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Geography and development in Africa: Overview and implications for regional cooperation

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Discussion Paper No. 2007/03

Geography and Development in Africa

Overview and Implications for Regional Cooperation

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September 2007

Abstract

Geography causes African countries to experience a ‘proximity gap’. To overcome this gap a ‘big push’ may be needed in infrastructure. The cross-border nature of such infrastructure requires regional cooperation in at least four issues: transport infrastructure, trade facilitation, decentralization and local economic development, and migration. Because incentives for regional cooperation in these aspects may not be symmetrical, commitments made may not be credible. Therefore, transport infrastructure at least should be bound in WTO rules on trade facilitation to provide third party enforcement. Incentives for cooperation could also be improved with transport corridor design and collective peer pressure by landlocked countries. Regional cooperation could be supported by the international community with aid, the assurance of full implementation and adherence to international law on the rights of landlocked countries to access to the sea, the extension of appropriate trade preferences to African regions and ensuring consistency of international agreements and trade preferences with current regional integration initiatives.

Keywords: Africa, poverty gaps, proximity, geographical economics, infrastructure, regional cooperation

JEL classification: O55, O18, O19, F15, R41

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Acronyms

AGOA	African Growth and Opportunity Act
AU	African Union
ECA	Economic Commission for Africa
EPAs	economic partnership agreements
GATT	General Agreement on Tariffs and Trade
NEPAD	new programme for African development
RTAs	regional trade agreements
SACU	Southern African Customs Union
SADC	Southern African Development Community
WAEMU	West African Economic and Monetary Union

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1 Introduction

A number of recent studies have again accentuated the relative poor economic performance of Sub-Saharan Africa (SSA). These show that Africa's population-weighted annual growth rate per capita was a mere 0.1 per cent over 1960-2000 and that it diverged from the rest of the world at an average annual rate of 5 per cent between 1980 and 2000 (Collier and O'Connell 2007). Consequently, 35 of Africa's nations, home to 87 per cent of all Africans, are still classified as low-income countries (Ndulu et al. 2007a).

In an extensive study into the causes of this unsatisfactory performance, Ndulu et al. (2007b) describe four *policy syndromes* as central to Africa's problems: state controls, adverse redistribution, intertemporally unsustainable spending, and state breakdown. There is substantial consensus that these policy syndromes are an important part of the explanation, and that institutional reform to improve governance is needed in Africa (see Fosu and O'Connell 2006).

However, current international efforts to assist Africa's development have converged around the notion that a concerted effort—a *big push*—is needed to get many African countries on the path of growth.¹ The United Nations' Millennium Project Overview Report (UN Millennium Project 2005: 19) calls for a big push in basic infrastructure investment in Africa, especially in roads, ports and energy. The Africa Commission Report (2005) calls for a 'comprehensive big push on many fronts at once', not only in infrastructure, but in governance, capacity-building and accountability to address the underdevelopment of the continent. UNCTAD's (2006) also argues for the need for a big push in infrastructure investment through the doubling of aid.

The case for a big push is made mostly on the diagnosis that much of Africa is caught in a poverty trap and that certain thresholds therefore exist, which cannot be overcome in an incremental manner. Various reasons for the poverty trap have been identified. UNCTAD (2002) contends that African countries are in this predicament because of their dependence on primary commodities, unsustainable debts and insufficient foreign aid. Collier (2006a) sees African countries as being caught in four reinforcing *development traps* consisting of a conflict trap, a corruption trap, a primary commodity trap and a fractionalized society trap. Birdsall (2007) posits the existence of an *institutional trap* in Africa.

The implication of positing a poverty (or development) trap as explanation for Africa's poor economic performance is that the economic growth process is subject to nonlinearities. With nonlinearities, initial conditions matter for eventual outcomes (Krugman 1991; see also Fiaschi and Lavezzi 2007). If this theory is accepted, then it must be acknowledged that even countries with identical policies (or identical policy syndromes) may have different development outcomes due to differing initial conditions (Azariadis and Drazen 1990). What are these initial conditions? Historical influences are cited most often (Nunn 2007; also in Ndulu et al. 2007b), and recent papers, for example, focused on the 'colonial origins' of unequal development (Acemoglu, Johnson and Robinson 2001). It is relatively easy to see how historical influences have shaped

¹ Criticisms of the 'poverty trap-big push' argument for Africa are given in Jones and Olken (2005), Easterly (2006) and Kraay and Raddatz (2007).

institutional development in Africa, given the importance attached to institutions in explaining economic performance. However, one initial condition that has only recently started to receive attention is geography. Concern over the potential of geography as an initial condition which can give rise to a poverty trap has been voiced by Hausmann (2001: 45) recognizing that:

the prevailing development paradigm—according to which market-oriented economic policies and the rule of law alone suffice to make all countries rich—appears to be losing credibility. What if geography gets in the way of the promised land?

In this paper it is argued that in addition to certain *policy syndromes*, there are also *geographical syndromes* central to Africa's poor economic performance—and that geography can 'get in the way'. From the growing literature on Africa's economic geography, at least two such syndromes can be identified: the *proximity syndrome* which is the cumulative result of long distances to markets, being landlocked, and sub-optimal agglomeration patterns, and the *health syndrome* which is, among others, the result of tropical diseases and adverse climatic and soil conditions.

The focus in this paper is on Africa's proximity syndrome.² In reviewing this syndrome, it will be argued that there is an important need in Africa for regional cooperation if sufficient infrastructural investment is to be mobilized in a big push. Overcoming the proximity syndrome presents one of the strongest cases in support of regional integration and cooperation, but one that is most often not given adequate consideration, priority or articulation. Yet it has implications for the institutional design of African regional trade agreements (RTAs), some of which will be taken up in this paper.

