically automobiles produced in South Africa – or for that matter in any developing country – were not of the same quality as their overseas model cousins produced in Japan, Europe, or North America. With the globalisation of the car industry, this is no longer the case. A Mercedes C-Class manufactured in East London is none worse – and may indeed be better – than its model cousin coming out of DC plants in Sindelfingen or Bremen in Germany. Hence, the presence of DCSA in the Eastern Cape must have contributed to an upgrading of human resources in ways both direct and indirect. This, in short, is the hypothesised reverse causality, namely from globalisation to education, or in other words from the activities of a MNC *post-entry* to the quantity and quality of locally available and emerging human capital.

Third, the activities of the MNC will interact more or less fortuitously with regional development agendas. In theory, the consequence of FDI may be upgrading or deskilling, and the positive effects of FDI are likely to increase with the level of local capability that is there in the first place (e.g. Blomström and Kokko 1998). The Eastern Cape has traditionally been an important location for the car industry, but on the other hand it is also one of South Africa's most underdeveloped provinces. So the larger question is how DCSA's activities influence economic planning in the area, and how provincial development strategies constrain DCSA's activities.

3 Host country and investor characteristics

3.1 IDI in South Africa

In 2002, the investment/GDP ratio was 16 per cent, significantly lower than in many other developing economies (AfDB/OECD 2004). South Africa also has not attracted a lot of FDI inflows. The first column of Table 1 shows that the country's share in global FDI flows roughly reflects its share in global GDP. In 2003, IDI flows amounted to USD 762 million, and stocks were USD 30 billion. Between 1992-2003, FDI represented about three per cent of gross fixed capital formation (UNCTAD 2004). Arguably more relevant than absolute flows into a country is how well the host economy manages to exploit the advantages associated with the foreign knowledge. The second column of Table 1 is an attempt to capture IDI potential. The index is composed of 13 economic and policy variables. While this ups South Africa's relative world ranking, it increases the distance to a country like Korea whose technological trajectory South Africa seeks to emulate. The third column shows a ranking of competitive industrial performance. When disaggregated, it suggests that South Africa, along with Brazil, China, and India, has been relatively successful at upgrading its export but less so its industrial structure (UNIDO 2002, 51). According to the fourth column, the single most negative contributor of this performance – from among skills, local technological effort, FDI, royalties realised abroad, and physical infrastructure – is skills. In sum, South Africa does not attract much foreign capital. Its business environment, infrastructure, and local capabilities constrain the use it may make of foreign

technologies, and the biggest of these constraints is skills. This underlines the merit of studying the impact of individual foreign investors on local human resources.

[Table 1 about here]

3.2 Human capital and economic development in the Eastern Cape

The Eastern Cape epitomises many of the economic and social challenges facing South Africa (AfDB/OECD 2004; Mayer 2004, Woolard and Woolard 2004, Vass 2004; see Table 2). It is the second poorest of South Africa's nine provinces. Poverty increased markedly from the mid-1990s. Inequality thus combined with poverty to a vicious cycle in that it deprived the poor of the benefits of economic growth. Extreme levels of rural underdevelopment contrast with industrial activity in and around the two major cities, Port Elizabeth and East London, that traditionally host the manufacture of automobiles, clothing and textiles, and food processing. The below-average growth performance of the province translates to all sectors, including manufacturing in general and automotive production in particular. On the other hand, transport equipment accounted for a fourth of manufacturing activity and grew faster than any other secondary subsector. In 2002 it also contributed more than two thirds of exports and has been the fastest growing export sector. Virtually all of this originates in or around the two urban centres Port Elizabeth and East London. This underlines the importance of automotive production to the provincial economy. In terms of gross value added, more than two out of every ten Rand originate in the automotive export sector alone, notably VW in Uitenhage outside Port Elizabeth, DCSA in East London, and the component firms integrated into their respective supply chains. The globalisation of the domestic car industry is also evident from the import statistics. Transport equipment absorbed two thirds of all the province's imports, roughly 1.6 times more than it exported. The emerging export orientation of the car industry reflects a more general opening up of the provincial economy. In fact, exports from the Eastern Cape grew faster than from any other province in 1996-2002 and contributed roughly a third to the gross provincial product in 2002. Education and training indicators for the province underline that human capital in the Eastern Cape in general does not constitute a location-specific advantage. This does not exclude the possibility of

pockets of excellence in Port Elizabeth and East London but it does mean that foreign direct investors need to investigate the relative match between their objectives and local capabilities rather carefully.

[Table 2 about here]

High mortality rates for infants and children due to HIV/Aids translate into lower school uptake rates; this in turn has negative implications for human resource development and replacement in the province. Lower productivity, skills erosion, and higher costs to firms, individuals, households, and the public purse are among the economic consequences, making for limited-effect to veritable doomsday scenarios predicting the collapse of the economy over the next couple of generations. For firms, the impact results from direct costs such as higher contributions to medical insurance, benefits for retirement, disability, death, and funeral, prevention campaigns, replacement recruitment and training, and from indirect costs such as absenteeism, sick and compassionate leave, and so forth. Aids is likely to reduce economic growth which in turn will translate into less demand for unskilled labour. Therefore, even its indirect effects are likely to exacerbate problems of poverty and inequality in the province that have nothing to do with Aids *per se*.

Car assemblers have been very active in HIV/Aids prevention, treatment and care programmes. This appears to have led to lower prevalence rates than in other sectors. DCSA reports that the introduction of free medical treatment of infected employees and their families, initiated in the mid-1990s, reaches 30,000 people, halved deaths and lowered infection rates (DaimlerChrysler 2005). Hence, labour turnover may be contained, and perhaps there is a lower risk that valuable skills and experience will be lost. Overall, of course, HIV/Aids do compromise the capacity to address human capital deficiencies.

3.3 German owned car assemblers in South Africa

DCSA shares certain characteristics with the other two German owned assemblers, BMW and VW, that distinguish them from their Japanese and American competitors. None of the three were ever majority locally owned; in fact VW and BMW have always been wholly owned subsidiaries, while until the early 1990s 50 per cent of Mercedes Benz'

equity was held by domestic capital after which it reverted to total German ownership. By contrast, in 1990 the other four assemblers – Toyota, Samcor (Ford), Automakers (Nissan), Delta Motor Corporation (GM) – were (almost) completely in domestic ownership. This changed gradually, and by the early 2000s only local Delta management continued to hold equity in an assembler. All others were controlled from abroad. Hence, there is little difference in terms of ownership structures at present, but this was not the case in the mid-1990s when the MIDP kicked in.