The paper is structured as follows. In section 2 the importance of proximity as a factor overcoming thresholds in nonlinear growth paths is explained. In section 3, Africa's lack of proximity due to adverse geography is examined, and the nature of the proximity syndrome reviewed. Section 4 focuses on overcoming the proximity syndrome through regional cooperation in four aspects: transport infrastructure, trade facilitation, decentralization and local economic development, and migration. The role of the international community in assisting these regional cooperation imperatives is discussed in section 5. Section 6 concludes.

2 Proximity, productivity and the 'big push'

Africa's growth depends on the extent to which it can raise the productivity of its labour and capital. A fundamental insight from geographical economics, from which this paper proceeds, is that proximity is the central issue affecting African productivity. Here,

² Studies on health and Africa's economic performance tend to focus on malaria (Sachs and Hotez 2006; Chima, Goodman and Mills 2003; Gallup and Sachs 2001) and on HIV/AIDS (Whiteside 2002; Gaffeo 2003). Recent studies on famine, nutrition and agricultural conditions are given in Geelhoed (2002) and Chopra and Darnton-Hill (2006); Masters and McMillan (2001). In the health syndrome, aspects such as nutrition and psychological health in Africa (e.g., burnout) tend to be neglected: the Africa Commission Report (2005), for instance, spends less than half a page on nutrition (Chopra and Darnton-Hill 2006) and none on the cost and impact of stress-related illness and mental disease in Africa.

proximity refers to proximity to markets, customers, suppliers, competitors, supporting industries, governments, etc. The proximity-productivity link has a long history from Adam Smith through Alfred Marshall to modern economics. Geography and proximity played an important part in the writings of the nineteenth century German school; for instance, the Berlin-based economist Willem Naudé's (1896) studies on the history of trade in Europe between the thirteenth and eighteenth centuries concluded that policy lessons had to take the geography of the country into account. The need for proximity, and the role of geography therein, is therefore one of the most durable prescriptions in development economics. The birth of development economics is often ascribed to Rosenstein-Rodan's (1943) promotion of a big push for European reconstruction after the Second World War. In recent years, the idea has been formalized in geographical economics, new theories of international trade, regional science and urban economics (see e.g., Fujita, Krugman and Venables 1999) and has found its way into business school/management literature (e.g., in the work of Porter (1990) on clustering and competitiveness).

An in-depth overview of these contributions falls outside the scope of this paper. However, in order to justify the arguments and exposition of this paper, the essence of the idea should be explained. When economic activity agglomerates, it increases the proximity between economic agents. This has beneficial effects (static and dynamic externalities) that have been described as localization and urbanization economies: it allows for specialization and economies of scale to be realized.³ The impact of proximity results in positive feedback effects and scale effects. For instance, when production factors agglomerate, the externalities result in higher levels of productivity. The more resources are invested, the greater the returns-to-investment become (Krugman 1991: 651). Because of the higher productivity of these factors, more factors are drawn to the agglomeration, thereby setting in motion a process of cumulative causation (Venables 2006: 65). This process is, as mentioned in the introduction, nonlinear, and requires that a certain threshold level is reached before positive feedback and scale effects come into force. Therefore, a big push may be needed through coordinated government intervention, for instance, to steer the economy beyond this threshold. This idea has been formalized by Murphy, Shleifer and Vishny (1989).

In many African countries, productivity is low because of insufficient proximity between economic agents. This adverse proximity has two dimensions: the lack of proximity (i) between African countries and international markets, and (ii) between economic agents within Africa, due to insufficient agglomeration of economic activity. Africa's economic development will require the continent to make, as a minimum requirement, progress in two mutually dependent directions: (i) it will need to industrialize and move away from the dependence on primary commodities, and (ii) to

³ Localization economies refer to the benefits a firm receives from being with other firms in the same industry and is said to give rise to internal economies of scale. Urbanization economies refer to the benefits of overall scale and diversity and is said to encourage external economies of scale (Henderson, Kuncoro and Turner 1995: 1068). In addition to these static externalities, there are also two types of dynamic externalities, namely Jacobs externalities and so-called Marshall-Arrow-Romer (MAR) externalities, the latter resulting from knowledge-sharing, learning and imitation in a particular area (Glaeser et al. 1992). In the endogenous growth literature, cities are important for economic growth precisely because they provide the dynamic information externalities important for innovation (Romer 1986; Lucas 1988).

promote urbanization (Zhang 2002).⁴ Successful industrialization requires integration into the world economy, with African industry exporting manufactured (non-traditional) goods into world markets (Chamon and Kremer 2006). Currently, both of these requirements may be hindered by the lack of proximity resulting from adverse geography: Africa is characterized by numerous small, fragmented and remote economies. In section 3 geographical constraints of a first, second and third nature are offered as explanations for Africa's proximity syndrome. It is also shown that these constraints, by increasing transport costs, are a contributing factor to the lack of proximity. However, before examining the constraints, it is worth sharing some of the growing empirical evidence which supports the existence (or lack thereof) of a proximity-productivity relationship in Africa.

Van Biesebeek (2007) finds that in Kenya, Tanzania and Zimbabwe, wage premiums in the least urbanized areas exceed productivity premiums in manufacturing, and that higher education does not result in higher productivity (which suggests that spillover effects in human capital accumulation are limited:⁵ it is often observed skilled labour tend migrate to denser agglomerations where labour productivity is higher). He also finds that exporting firms (i.e., those having access to international markets) are more productive and have a lower wage-productivity gap.

Research on Africa's limited success in exporting manufactured goods supports the proximity-productivity relationship. Medin (2003) argues that fixed costs make exporting profitable for only a subset of firms, and Jean (2002) shows that one source of such fixed costs may be related to productivity-enhancement (e.g., R&D, foreign networks, knowledge and intelligence, as well as firm-size). From this follows that the goods manufactured for export tend not only to come from localities where productivity is above a certain threshold, but also to favour localities with higher productivity in order to be able to export more (Bigsten and Söderbom 2006). Fafchamps, El Hamine and Zeufack (2002) find that in Morocco the more productive firms had self-selected into exporting. Higher productivity is reflected in the quality and type of goods that are exported. Hausmann, Hwang and Rodrik (2005) construct an index that represents the income level associated with an export sector and observe that countries with higher quality (more productive) exports grow faster. Matthee and Naudé (2007) construct a similar index for subnational exports in South Africa and find evidence for the proximity-productivity relationship in that the sectors with the highest increase in PRODY values over the timeperiod of analysis were electrical machinery and apparatus; electronic, sound/vision and other appliances, i.e., production that generally takes place in metropolitan areas. They also find that the diversity of exports declines with distance from seaports.

Studies on Africa's geographical economics find higher productivity in cities. Naudé and Krugell (2003a; 2006) find that economic growth is higher in South Africa's metropolitan areas and that this results from the higher productivity of human capital in

⁴ Zhang (2002) argues that urbanization is a key feature of economic development. Africa is the least urbanized continent—only eight countries are over 50 per cent urbanized. Its average population density (77 people per km²) is amongst the lowest in the world (Ndulu et al. 2007b: 101). See also Henderson, Shalizi and Venables (2001: 93).

⁵ In dense urban areas as opposed to low-density areas, greater proximity increases interaction between people, with the result that human capital accumulation is faster because people learn through interaction (Glaeser 1998).

the cities that ‘allows the reaping of dynamic externalities associated with learning and information’ (2003a: 497). Naudé and Krugell (2005) note that the larger cities in South Africa tend to be more diversified, and that diversified cities grow on average faster.⁶ Based on calculations of Zipf Law in South Africa, Naudé and Krugell (2003b) speculate that increasing the sizes of the country’s cities may result in efficiency gains, suggesting a positive role for further urbanization. Naudé (2007) finds evidence that urban density in South Africa’s central metropolitan areas has increased since 1996 and that these have, on average, also experienced higher growth.

3 How geography gets in the way

Before explaining how Africa’s geography is responsible for its proximity syndrome, a word of caution needs to be offered. The focus on the role of geography, as explained here, does not suggest that geography alone matters for development, or that pessimism is warranted because economic advancement seems to be predetermined by factors beyond human influence (Dixit 2007: 3). There is substantial agreement that institutions matter for economic development, and also that history, institutions and geography interact (Acemoglu, Johnson and Robinson 2002; Naudé and Krugell 2007)—but there is also a growing view that geography does matter on its own (Gallup, Sachs and Mellinger 1999; Naudé 2004; Dixit 2007). The purpose of this paper is not to get involved in the relative impacts of geography and institutions on development,⁷ but to examine what is known about the influence of geography on development in Africa, and to discuss the extent to which these forces can be minimized where negative, and to identify the implications that this has for regional cooperation. Once the distinction and interaction between first, second and third nature geography are understood, it will be clear that much can be done, in a concerted manner, to overcome adverse geography.

3.1 The nature of geography

A distinction is often made between first-nature, second-nature and third-nature geography. First-nature geography implies the inherent features of an area that are independent of human activity. It includes topography, latitude, incidence of natural resource endowments, agricultural potential (soil quality and rainfall), and tropical climate. Africa’s first-nature geography affects its development negatively through geographic isolation,⁸ its disease burden⁹ due to its largely tropical location¹⁰ (more

⁶ Diversified cities are seen as ‘nurseries’ for new firms and products; see e.g. Glaeser, Scheinkman and Shleifer (1995) and Henderson, Kuncoro and Turner (1995).

⁷ In the words of Warner (2002: 1) ‘research on the causes of the large differences in economic development across countries has framed the issue as a competition between geography and institutions’. See also the summary in Naudé (2004) and Naudé and Krugell (2007).

⁸ The Sahara desert has long been a barrier to overland trade with Europe (Sachs et al. 2004: 131).

⁹ The eradication of malaria in Africa, where approximately 90 per cent of malaria deaths occur annually, is difficult because of climatic conditions (Sachs et al. 2004: 133).

¹⁰ Tropical countries tend to have average growth rates 0.5-1.0 per cent lower than those of temperate countries. Furthermore, life expectancy in the tropical zone is on average seven years less than in temperate countries (Hausmann 2001: 46). In cross-country empirical studies, location in the tropics

than 90 per cent of SSA is located within the tropics), scarcity of large, navigable rivers and lack of alluvial plains, high evaporation rates, and the ‘curse’ of abundant natural mineral resources.¹¹ The shape of the continent in terms of its north-south orientation has traditionally made technological transfers, especially in agriculture, between different climatic zones more difficult than in Asia and Europe, for instance (Diamond 1997).

Second-nature geography constitutes features that depend on the spatial interaction between people in an area but are not necessarily inherited. Second-nature geography is important in explaining why areas with similar first-nature geography may end up at different levels of productivity and income. This category includes population densities, population location and composition. Africa has the largest number of landlocked countries of any continent. Since being landlocked was an artefact of how borders were drawn up during the nineteenth century, it can be treated as second nature, although the size of the continent and differences in climate amplify the effects of border demarcation.