Ownership and control by globally oriented assemblers had profoundly different implications for component manufacturers supplying the German as opposed to the Japanese or American assemblers. On the one hand, trade liberalisation exposed them to global competition just as their counterparts. But unlike their counterparts, their integration into a global supply chain allowed them to reap the benefits from delivery to global markets, exploit economies of scale, and absorb technological assistance from their parent companies (Barnes and Morris 2004). Hence the MIDP was both carrot – integration into a MNC network – and stick – the reduction of import protection, while their counterparts did face the stick from increased import competition but remained largely focused on the domestic market.

Data bear out the head start suppliers to VW, BMW, and DCSA had over the other component suppliers. In 2001, the German assemblers accounted for 98 per cent of all passenger vehicle exports. More than 40 per cent of component exports went to Germany in 2000, and another 28 per cent was destined to other EU markets, often through German-owned first-tier suppliers. In fact, the most important component exporters have strong German links, and German ownership links are pervasive in the two most important subsectors, namely catalytic converters and stitched leather seats that by themselves account for more than half of all component exports (Barnes and Morris 2004).

What this means for an investigation of the link between globalisation and education is that component manufacturers supplying DCSA have been facing both more challenges and more opportunities for a longer time than, say, those supplying Toyota or Delta. Producing parts or components for export vehicles meant that global quality standards had to be met. For component suppliers this had implications from management all the

way to the shop floor. Management had to internalise lean production principles and institute them across all functions of the operation. Workers on the production line had to live up to zero defect requirements in view of bringing down internal reject and customer return rates. In turn, this required the introduction of transparent quality management systems that allowed assemblers to hold suppliers to account for progress in process upgrading. At times it also meant the introduction of modern machinery that was more complicated to operate than the equipment it replaced.

Opportunities existed to grow world mandates, or at least the prospect thereof, for select parts and components. It is obvious that these changes could only happen successfully in the context of upgrading human resources. This is the reason why in the South African context it is more interesting to investigate the German owned assemblers, especially the two that produce luxury vehicles.

Among car assemblers, DC's worldwide presence in 48 countries is second only to Ford's (UNCTAD 2004, Annex Table A.I.4). Mercedes Car Group has passenger car production facilities in Germany, France, US, South Africa, Brazil, India, Malaysia, Thailand, and Vietnam. In addition, a new joint venture in China is expected to start production in late 2005. The C-Class (including CLK, SLK, and Sport Coupe) accounted for 39 per cent of Mercedes-Benz sales in 2004. Sales of these models amounted to 474,800 of which the East London plant produced just under ten per cent, mostly for export. This made East London, with 5.6 per cent of Mercedes Car Group's worldwide workforce, the third most important plant in the world after Bremen and Sindelfingen. For the time being, production in Asia and Latin America is limited to the assembly of completely knocked down kits (CKDs) and consists of much lower volumes. At the same time, expansion in Asia, especially in China, is a strategic focus of the Mercedes Car Group in its objective to participate in the growth of car demand in emerging markets while striving for cost advantages from larger production volumes (DaimlerChrysler 2005).

4 Methodology and data

The case study is based on interviews with DCSA, component suppliers, education and training providers, a business association, and a provincial development agency (see Table

3). A total of 12 interviews with 18 interlocutors took place over a period of four days in November 2004 in and around East London. Interviewees were briefed about the purpose of the study beforehand. Interviews lasted upwards of an hour. A written summary of all conversations and a draft version of this paper were made available to interviewees for verification and comment. The larger ODI project referred to in the introduction, comparative human resource data across the South African automotive supplier industry, and this case study were discussed at a workshop in East London in March 2005 with the majority of interviewees, including representatives from DCSA, plus other interested parties, including from Toyota. In sum, verification went through three iterations.

[Table 3 about here]

The sample size is not representative of DCSA's supply chain in South Africa, let alone of the car industry more generally. But the sample subjects include at least one stakeholder from each of DCSA's constituencies, and an attempt was made to reflect the existing variation in the sample, for example in terms of ownership, size of workforce, and tiering of component suppliers. In addition, the expertise of the local chapter of a national automotive benchmarking initiative (www.bmanalysts.com) was used to identify sample subjects, especially as far as the private sector was concerned, that would reflect typical sentiments of the industry. With one important exception, all interviewees tended to converge in their responses to the research questions raised by this study. This may be taken as further illustration that insights drawn from the case study do indeed capture the bigger picture.

5 Analysis

The three investigated relationships are the role of provincial human resources in DCSA's decision to turn its East London plant into an export platform; DCSA's impact post-investment on local human resources; and the fit between the investment and regional economic development. In short, the analysis finds that the local availability of skills and competences *independently of the stock of experience accumulated in the East London plant over 40 years* did not plausibly move DC to make its investment in South Africa rather than elsewhere. It also finds that DCSA has had a very powerful influence on local capabilities

and continues to do so. Finally, in the medium term DCSA's presence contributes significantly to the industrial development of the Eastern Cape but local development authorities appear to have no plan to exploit this potential in the longer term.

5.1 DC's investment decision and the role of local human resources

Short of having access to boardroom documents describing discussions that finally led to the decision to expand DC's East London plant instead of locating a facility in another part of the world, the only sound way to assess if and how local human resources mattered is to pose the relevant counterfactual, discounting the carmaker's long established presence in the area. In other words, how plausibly a case can be made that DC would have undertaken a greenfield investment in East London?

There were two key problems when Daimler geared up for passenger car export production from East London. First, the plant had had a long history of adversarial relationships between management and workforce, epitomised by frequent industrial action. This changed slowly from the late 1980s, as part of a larger endeavour at transformation in the context of South Africa's regime change from apartheid to democracy. Insofar as the legacy of apartheid in terms of human capital could obviously not be changed overnight, the transformation of the company, while certainly in full swing in the late 1990s, was by no means complete.

Second, the existing product portfolio reflected the conditions of the automotive industry in an import-substituting setting, namely a large variety of vehicle platforms produced in low runs primarily for the domestic market. The strategic re-orientation of the plant, in line with the intention behind the MIDP, provided for a reduction of platforms, produced both for the domestic and the export market (and, hence, in larger unit volumes). Along with the emerging export orientation went a commitment to quality standards and cost efficiencies that were hallmarks of global automotive supply chains but rather new to assemblers and component producers in South Africa and other emerging markets.

The East London plant was perhaps the most complex Daimler facility outside Germany. It produced its Mercedes passenger models including extremely demanding

niche vehicles such as the S-class convertible, assembled passenger cars for other manufacturers (Honda and Mitsubishi), and built Freightliners for DC's US heavy vehicle subsidiary. This was all done with a single paint shop and obviously required a lot of internal competence prior to the export drive. In fact, Daimler operated a training centre before 1994 in which it trained artisans such as turners and fitters. Without investing in these shop floor skills, it would have been impossible to master the plant's complexity. In other words, when the C-Class was first produced for exports, human resource management had a basis of human capital to work with.

But shortages existed, especially in higher-order skills. Thus, all industrial engineering recruits hired during the first large recruitment drive in preparation for the W203 launch hailed from Gauteng (i.e. University of Pretoria, Wits Technikon¹ etc.). The situation has not changed since the late 1990s and this is a problem insofar as graduates used to the metropolitan environments of Pretoria or Johannesburg rarely warm to the cultural backwater of East London. Hence, they typically leave after 2-3 years and join other assemblers. For obvious reasons, this is detrimental which is why DCSA has resolved to breed talent internally. An additional problem is that by international standards South African engineering graduates are not quite as highly qualified as their counterparts from Germany. This relates mainly to the ability of the latter to hit the ground running as they transfer out of their university programme onto the shop floor. DCSA has experience with this because it is a popular place for German students to do their practical semester.

The interview with the Eastern Cape Technikon (ECT) and the Chamber of Business largely confirmed weaknesses in the system. According to the interviewee at ECT, the problem of skill shortages in EC has two origins. First, the dysfunctional secondary system supplies cohorts insufficiently prepared for the demands of the tertiary system. Second, the technikons as such do not remedy any of these problems and arguably make them worse. For example, regarding intake ECT does not offer bridging courses or foundation years. This means that the slipping of standards is suffered rather than confronted. Teaching is largely theoretical and lacks practice orientation (whereby "theoretical" is

¹ Technikons are comparable to polytechnics. In the ongoing reform of the South African higher education system, they are renamed "universities of technology" which implies that they are expected to do research on top of their traditional teaching-only mandate.

perhaps best understood as the absence of operationability rather than in the academic sense of the word). Indeed faculty typically have no industry experience, nor do industry representatives make use of the opportunity to influence curriculum design and development. But interviewees suggested that the latter may be due to the lack of interest from industry in technikon graduates, or to the recognition that technikon graduates are at best raw material, not much more skilled or qualified than high-school graduates, and in need of much further training on the job. These criticisms in essence question the very existence of this part of the higher education sector. Industry's dim view also has to do with the low motivation and commitment of technikon faculty who only read what they have to and profess no interest whatsoever in research. In fact, the 180 faculty spread over four campuses associated with the Eastern Cape Technikon managed to publish two journal articles over the last two years. Nor are they entrepreneurial; the technikon does not offer any customised short courses, something that industry would quite likely be interested in. The location of the technikon in the Eastern Cape, headquartered in Butterworth, makes for negative spill-overs and militates against standards achieved by more fortuitously located peers such as PE Technikon or DIT in Durban.

In sum, when DC decided to invest in an export plant in East London, it was not faced with a *tabula rasa* but a workforce of some 3,500 employees plus the rudiments of a supplier network that also embodied at least some of the requisite human resources. Clearly the situation would have been different with a greenfield or even a brownfield investment. So within South Africa the location of the new investment was obviously influenced by the then existing investment. If one compares South Africa with other possible locations in emerging markets around the world, it would appear that *ceteris paribus* human capital in South Africa scored at best neutral, i.e. did not enter too negatively into the strategic calculus. With hindsight, what the unambiguous success of the East London operation proves is that a determined and relatively well-heeled multinational with a lot of experience in the region at hand plus a lot of capacity to re-engineer a whole supply chain and bestow upon it the discipline necessary for achieving continuous improvement can make things work even under adverse circumstances. It certainly does not prove that the local availability of human resources was entered under

the positives when weighing the pros and cons of expansion. Hence, the effect of education on globalisation appears at best tenuous in this case.

5.2 DCSA's impact on the demand for and supply of skills in the regional economy

DCSA affected local human resources in a number of ways. Directly, it trained its own workforce. Indirectly, it caused human resource upgrading along the supply chain. In preparation for the launch of the C-Class model (W203) for export, DCSA undertook a massive skill intervention programme to the tune of about R500m per annum, approximately 20 per cent of the total wage bill. The work force grew by 1000 employees to some 4,500. In the past it had been standard practice to solicit recommendations for new candidates from the existing workforce. In order to tap into a larger pool of talent and capture also more rural areas not in the immediate vicinity of East London, Daimler ran a news paper ad for applicants with matric (i.e. high school)-level qualifications. 45,000 people responded. It turned out later that a considerable share was qualified to technikon level but chose not to reveal this information for fear of not fitting the demanded skill profile. This episode unsurprisingly documents that there is no shortage of labour quantity. What was different about this employment drive compared to past practice was that never before had matric been an entry requirement for a position at the operator level. Hence the advent of export production led to a premium on secondary-school skills and certainly discriminated against illiterate and innumerate candidates.

The skills programme involves all levels of employees. The introduction of modern production principles implies that workers must be comfortable working in groups; hence it is not only the skills of individuals but the aggregate skill profile required for multi-skill and multitasking in teamwork assignments that determines the relative success of human resource upgrading in the plant. Technical skills are primarily trained by the in-house training centre. However, some 130 shop floor employees have been to the Bremen plant for training. There they worked with a mentor personally assigned to them who upon completion of their visit accompanied them back to South Africa where they then jointly trained other workers, thus multiplying the upgrading effect across the shop floor.