Africa’s landlocked countries face a three-fold proximity gap: first, in terms of the sizeable distances to international markets and the need to cross numerous borders. A typical African country borders on four neighbouring nations (Ndulu et al. 2007a: 102), making border delays notorious (Zanamwe 2005: 8). Transport costs overland are also much higher than shipping costs (Hausmann 2001: 47). Whereas trade with the rest of the world is 30-40 per cent for the landlocked countries in Europe and other developing countries, respectively, this is on average 60 per cent less for SSA countries (Coulibaly and Fontagné 2005: 314-5). Landlocked African countries also trade up to 92 per cent less with one another than with coastal countries (Coulibaly and Fontagné 2005: 337). The greater loss of trade in Africa’s landlocked countries in comparison with other landlocked nations is due to the effect being amplified by two other dimensions of the proximity gap.

Second, the proximity gap is more severe because of the small-sized economies in these countries. Africa is fragmented into 48 small economies with a median GDP of US\$3 billion, the highest number of countries per square kilometre in the world (Ndulu et al. 2007a: 102). These small internal markets face difficulty in achieving gains from specialization, compounded by low population densities, low urbanization, and weak internal transport links. The degree of openness of a country may be influenced by its size (Spolaore and Wacziarg 2005: 332), and thus small international markets may reinforce the lack of openness that results from being landlocked. In this way, it can even create a proximity trap.

or elsewhere is often measured by latitude. Latitude is strongly and positively correlated with per capita income (Bloom, Canning and Sevilla 2003: 361). See also Sachs (2001) and Easterly and Levine (2003).

¹¹ African countries with large mineral wealth have generally had poor performance, leading to the description of these countries being *resource cursed* (Sachs and Warner 2001). According to Younger (2003: 676) these resources have been misused by the elite for personal enrichment, or led to civil conflict for their control. Mehlum, Moene and Torvik (2006) find that a resource curse is not inevitable: with appropriate institutions it can be avoided. However, if unavoidable, it tends to have a particularly detrimental impact on countries with a ‘low degree of openness’, such as Africa’s landlocked nations (Arezki and Van der Ploeg 2007).

Third, the proximity gap of landlocked countries is further increased by neighbouring countries that are economically poorly performing, often as a result of conflict (Collier 2006a). This creates a proximity gap in terms of reduced interaction among the economic agents of different countries (hence, low volumes of intra-African trade) which induces spatial spillover effects of very low growth. Collier and O'Connell (2007) quantify these effects. They show that for each percentage of annual growth experienced by neighbouring countries, the landlocked nations in Africa managed on average a mere 0.2 per cent annual growth in comparison to 0.7 per cent for landlocked countries elsewhere.

In addition to being landlocked, a substantial portion of Africa's population resides in the interior, basically for reasons related to first-nature geography. For instance, in Ethiopia, one of Africa's poorest countries, 89 per cent of the population live in the northern highlands, a region covering about 45 per cent of the country's area, because of its better rainfall, lower temperatures and less exposure to malaria (Benin, Ehui and Pender 2004: 167). However, through reduced proximity effects, the impact on economic growth is negative. It has been observed that the growth rate on average is 0.6 per cent lower annually in a country where the population lives further than 100 km from the sea than in a country where the population resides within this limit (Hausmann 2001: 46).

A further feature of Africa's second-nature geography that relates to the interaction of economic agents across space is the high level of ethno-linguistic fragmentation. Earlier studies find this to have a significant negative impact on Africa's growth (Easterly and Levine 1997). More recently, however, Bloom, Canning and Sevilla (2003: 360) conclude that once first-nature geography is controlled for, ethno-linguistic fragmentation becomes insignificant.¹²

Third-nature geography concerns features of an area that are based on prior human intervention, such as the adoption of new technology, which implies that a certain level of human skills is available (see Ioannides and Overman 2000: 1). Here the pattern of city formation in Africa is important. Existing city agglomerations offer greater scope for new sustainable activities, because human capital accumulation is faster in cities. It should be noted, however, that both second- and third-nature geography is often given the initial impetus by first-nature geography. Warner (2002) recognizes this and points out that geography exerts important effects in agglomeration—for instance, cities are more likely to be established and to develop in favourable geographic areas. First-nature geography is thus an important factor affecting urbanization and city growth in Africa, the continent with the least number of mega-cities.

Some of the more noticeable features of Africa's underdevelopment thus have a direct geographical basis. Africa is also a conflict-prone continent, but the geographical basis of civil clashes and their persistence is often not recognized, apart from the widely shared insight that conflict usually takes places over scarce resources (e.g., Somalia), or for their control in resource-abundant economies (e.g., Angola). Strife in most African countries has a discernable spatial dimension. For instance, in Angola, Uganda, Côte

¹² This may be due to the fact that the authors use latitude as proxy indicator for first-nature geography. This indicator is positively correlated with the homogeneity of population (Bloom, Canning and Sevilla 2003: 361).

d'Ivoire, and Sudan, conflict follows a north-south pattern, if not an actual divide.¹³ Fafchamps and Moser (2003) find that geographical isolation in Madagascar is significantly associated with higher crime. It also has to be recognized that the continent's geography will affect the peacekeeping role of the international community and related operations such as disaster relief (UN disaster relief for Africa is currently coordinated from the EU). Collier (2006a: 204), citing the example of British military involvement in Sierra Leone, argues for an external military force (under the AU–African Union and UN) to ensure post-conflict peace. While this may have been possible in a coastal, small country such as Sierra Leone, the credibility of an external military force in maintaining peace in large, geographical diverse countries such as Chad, the Democratic Republic of the Congo or the Sudan is likely to be low.