At the supervisory level, DC enrolls employees in further education and training institutions (FET). For managerial functions, staff are sent to Germany. For example, currently eight DCSA employees are full-time engineering students at the University of Karlsruhe. These schemes are financed out of company resources but for vocational and FET skills increasingly use is also made of government-subsidised learnerships. Examples include programmes in mechatronics and autotronics with Buffalo City FET.

It is broadly true that there is no shortage of shop floor and supervisory recruits in the Eastern Cape, albeit normally not at the desired level of competence. The situation is different with respect to higher-order skills. For reasons alluded to above, DCSA cannot simply resort to hiring young or experienced engineers from elsewhere in South Africa. Instead it must invest in truly local staff. Recruits originally from the Eastern Cape tend to be more “sticky” than their peers from out of town and province. This is the rationale behind engaging in intense interaction with a variety of education providers in the province, and more specifically in the East London region, to help ensure that they produce graduates with the requisite skills. Where this is not yet possible, DCSA grants bursaries to local employees to study at an acknowledged institution such as Wits. During the semester break, these grantees return to work in the East London plant. Upon graduation they join the firm and thus embody an acceptable level of technical training as well as the necessary exposure to the shop floor and the more tacit knowledge required to operate it.

DCSA agrees with other stakeholders interviewed for this study that the Port Elizabeth Technikon is a much better institution than its counterparts in East London (Eastern Cape Technikon and Border Technikon). But it does not write the local technikons off. In any event, it is *de rigueur* at DCSA to supplant formal certificates with an internal screening mechanism. Practically this means that job applicants are blind-reviewed by the training centre, i.e. the reviewer checks skills and competences of the individual without knowing from where they graduated. In addition, regardless of provenance students are accepted for internships. Exceptional performers may then be retained; those that leave after six months or so are hoped to take their training to related occupations along the supply chain and thus over time improve the upstream availability of inputs to the DCSA

plant. Casting a broader net across the provincial technikons is made easier by improving quality assurance mechanisms in the education sector in South Africa. For example, although the Association of South African Engineers does not publish its evaluation of engineering faculties, it encourages employers to ask higher education institutions to make this information available to them. If successful, this practice clearly reduces information and search costs for personnel units.

Among the most visible manifestations of DCSA's indirect influence over local human resources is the presence of a number of MNC subsidiaries who are only there because of DCSA. Much like DCSA, they hire and train and are engaged in continuous improvement of their workforce. Leoni, a manufacturer of wire harnesses, established a greenfield plant in 1999/2000 because it had won a supply contract for the W203. Upon set-up Leoni Europe seconded senior personnel in engineering, logistics, and supply chain management. The ex-pat managers handed over to local personnel after 12-18 months. Formal skill requirements at the plant are such that all shop floor employees must have at least a senior certificate (i.e. a high-school diploma). The certificate is taken as a guarantee of the ability to speak, read, and write English which is required in order to understand the documentation that accompanies the operation of the production line and the associated machinery. There is no premium on critical thinking or problem-solving skills; the major expectation is that employees absorb instructions and act accordingly. In terms of locally available skills, the presence of DCSA has definitely made a difference. Transfer involves a whole range of soft skills associated with lean management practices and Keizan, such as team orientation and problem solving, and this is has involved both waged and salaried employees. The latter especially benefited from modern principles of logistics, HR, and supply chain management.

Johnson Control Interiors (JCI), an assembler of dashboards, also set up operation shortly after it had won a supply contract for the W203. The plant runs without expatriate staff. The minimum qualification on the shop floor is eight years of schooling (Standard 8). This reflects a relatively simple production process and technology, with a largely manual assembly aided by poke-yoke devices. Recruits are easily available and the necessary training does not involve major problems insofar as the task at hand is not especially

difficult. However, there are caveats to this assessment. When the plant screened its supervisory staff for eligibility for training, only two employees were found not to be in need of a pre-training in basic literacy and numeracy without which they would have been unable to follow the basic concepts involved in the course on offer. Subsequently the external training provider re-jigged the curriculum downward. This is a worrisome anecdote insofar as at least some of these employees are tertiary level graduates, i.e. from technikons or FET colleges.

Further, when in 2002 JCI created a dedicated HR director position, based in PE, the manager concerned undertook a thorough assessment of the match between individual capabilities and job descriptions. This revealed widespread gaps among mid-level management, especially in terms of problem-solving, independent initiative, and teamwork. Since this assessment was a first for JCI, it is not possible to compare these findings to a baseline. It does suggest at the very least a contradiction between formal skills certified by the education system on the one hand and the underlying competence as perceived by industry on the other.

To some extent this applies also to management where competences in manufacturing and logistics are in short supply and are in need of professionalisation. The higher education system does not turn out graduates who possess these skills and could readily be plugged into ongoing operations. This is why recruitment for management level positions pretty much shuns candidates straight out of university and only goes for people with experience. Senior staff are involved in six-sigma training and mentoring, widely used in the global automotive industry. Training in a project management learner programme is currently being investigated with a provider from Gauteng because JCI cannot find a suitable partner in the Eastern Cape.

For Venture, a producer of bumpers and fascias, the key challenge, as elsewhere in automotive supply, is to attain zero defects. Because bumpers are highly visible and faults can be spotted even by non-experts, this is even more imperative. Meeting this challenge in operational terms implies to keep up with the (advancing) production technology, prominently through the establishment of quality systems, and to upgrade the skills of the workforce. The car makers assist in this regard. The adherence to total quality

management systems (TQMS) is largely a top-down process whereby management transmits the principles of the system to shop floor employees. In keeping with the need to upgrade capabilities continuously, from 2002 the minimum entry requirement of permanent employees is a 3-year degree or diploma. Hence, Venture only hires tertiary education graduates; motivated exceptions, for example for employees with specific training as artisans or spray painters, must be authorised by the CEO.

The company takes in roughly 18 new graduates per year at head office level. They are put through a six-month six-sigma training at the end of which they give a presentation to the board. The board on average decides to retain some 50 per cent of the cohort. Venture also offers a practical semester to technikon students who want to work in the company to get some experience. With respect to human resource development, there is not quite the desirable level of on-the-job training. This is not due to a lack of awareness or commitment on the part of the company. Instead, it reflects the simple truth that the staff that would be doing the training are very busy. While it is not easy to take employees off production for external training, a lot of this type of training does take place.

In general, Venture does not perceive a dramatic skills problem. Interested graduates from the technikons are plentiful. This includes graduates from the Port Elizabeth and Border Technikons. Difficulties exist at the high end, where engineering competencies in paint technology are hard to come by. Perhaps the most interesting insight from this interview is that contrary to many other firms and stakeholders interviewed in the course of this study, Venture is not daunted by the skills problem at shop floor level, although it agrees that it exists in very specific applications. It does not even have anything negative to say about the two local technikons which were lambasted severely by two inside interviewees that claimed that industry do not want their graduates, and for good reason. This suggests that different automotive firms have different tolerance thresholds regarding how long it takes for a new employee to earn his or her keep. Alternatively, it might be that the technikons and the education system more generally are more or less effective at producing some as opposed to other skills, or that more labour intensive processes are easier to handle than those that require, e.g., the mastery of programmable machinery.

First National Battery (FNB) is not an exclusive automotive supplier and contracts with vehicle manufacturers (DCSA, BMW, Toyota, Nissan, MAN trucks) represent only 10 per cent of its turnover. Nonetheless its integration into the automotive supply chain has had a huge impact on the quality of the operation. In short, FNB upgraded its production line (in February 2004 with a R20m investment into a new dedicated and much more capital-intensive line) and also up-skilled its workforce by hiring more artisans, putting workers without high school through adult education and training programmes, organising apprenticeships, signing up with the Toyota Academy, and engaging in downstream training activities at the retail end. The employees recruited internally were qualified artisans with some experience in automated machinery. They were sent to Austria and the UK for on-site training by the suppliers of the new production line. Hence, former artisans have now become machine operators. The new hirings were all technikon graduates and joined their colleagues for on-site training in Europe.

In sum, FNB was faced with a situation where because of its exposure to demanding requirements by car assemblers it invested into process upgrading. This, in turn, required an upgrading of the skills of parts of its workforce that had so far been involved in more labour-intensive processes (leading to essentially the same product, however). Hence it had to master technical change engendered by the new production technology. This did not entail major problems either in terms of internal skill upgrading or with respect to new skill acquisition.

The only serious competence bottleneck exists at the higher end, i.e. in industrial engineering. Battery manufacturing relies on the combination of metallurgy and chemistry which as such is not embodied in any standard professional qualification. From 2006, FNB plans to sponsor students at PE Technikon and at Wits Technikon hoping to remain on their radar screen once they graduate and are ready for the job market. Unlike the local Border Technikon, these two technikons have shown a positive response in terms of career development. In sum, FNB is a company that has risen to the challenge of becoming an automotive supplier, while using knowledge newly gained through exposure to this supply chain to fertilise its other business.

Fabkomp manufactures a range of vehicle parts, components, and accessories. It supplies 85 per cent of production to DCSA's truck division. To date its components do not go into vehicles manufactured for exports. The longstanding involvement with DCSA has required Fabkomp to introduce quality systems and meet the challenge of continuous improvement. Internally, this refers generally to good housekeeping, safeguarding environmental standards, and open book-accounting. It also involves supplier development. The technical capabilities of the company evolved over the last decade from processes such as bending and welding to the operation of CNC machines, replete with the programming of associated equipment, and toolmaking. Fabkomp is ISO9002 accredited and in the process of acquiring TS16949.

For Fabkomp the Eastern Cape is not a good area to find skills readily exploitable on the shop floor. This puts companies in the Eastern Cape at a competitive disadvantage vis-à-vis more productive parts of the country insofar as mandated wages mandated by the industry-wide bargaining council apply across the sector and do not take regional differences into account. It also means that companies have no choice but to train internally. Specific skills that are hard to come by – and this is borne out by evidence from the automotive industry across the country – are toolmakers and machine programmers. Fabkomp is negotiating with a local college about a customised toolmaking course, but it is concerned about the cost of training in view of possible poaching of the newly trained staff by its competitors.

Fabkomp is evidently an example of the disciplining force of the car makers even in the absence of a direct link into export supply chains. Hence, while quality requirements may be yet more onerous for supply chains geared to export markets, the exposure to global assemblers engenders learning and skill upgrading even when they stick to local markets for the time being. Furthermore, it is clearly entrepreneurial dynamism that influences how well a company rises to the challenge. Fabkomp concurs with other companies and training providers interviewed for this study that the public-sector education and training authorities (Setas) are cumbersome institutions marred by red tape. Yet unlike many of its peers, it has nonetheless succeeded to get registered for more than a dozen skill profiles.

Education and training providers also address the skills deficit made more conspicuous by the presence of the automotive industry. For example, the University of Fort Hare (UFH) took over the East London campus of Rhodes University at the beginning of 2004. The strategic intent behind this move is to relocate part of its commerce and science faculties into a more urban setting that facilitates closer interaction with industry and enhances the attractiveness of select study programmes. From the perspective of this study the two most relevant programmes are the undergraduate degree course in information systems science and the postgraduate course in computer science engineering. The latter degree in particular is an attempt to deepen the professional profile of Fort Hare graduates. Fort Hare also trains an annual cohort of some 300 students in accounting.

Fort Hare tries to capitalise on existing and build new links with industry. Thus, information science faculty is seconded to DCSA for stints as long as 1-2 years. In addition, DCSA's HR director is a member of Fort Hare's council. Hence in terms of quality assurance and curriculum design and development, UFH interacts with outside stakeholders, including representatives of the Eastern Cape Provincial Legislature and Buffalo City Municipality who are also members of the university council. As part of the national priority to promote science and technology at primary education level, the Fort Hare education faculty has joined the national utility provider and the provincial Department of Education in rolling out a science and technology programme for grades 5-10 in parts of the province. Although Fort Hare does not have an engineering faculty, it does train skills and competences in the services, esp. IT, that provide key support functions both to the automotive industry and to industry more generally. The attempt to build up a presence in a more urban setting which is attractively located in the vicinity of the harbour suggests that higher education institutions can and do pursue strategic directions that make sense in and of themselves and fit in with the regional and national human resource development priorities. UFH also reported discussions with the Eastern Cape Development Corporation about attracting strategic investment in electronics to the region and hence appears more interactive than most other interviewed stakeholders.