Ndulu et al. (2007a: 100) argue that these geographical factors make investment and productivity growth more expensive in Africa, where the cost of capital ranges on average between 15 and 20 per cent compared to 5-6 per cent in Latin America (Pfeiffer 2007). Of course, not the entire gap is due to geography, although remoteness does seem to have a direct effect, resulting, for instance, in capital equipment being twice as expensive in South Africa as in the UK (Venables 2005). Geography also renders agriculture a low-productivity activity: due to the relative scarcity of large rivers and alluvial plains, Africa has the lowest share of irrigated cropland in the developing world (Sachs et al. 2004: 133). Human capital is also negatively affected by the disease burden, which undermines productivity and capacity-building.

3.2 Geography and transport costs

In Africa geographical factors affect proximity and productivity through higher transport costs. A number of recent studies, including UNCTAD (2003), suggest that these are indeed significantly higher in Africa than elsewhere: at 12.5 per cent international transport costs in African countries are almost twice as high as the world average of 6.11 per (Naudé and Matthee 2007).

Other evidence of high African transport costs comes from Ndulu et al. (2007a: 102) who point out that the median transport costs in intra-regional trade for a 40-foot container is US\$7,600, which is about US\$2,000 more than in other developing regions. This is even higher in landlocked countries. The Africa Commission Report notes that it costs more to transport a vehicle from Abidjan to Addis Ababa than to ship it to Japan. The World Bank estimates that significant benefits in intra-regional trade would be achieved by upgrading road linkages: for instance, trade between the Central African Republic and the Democratic Republic of the Congo could increase by US\$10-30 billion per year if road links were improved (Buys, Deichmann and Wheeler 2006).

Africa's relatively high transport costs are an important factor in the continent's slow growth in exports compared to other developing regions (Amadji and Yeats 1995). Limão and Venables (2001) find that a 10 per cent increase in transport costs would

¹³ Civil conflict in Africa affects spatial patterns of economic activity and poverty within countries by disrupting the spatial integration of agricultural markets, deepening the isolation of rural areas, reinforcing the capital city bias in government spending and investment, internally displacing the population, making internal transport dangerous, destroying infrastructure and influencing choice and ownership of assets.

reduce trade volume by 20 per cent, and as much as 50 per cent for the landlocked nations. Trade volumes in these landlocked states are as much as 60 lower than those of coastal countries (Radelet and Sachs 1998; Limão and Venables 2001).

How precisely do the geographical factors discussed above contribute towards high transport cost in Africa? The most obvious factor is through the continent's great distance from world markets. Despite advances in transport and communication technology, distance remains one of the most important variables determining transport costs (Naudé and Matthee 2007). A 1 per cent increase in distance increases transport costs by approximately 0.25 per cent (Martínez-Zarzoso et al. 2003). It is therefore no surprise that trade volumes decline over distance, as many gravity model studies indicate. In fact, around half of the world's trade takes place among countries located within 3,000 km radius (The Round Table 2004). In 1990 the average distance of SSA countries from their trading partners was over 7,800 km (Márquez-Ramos et al. 2007: 20-1). Gravity models have estimated that the elasticity of trade with respect to distance ranges between -0.9 and -1.5. This implies that for a region such as Sub-Saharan Africa where the distance to trading partners is thousands of kilometres, trade will be 90 per cent lower than what it would be for partners within 1,000 km (Venables 2006: 65).

Second, high transport costs in Africa are also caused by the fact that many countries are landlocked. Landlockedness has a significant cost-inducing effect, through rising costs of transiting various borders, as well as in the time lost at border delays. The median landlocked country faces 50 per cent higher transport costs than the median coastal nation (Hausmann 2001: 47). In southern Africa, bottlenecks caused by border controls have been estimated to cost US\$48 billion annually (Phasiwe 2007).

Third, Africa's geography adds to costs through the inability to reap sufficient economies of scale. This hampers international trade, and keeps the per unit transport costs high. In many cases this reflects the absence of the effect of the home market,¹⁴ resulting from a relatively low level of urbanization, low per capita income, and lack of progress in regional integration (Naudé and Matthee 2007). Most businesses in Africa are small micro-enterprises, and there are relatively fewer medium and large sized firms than elsewhere. Various reasons account for this predominance of small and micro-sized firms—low level of financial development, lack of skilled entrepreneurs, high level of risk and transaction costs, and heavy taxation of medium-sized firms (Naudé and Krugell 2002). But geography also plays a role. Lack of adequate transport infrastructure makes it difficult for firms to distribute products and thus obtain economies of scale (Acs 2006; Bigsten and Söderbom 2006). Fragmented markets often produce firms that manage to obtain some measure of economies of scale, become monopolies, and subsequently limit the entry and growth of other firms (Venables 2006: 67).

Fourth, the type of goods produced also affects a country's ability to benefit from the economies of scale and achieve reductions in per unit transport costs. This is because different goods have different logistical requirements. Intermediate goods (which Africa imports in significant quantities) and goods such as fertilizer tend to have higher freight rates than other manufactured goods (Hummels 1999). The dominance of the agriculture

¹⁴ The 'home market' effect posits a positive relationship between export success and the size of the local market. See Krugman (1980), Davis and Weinstein (2003).

sector in many African countries can also raise transport costs due to the seasonality of crops. For example, distribution of maize needs branch railway lines to be linked to storage silos. Storage is expensive because, due to the undiversified nature of the economies, silos are used only during the season while their maintenance extends throughout the year. Often costs are compounded by fluctuating weather conditions which make prediction of crop sizes and their resulting transport needs difficult (Williams 2007: 70).

The section above discussed the relation between first- and second-nature geography on transport costs in Africa. It should be noted, however, that high transport costs in Africa are not only due to geography, but also because of inappropriate transport policies. Policies regulating the domestic freight transport industry often protect inefficient monopolies, and fail to provide for intermodal transport facilities and maritime transport development. Policy ‘failures’ are evident in the dominance and expensiveness of road freight in many African countries despite the fact that rail transport can—and should—be cheaper. Policy failure is also obvious in the lack of appropriate maritime strategies for Africa. For instance, ports are saddled with inefficiencies and high dwell costs (including loading and unloading ships and the cost of queuing for entry into port). Delays in African ports add to international transport costs: an additional day in transit for manufactured goods adds on average 0.8 per cent to the value of the goods (Hummels 2001) with chartered vessels costing between US\$15,000-30,000 per day (Planting 2007: 79). The lack of a maritime strategy is also responsible for the reduction in national shipping lines and inadequate complementary industries such as shipbuilding, repairs and maintenance. South Africa, one of the continent’s largest sea-trading nations with 3,000 km of shoreline, currently has only one national shipping company (namely Grindrod). According to Planting (2007: 78) this is because South Africa, as most other African coastal nations, does not have adequate policies, incentives and legislation in place for registering ships.

4 Nearest and dearest? regional cooperation and proximity

What can be done to overcome the proximity gap caused by adverse geography? As mentioned in the introduction, most current analyses on Africa’s development challenges tend to concur that a big push is needed, especially in infrastructure. Will this help to address the continent’s proximity gap by reducing transport costs?

A growing body of evidence suggests that investment in transport infrastructure can reduce transport costs. According to Bougheas, Demetriades and Morgenroth (1999), an improvement of 1 per cent in infrastructure could lower transport costs by 0.14 per cent. Limão and Venables (2001) find that poor infrastructure accounts for 40 per cent of the transport costs for coastal economies and 60 per cent for landlocked countries. Thus, better infrastructure would imply large reductions in transport costs. Infrastructure in ports—as well as policies to increase port efficiency can also—make an important contribution. International transport costs can be reduced by 12 per cent if the operating efficiency of a seaport increases from the 25th to the 75th percentile, and could stimulate trade up to 25 per cent (Martínez-Zarzoso et al. 2003). Coulibaly and Fontagné (2005), with a gravity model, find that if all interstate roads in the West African Economic and Monetary Union (WAEMU) were paved, this could increase

trade threefold between member countries. The empirical evidence thus supports the assumption that infrastructure could reduce Africa's transport costs.

Most of the recent advocates of the big push theory also suggest that increased aid should be channelled into investment in transport infrastructure. They recognize that due to the cross-border nature of the necessary infrastructure investments, regional cooperation is essential. Sachs et al. (2004: 130-1) describe regional integration as a *sine qua non* for economic growth in the provision of infrastructure (ibid.: 150-1). More generally, regional integration through regional trade agreements (RTAs), for instance, can reduce the proximity gap of countries by increasing market size. This results in returns for closer proximity and higher productivity which, in turn, improve the returns from proximity by providing better foreign market access (especially to landlocked countries) and by creating a larger internal market (Spolaore and Wacziarg 2005: 333).¹⁵

This section further strengthens the rationale for regional integration. Regional cooperation, although important, might be unable on its own to be effective. Binding agreements on trade facilitation to the WTO level should be considered as an alternative mechanism to provide incentives for regional cooperation. The emphasis is on regional cooperation rather than regional integration since the former suggests a broader agenda than regional integration which has focused on trade preferences and currency unions. Important as these may be, an understanding of Africa's geographic constraints infers that regional cooperation should urgently be targeted to joint infrastructure projects, transport corridors, trade facilitation, and cooperation at least in terms of health, environmental, safety, ICT and tourism. Many of these require a long-term focus, distanced from the current situation of short-term crises and conflicts dominating the concerns of African RTAs (African Commission Report 2005: 62).

In subsection 4.1 the context of regional integration in Africa is briefly reviewed as background. Thereafter, in subsections 4.2 to 4.5, the four priorities in regional cooperation—transport infrastructure and services, trade facilitation, local economic development, and decentralization and migration—are highlighted and discussed.

4.1 Regional integration in Africa

Regional integration has a long history in Africa,¹⁶ but one that has not lived up to expectations (Coulibaly and Fontagné 2005: 315). There are around 30 RTAs in Africa and each country is a member on average in four RTAs, resulting in overlapping memberships, with conflicting obligations, rules and procedures (Mutai 2003: 3). These

¹⁵ The insight that larger markets can raise productivity through regional integration and harmonization of trade, standards and procedures is well-established in economics, with historical examples. For instance, the economic growth and development of the Roman Empire have been recognized as being partly due to the benefits of integrating a large geographic area. In the words of Naudé (1896), the Roman Empire 'constituted one immense economic unit, having a system of weights and measures, a common law, a unified monetary system, freedom of trade and, at least during the second century before Christ, a universal right of emigration' (see Keasbey 1897: 512).

¹⁶ The 1980 Lagos Plan of Action envisaged the creation of an African economic community by 2000. More recently, the African Union 2007 Summit discussed the formation of a United States of Africa.

agreements do not seem to have significantly increased intra-African trade,¹⁷ nor raised the region's share in global trade, or improved its bargaining position in international trade negotiations (MG Online 2007). In addition RTAs may result in significant trade diversion (Carrère 2004; Sandrey 2006).¹⁸

One of the apparent failures of RTAs in Africa has been their inability to reduce the proximity gap. As discussed in section 3, three factors conspire to create a proximity gap between African countries (especially the landlocked states) and other nations: namely, borders, small sized economies, and neighbourhood effects. However, on closer scrutiny, it is possible that the poor results of regional integration are a result of these schemes becoming trapped by the proximity gap. Elsewhere in the world successful regional integration has been driven by increasing trade volumes between member countries (Mutai 2003: 6) but in Africa, the lack of transport infrastructure (and the attendant high transport costs) have stifled trade,¹⁹ dampening all incentive to commit to regional integration, the construction and maintenance of transport infrastructure included. This in turn has contributed to low trade (which also explains why national governments are slow to implement regional-level reforms).