The Leadership Development Institute (LDI), a spin-off of the East London campus of Rhodes University and affiliated with UFH, offers courses in adult education accredited

by the Department of Education. It contracts mainly with public authorities and with industry. In 95 per cent of the cases employers finance these courses for their employees. The courses most relevant for the purposes of this study are those broadly aimed at project management and production organisation. They are pitched at various levels (i.e. from supervisors to middle management) and last from a week to half a year. LDI also used to offer a proper diploma course on manufacturing management, sourced from the University of Technology Sydney, which it had to discontinue because of the withdrawal of accreditation by DoE. The programme produced about 100-125 graduates most of whom are employed by DCSA and component manufacturers, but also outside the automotive industry. In terms of its student portfolio, in 2004 about one sixth of the total annual enrolment (240-300 students) comes from the automotive industry. This is markedly different from 1999/2000 when training for DC accounted for 80% of LDI's business volume. Hence other companies from other sectors have become important customers, and this is a welcome development. Compared to other training institutions interviewed for the purposes of this study, LDI appears to be a much nimbler and smarter operator. The fact that it has no problem recruiting local faculty and that its courses are in demand suggests that it is possible to harness locally available resources for globally controlled supply chains. Training providers who claim the contrary might in fact not be totally attuned to what sort of competences exactly employers are looking for.

In conclusion – and this was borne out by all interviews conducted for this study – following expansion DCSA did affect the local supply of and demand for skills in a major way, with important repercussions for the regional economy. Importantly, this seemed to be independent of ownership, tier, product portfolio, and market orientation, with spill-overs into non-automotive activities. Therefore, the effect of globalisation on human capital is rather clear, and in this case has been very beneficial to the region and beyond. It is not pervasive, however. Assessments of the technicians by internal and external stakeholders suggest – though there was no unanimity in this regard – that the importance of the automotive sector for the local and provincial economy is not reflected by what goes on at the technicians in terms of recruitment, career development, student placements, other forms of relationships with industry, or the general strategic orientation of the institution.

Furthermore, the commitment to and the implementation of quality (assurance) systems which was brought about by the arrival of the assemblers in the automotive industry and beyond does not automatically lead to the acceptance of this principle by stakeholders in the education sector whose mission is in principle intimately linked to industry. Finally, there is a big discrepancy between the high degree of motivation and competence in evidence throughout the automotive supply chain and the lackadaisical attitude of some education managers.

5.3 DCSA and regional economic development in the longer term

The importance of the automotive industry to economic activity in the Eastern Cape is generally recognised. This case study has shed light on DCSA's role in this regard. In substance it argued that the state of human resources in the province was so deficient that the Eastern Cape would not have been an obvious choice for a multinational assembler trying to expand its global footprint. In other words, if DCSA had not had a sunk investment in East London it is difficult to imagine that it would have chosen East London as a site to develop an export platform *ex novo*. The analysis also demonstrated that once DCSA had committed to integrating the East London plant in its global supply chain, it set about upgrading local human resources in a major way. These findings do not contradict the hypothesised two-way causality between globalisation and education but they suggest that the relationship is uneven in this case. More precisely, education was not a location-specific advantage of East London or the Eastern Cape more generally when the investment was undertaken. But because of their relative weakness, local human resources became the object of intense upgrading efforts by the multinational; this, in turn, is likely to change local capabilities over time and, thanks to spill-over effects, outside the automotive sector and the province as well. Therefore, in the short and medium term – whereby medium term refers to the 6-7 year product cycle of the new W204 C-Class model – DCSA has a positive influence on economic development in the Eastern Cape and especially the area around East London. What remains to be discussed is the relationship between the multinational and the host region in the long term, i.e. beyond the future model cycle into the next decade.

This is a pertinent question for a number of reasons. Supply contracts are not set in stone and thus not written for eternity. DCSA had to compete against other parts of DC in order to win the W203 export contract. Within DC this is a zero-sum game in that cars produced in East London are by definition *not* produced in existing C-Class plants in Bremen or Sindelfingen and also not in other locations around the world that DC already operates or might decide to develop. In the course of 2004 DC used the option to relocate a larger part of the C-Class production to South Africa as a bargaining chip in its negotiations with German trade unions over the need to cut costs. This obviously works both ways and DCSA had indeed hinted in 2001 that the future of the East London plant might be in danger in favour of an increased output manufactured in Germany. Regardless of the nature of this brinkmanship, what counts is that relocation is indeed a real possibility.

Changes in model generation open up negotiations with system integrators and 1st-tier component suppliers who in turn renegotiate from whom and where to source parts and components. Some win and some lose, and it is unlikely that the workforce of an unlucky follow-source bidder who had built up a presence for a previous model gets absorbed wholly by the lucky successor. In the worst scenario, components that were previously locally produced but for which just-in-time production (JIT) is not strictly necessary are substituted by imports, thus pretty much ensuring that the resulting unemployment is not just frictional.

Despite the fact that upwards of 80 per cent of the world's population is not motorised, current and prospective automotive capacity outstrips demand which is why no production facility anywhere in the world is assured a future. This is especially the case for marginal producers such as South Africa because the political fall-out from plant closures would be easier to stomach than in core locations in Europe or North America. In this sense in anything but the medium to longer term, the most cost efficient plant may not be the one whose future is politically most viable. But to the extent that efficiency considerations are becoming ever more paramount because capital markets force car manufacturers to earn an adequate rate of return or face the music, it is important to realise that due to the sheer size and growth potential of their domestic markets, plants in

India or China have scale advantages going for them that will elude operations anywhere in Africa for a long time to come. Historically the demand for cars has varied with their relative prices and the level of income and wealth (Rhys 2004). Everything else being equal, this militates against car plants in low-income, low-volume, and low-growth environments such as Southern Africa. In addition, DC is not immune against the problems that have plagued its lesser rivals for some time. In early 2005, it made headlines for massive recalls due to quality problems with E-Class models, mounting losses at its Smart subsidiary, and concern about the sustainability of Chrysler's return to profitability.

This is not appreciated by policy planners in the Eastern Cape. In the conversation with the Eastern Cape Development Corporation (ECDC), the interviewees expressed the view that

1. the automotive industry's presence in South Africa is not much influenced by the MIDP. In other words, assemblers assess the location-specific advantages of the Eastern Cape net of the benefits afforded by MIDP;
2. the long-term future of those assemblers not located close to ports (e.g. Ford, Nissan, BMW) is likely to be somewhere along the coast, for example in East London, in order to facilitate their logistics;
3. South Africa offers competitive labour costs vis-à-vis alternative locations, for example in Eastern Europe. Hence, the aggressive promotion of textiles, agri- and horticulture, food processing, and tourism is not meant to supersede the car industry but develop alongside it. To this end, the emerging provincial HRD strategy will reflect multi-sector requirements, and the Industrial Development Zone (IDZ) will accommodate an automotive supplier park but also tenants in electronics, agro-processing, and logistics.

As for the first claim, although the benefits of the MIDP for the component industry and especially for consumers are controversial, there is general agreement that the MIDP was instrumental in attracting FDI from the car makers and that it raised the competitiveness of assemblers with export platforms relative to those that merely imported (e.g. Barnes, Kaplinsky, and Morris 2004). It is not clear why ECDC arrives at a different assessment. Once tariff protection is totally phased out, weaknesses of human

capital will obviously become only more evident. But the ECDC's different view explains why they take it for granted that there will be a long enough time horizon for the car industry – beyond the planned end of the MIDP in 2012 – to relocate plants *within* the country. Regarding the third claim, even if wages were in every instance lower than in Eastern Europe or Asia (which they are not), the prevalence of HIV/Aids and the deficient skill profile of the work force obviously affect productivity negatively and thus drive up labour costs.

In sum, the automotive industry and provincial planners do not see the world through the same lens and differ greatly in their assessment of the relative competitiveness of the province nationally and internationally. This hides a larger issue. In the presence of much serious consideration that the future of the automotive industry in South Africa might not be long-term, it should be paramount to prepare for a scenario that no longer anchors local fortunes to one primordial foreign investor. Operationally, the most important question in this regard is if and how the human capital created over the last decade or so thanks to the impulses brought by the automotive industry can be brought to fruition in other sectors, and which these might be. Whether it is operational competitiveness or more tacit forms of knowledge built up through mastering sophisticated manufacturing operations and through engaging with foreign technology – and the continuous change to which they are subject – it would be a waste to lose this accumulated human capital.

This already looms on the horizon. Leoni lost the successor contract for the W204 in favour of Delphi. Unless Leoni secures a contract with another assembler or perhaps as subcontractor with Delphi itself, the plant in East London will close. At present JCI seems to face a more certain future but of course that may well change when the new model cycle comes to an end, so the Leoni experience illustrates a larger point. What happens to Leoni's workforce and the experience it embodies depends in part on whether DCSA will prevail over Delphi, currently operating only from Botswana, to set up shop in East London. The trade-off between cost and logistics in the highly labour-intensive manufacture of harnesses sees Delphi at one end of the argument and DCSA at the other. If Delphi moves, it might absorb some of Leoni's work force. Arguably, however, from the

point of view of what would be desirable for local and provincial economic development, this human capital would find productive uses even in the absence of Delphi or DCSA, i.e. in case the assembler left South Africa following the expiration of the MIDP in 2012. Local Leoni management thinks that if or once the group leaves, it could retool the operation on the basis of the existing work force with its skill profile and make itself available as a contract manufacturer from across a wide portfolio of industrial activities, including air conditioning, dashboards, electronics, food processing, pharmaceutical, and clothing.

Similarly, Fabkomp is exploring supply or assembly opportunities with a view to diversifying its order portfolio. But in addition, and perhaps equally importantly, it actively markets itself as a manufacturing partner specialised on providing flexible production runs including for niche markets for a wide range of applications. This would include sectors in which it has no track record so far.

Much like some component suppliers interviewed for this study such as FNB, LDI seems to have capitalised on the learning challenges foisted upon the local economy by DCSA without making itself too dependent on the car maker. In terms of sustainable human resource development it would appear therefore that this is much more congenial to a potential automotive-free future in EC than “hot-air” industrial diversification strategies promulgated by regional authorities.

In assessing which industrial strategies prove more or less feasible, provincial industrial policy as espoused by the IDZ in East London or the nationally driven Coega industrial park in Port Elizabeth do not appear helpful (see also the criticism in Mayer 2004, Sections 7 and 8). The absence of anchor tenants years after these schemes were first touted suggests that even larger firms are not convinced of the viability of these industrial parks; by implication, they are not really an option for smaller outfits. Leoni’s perspective suggests that provincial development authorities pay a lot of attention to attracting new industrial investments, especially FDI, but that there is a lot less focus – or maybe none – on retaining accumulated absorptive capacities in the form of multinational firms who for whatever reason extricate movable capital equipment and strategic assets such as group-internal core competences but who leave skills and also a fair amount of tacit production and process knowledge behind. In the context of the automotive industry – indisputably

the primary technological and organisational core of economic upgrading in the region – this suggests at best a lucky midterm horizon with a high risk of running foul of events beyond the control of provincial or even national policymakers, namely the fickleness of the key players in global automotive assembly. In other words, local development strategies with enough foresight would accompany the justified courting of DCSA with at least some brainstorming in conjunction with industry and other stakeholders about a possible post-DC world. At the local Leoni and numerous other component supplier plants, this is certainly of interest to management and employees. It is not clear that public stakeholders such as ECDC appreciate this, let alone guide attendant soul-searching. This implies that what may endanger the future of the regional economy is not so much local capabilities per se, but a failure to coordinate the setting of priorities, identification of linkages, and selection of public interventions within a larger vision for local development in the face of global change (cf. Lall and Teubal 2001).

A final point in this regard concerns the “industrial atmosphere”, as Marshall put it. Automotive firms are but one industrial sector that agglomerates in the area around East London, alongside a series of education and training providers that at least in principle, however imperfectly, cater to their needs, and public sector institutions committed to uplift the economic and social fortunes of the province. For this agglomeration to generate externalities, firms and other actors must exchange information. The more they talk, the richer the “industrial atmosphere” becomes that is behind the success of clusters or also more diversified regional economies in many parts of the world. In East London, it seems, there is very little talk. The automotive firms do not have a space in which conversations about economic development in the Eastern Cape more generally or problems with the operational competitiveness of the sector more specifically happen. Participants in the final workshop were unequivocal about this and identified the attraction and retention of a high-skill professional class to the area, and entrepreneurship training in higher education, as key problems warranting attention. There is generally little interaction in East London’s industrial system that links firms along a dedicated supply chain in any way other than from customer to supplier, or that makes industry engage with the public and the education sector in a more strategic context aimed at jointly addressing problems

common to the region. The example of the Durban Automotive Cluster (DAC) illustrates that such a space has informed and animated the industrial climate, especially in view of technological upgrading, in other parts of the country (Lorentzen, Robbins, and Barnes 2004).