Reducing the proximity gap will require that at least four issues be prioritized in regional cooperation: transport infrastructure, trade facilitation, decentralization and local economic development, and migration. These are discussed next.

4.2 Transport infrastructure and services

In the past, the problem with infrastructure investment in Africa has been its fragmented, uncoordinated, and predominantly national focus. However, transport infrastructure, such as roads, is shaped by three important effects which necessitate a regional scale and region-wide coordination: (i) network effects, (ii) threshold effects, and (iii) compatibility requirements.

Network effects are obtained when the value of a good or service increases with the number of users of the item in question. Direct network effects refer to the immediate benefits from the good or service itself (such as lower travel times due to a road) and indirect network effects refer to benefits accruing from the added availability of complimentary goods (such as vehicles in the case of roads) (Liebowitz and Margolis

¹⁷ Intra-African trade levels are low, approximately 10 per cent of total external trade. Recent increases have not been ascribed to a general expansion of trade, but are rather considered to result from an expansion in Nigerian oil and South African exports' to the continent after 1994, as well as the success of Kenyan manufacturing exports to east Africa. Carrère (2004) using panel data gravity models finds evidence that regional integration had increased intra-African trade, with effects stronger (and with less trade diversion) where regional integration consists of both preferential trade agreements and the introduction of a common currency.

¹⁸ A large literature deals with regional integration in Africa. The focus tends to be on the monetary aspects of currency unions and whether macroeconomic policies and outcomes are converging (see Carmignani 2005). There is a need for more research on regional integration and the proximity gap outlined in this paper.

¹⁹ Other reasons highlighted in the literature include the similarity of production structures (implying an underlying lack of trade potential), currency restrictions and porous borders (resulting in unrecorded and illegal trade).

1998). In view of the current levels of economic activity in most individual African states and the existing patterns of road-carrier trade, consideration of road investment and financing only on the basis of local (national) demand will suggest that there is no justification for the investment of such a road infrastructure. However, as Buys, Deichmann and Wheeler (2006) show, taking a network approach will often indicate otherwise, with region-wide benefits exceeding local cost. They examine the World Bank's proposed 100,000 km trans-Africa road network to link 83 major SSA cities. The cost of this proposed network is in the vicinity of US\$32 billion over 15 years, which is small compared to the expected increase in trade between these countries of over US\$250 billion. Network effects imply that returns to infrastructure investment will rise with population density (Ndulu et al. 2007a: 104).

Threshold effects have been defined as 'a particular sort of causal relationship in which the magnitude of the causal influence changes dramatically past some critical point' (Galster, Quercia and Cortes 2000: 703). It implies a nonlinear relationship between variables. In the relationship between road transport investment and trade, two types of feedback effects can come into play: first, transport infrastructure is *endodynamic*, meaning that if the level thereof reaches a certain threshold, it subsequently causes a much greater change in itself, because of the direct effects of networks. And second, transport infrastructure is *exodynamically* related to trade volumes, meaning that after a certain plateau, increases therein will lead to much greater trade volumes (Galster, Quercia and Cortes 2000: 704-5).

Given the attendant network and threshold effects, transport infrastructure and services should not be studied at the level of the individual link, but rather at the level of the entire logistic chain (Pedersen 2001: 87). Also, network and threshold effects imply that a particular quality standard or product standardization is required before a transport link can meet its expectations (Sachs 2005: 250). A case in point is that in many instances Africa's transport infrastructure—because of the nature of its exports (bulk goods) that differs from the nature of its imports (containerized)—cannot as yet make optimal use of containers (one of the most important innovations in international trade that has greatly facilitated the integration of different modes of transport) (Pedersen 2001: 87). Thus more containers enter Africa through imports than exit through exports. Containers are generally not used in inland transportation, but are unpacked at ports (according to customs regulations). Pedersen (2001: 88) argues that greater containerization of bulk/primary commodities in African trade could have three advantages: (i) reducing transport costs by achieving a better balance between container inflow and outflow; (ii) improving the integration between different modes of transport, a requirement for the smooth functioning of the logistics chain, and (iii) contributing to a more continuous export of primary goods as goods could be shipped as soon as a container is filled (rather than wait for a vessel to be loaded, as in the case of bulk exports).

The need for regional cooperation in infrastructure arises for a third reason, namely the need to ensure greater compatibility in transport systems, infrastructure and security. In all modes of transport, greater coordination and compatibility are required between countries. There are currently at least four different rail gauges in Africa, a fact which makes rail connections between many countries impossible (Phasiwe 2007). In road freight transport, which in many cases is even more important than rail transport, axle sizes and axle load regulations differ substantially from one country to the next (Zanamwe 2005: 40). Custom requirements differ between countries and are often

unrealistic (*ibid.*: 40). Freight insecurity, especially train thefts, is reducing trade and costing money, as freight forwarders prefer the more expensive option of road hauling which enables trucks and freight to be better guarded and tracked via satellite.