In fact, evidence from around the world suggests that the benefits of spatial agglomeration rarely manifest themselves fully unless helped along by joint action that commits firms to a common purpose (Schmitz 1999). For firms to share a location is in and of itself unlikely to bring about the synergies economic development in a latecomer-country context requires, especially in terms of exploiting the full range of learning effects systemic interaction facilitates for industrial upgrading. The success of the automotive sector in East London obviously relies on the commitment of many entrepreneurs and their employees. But it could not have happened without the organisation, discipline, and financial backing that allowed DCSA to take charge and drive this process.

Ultimately, DCSA is in the business of designing, assembling, marketing, and selling cars and related services. It is not in the business of developing the Eastern Cape, and although there may be a temporary overlap between the two activities, this is unlikely to remain the case for reasons pointed out above. Put differently, the Eastern Cape and DCSA have different agendas. One fundamental difference is that DCSA can react to changes in the global economy by packing up and leaving.

6 Conclusion

The most important insights of the case study are, first, that the integration into global supply chains can have a profoundly positive impact, through education and training, on local human resources and, second, that such good luck need not imply that the beneficiaries will live happily ever after. The challenge is to organise industrial development sustainably in the face of a global economy that may favour a specific location one day and abandon it the next. Addressing this challenge is a monumental task. It is pretty certain that the private sector will not rise to it by itself. It would likely require a concerted effort from provincial and local authorities in conjunction with key firms and education and training providers, perhaps assisted by a dedicated service provider. It does

not bode well that no one outside ECDC remarked on the existence of such a much needed conversation in East London or elsewhere in the Eastern Cape. This poses an open question: Who'll initiate the talk?

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Table 1. – Capital flows, competitiveness, and human resources

	IDI Performance Index 2001-03	IDI Potential Index 2002	Competitive Industrial Performance Index 1998	Skills Index 1998
South Africa	(1.069) 77	(0.185) 66	(0.108) 39	(17.05; 0.17) 49
Botswana	57	55	-	-
Zimbabwe	135	138	(0.052) 51	(8.15; 0.09) 68
Korea	120	18	(0.370) 18	(36.10;1.65) 1
Malaysia	75	32	(0.278) 22	(11.10; 0.13) 59
Brazil	46	68	(0.149) 33	(10.15;0.18) 58
India	114	89	(0.054) 50	(8.10;0.12) 67
China	37	39	(0.126) 37	(9.75;0.10) 62

Note:

- IDI = inward direct investment.
- IDI Performance Index = ratio of a country's share in global FDI flows to its share in global GDP.
- IDI Potential Index = based on 13 economic and policy variables.
- Figures in parentheses are computed values. Other figures reflect country rankings based on computed values. Total number of countries in UNCTAD ranking (columns 1 and 2) is 139, in UNIDO rankings (columns 3 and 4) 87.
- Maximum achieved Performance Index value as in column 1: ? (Belgium and Luxembourg)
- Maximum achieved Potential Index value as in column 2: ? (US)
- Maximum achieved Competitive Performance value as in column 3: 0.883 (Singapore)
- Maximum achieved Skill Index value as in column 4 (composite of two values, namely weighted average of percentage of relevant age groups enrolled in secondary and tertiary education (Harbison-Myers): 62.05, Canada; tertiary enrolment in technical subjects as share of population: 1.65, Korea).

Source: UNCTAD (2004), columns 1 and 2; UNIDO (2002), columns 3 and 4.

Table 2. – Economic and social indicators of the Eastern Cape, 2002

	Eastern Cape	South Africa
Share of population, %	14	100
Share of GDP, %	7	100
GDP per capita, Rand	9,883	21,664
Average annual growth 1996-2002, %	1.9	2.5
Economically active population, %		
strict definition	46.6	56.7
broad definition	60.0	67.7
Unemployed, %		
strict definition	32.5	30.5
broad definition	47.6	41.8
People below poverty income, %	68.3	48.5
Households with piped water, %	20.5	39.0
Medical aid coverage, %	10.0	15.0
Infant mortality rate (deaths per 1000 live births)	72	59
Life expectancy at birth in 2003, years	50.5	49.2
Illiteracy 15 years +, %	50.0	41.0
People with tertiary education degrees, %	2.5	4.5
Gini coefficient 2001	0.651	0.635
Human Development Index	0.62	0.67
HIV prevalence among pregnant women	23.6	26.5

Source: Mayer (2004), StatSA (2004), UNDP (2004), Woolard and Woolard (2004), Vass (2004)

Table 3. – Interviews

Institution	Activity	Tier	Ownership	Size of workforce
<i>Firms</i>				
DaimlerChrysler SA	Car assembly	0	100% foreign	Approx. 4,500
Johnson Control Interiors	Assembly of dashboards and instrument panels	1 st	100% foreign	64
Leoni	Wiring harnesses	1 st	100% foreign	460
Venture	Bumper fascias	1 st	100% foreign	560
First National Battery	Batteries	1 st , 2 nd , and aftermarket	100% domestic	485
Fabkomp	Truck components and miscellaneous	1 st , 2 nd , and aftermarket	100% domestic	130
<i>Education and training providers</i>				
Fort Hare	Range of (under)graduate degree courses, incl. in IT-related subjects and accounting			
Eastern Cape Technikon	Range of undergraduate vocational qualifications, incl. mechanical engineering			
Leadership Development Institute	Soft and hard management skills, incl. project management and production organisation, for public authorities and industry			
Border-Kei Training Trust	Range of technical skills, incl. fitting and turning, welding, panel beating, spray painting			
<i>Industry associations</i>				
Border-Kei Chamber of Business	Industry representation and lobby group, organised in thematic working groups on infrastructure, manufacturing, economic affairs and trade, employer relations, general operations			
<i>Development agencies</i>				
Eastern Cape Development Corporation	Investment promotion: FDI promotion, investor servicing, aftercare, industry support plus a range of other activities			