Finally, coordination is also required for tourism.²⁰ This is a growing market in which Africa enjoys a potential comparative advantage but one that requires greater investment in infrastructure, including air, rail and road transport systems (Naudé and Saayman 2005). For instance, regional tourism agencies have demanded uniform road signs to facilitate tourist traffic and reduce accidents.

Despite the impact achieved through network effects, threshold effects and through the compatibility for assuring regional coordination in transport infrastructure investment and in trade facilitation (see 4.3 below), mechanisms to ensure this coordination are also needed, since the incentives for coordination are often not symmetrical.²¹ There are at least three reasons behind such asymmetrical benefits.

First, in the case of transport infrastructure that would connect interior economies with the coast, benefits are often smaller for the coastal country than for the landlocked state. Consider, for example, Malawi, a landlocked country, which ended up paying for road rehabilitation in Tanzania, in order to obtain better access to the Dar Es Salaam harbour. Similarly, there is less incentive for Kenya and Tanzania to invest in road corridors from the eastern seaboard to the landlocked countries of central Africa (e.g., Burundi, eastern DRC, Malawi, Rwanda and Uganda).

Second, customs officials in many countries have a negative attitude towards transit trade as it does not generate revenue for their country (Zanamwe 2005: 38). Transit trade creates the risk that these goods may be diverted to the transit country. It also creates opportunities for smuggling, generating the need for trade guarantees that often cannot be met due to poor development of banking and insurance facilities (*ibid.*: 40-1).

Third, the political orientation of African leadership towards RTA needs to change. In the past it has often been driven by political motivation to reduce Africa's dependence on the international community. Investment in international transport infrastructure, therefore, was not a priority (Mutai 2003: 23).

Given that the incentives for coordination are not symmetrical, there is a danger that commitments in RTAs lack creditability—more likely, however, this danger may be due to the lack of third party enforcement (Dixit 2007: 9; Acemoglu 2003). As a

²⁰ Naudé and Saayman (2005: 371) note that there is a clear geographical pattern to tourism flows to Africa—northern node (consisting of Tunisia, Morocco and Egypt) and the southern node which encompasses South Africa and Mauritius. West and central Africa have the lowest numbers of arrivals on the continent (*ibid.*: 19). These are also the areas closest to the tropics, with the highest incidence of malaria and other tropical diseases. Only a few African destinations can offer the 'sun and beach' holidays for international tourists, since many are landlocked and the cold Benguella sea current makes the conditions on the south-west coast unpleasant.

²¹ Asymmetrical advantages from joint infrastructure as well as jockeying for position within regional bodies are likely to create conflicting strategies from partner countries that may delay improvements in regional transport infrastructure. This is already occurring with regard to ICT infrastructure in connection with the planned East Africa Submarine System (Eassy) undersea broadband cable along the African east coast which is being delayed by conflict between Kenya and South Africa for more than a year (Gedge 2007).

consequence, it may be argued that transport infrastructure should be included in WTO's binding rules on trade facilitation so as to provide third party enforcement and thus improve the credibility of commitments. In addition the network of transport corridors should be designed and implemented in such a way that it maximizes the mutual advantages of landlocked and coastal countries—for instance, by fast-tracking transit trade. Finally, Collier (2006b) advocates that landlocked countries should 'recognize their collective interest' to ensure that peer pressure is being exerted on their neighbours. Such peer pressure (through the AU, NEPAD, and ECA, for instance) could be targeted to compliance to regional agreements, international treaties, and general implementation of sound economic policies.

4.3 Trade facilitation

Given the complex logistical chain linking raw materials with final consumers, trade facilitation should be interpreted in the broadest sense.

Currently, the WTO perceives trade facilitation rather narrowly as the 'simplification and harmonization of international trade procedures, including activities, practices and formalities involved in collecting, presenting, communicating, and processing data required for the movement of goods in international trade' (Zanamwe 2005: 6). There is room for improvement in these areas in Africa, where outdated procedures, excessive documentation and lack of ICT contribute to unacceptable border delays, but the WTO overlooks the importance of transport infrastructure with its threshold effects in generating the very trade for which it is attempting to simplify cross-border movements. As argued by Zanamwe (2005: 7), there should be at least three explicit aims to trade facilitation: (i) to ensure appropriate physical infrastructure and facilities for the movement of goods; (ii) to ensure the harmonization and effectiveness of custom procedures and (iii) to ensure the upgrading of information and communication technology for the exchange of trade-related information.

Within the WTO negotiations on global rules for trade facilitation were started in 2004. Despite the importance of standards and harmonization in terms of transport infrastructure, the current negotiations seem to be limited on issues of transparency and the administration of trade regulations. This suggests that African priorities may be overlooked in these negotiations. Zanamwe (2005: 5) considers this to be a particular challenge to Africa, stating that:

for African countries to participate fully in these negotiations means that they have a lot of catching up to do. Not only are they required to study and analyse the implications of the proposals on the table, but also to formulate proposals which reflect their trade facilitation needs and priorities.

It is important that African countries commit to broad and binding rules on trade facilitation. Country resistance to this could be reduced by linking these commitments to foreign aid, especially technical assistance and capacity-building.

Within the broader definition of trade facilitation, African countries also need to extend their focus beyond intra-regional road, rail and air links. One neglected dimension in the region's transport policies and infrastructure is maritime trade. Joint efforts and coordinated plans towards securing greater efficiency in maritime transport may be

called for. One shortcoming that countries could address through regional cooperation is, first, the lack of national shipping lines, and second, the concentration of shipping to a few operators. Both of these facts may be raising shipping costs to and from Africa. With regard to shipping lines, the industry is dominated by two (the result of a takeover of South African Safmarine by Danish Maersk and the takeover of British OTAL by French Delmas, both in 1999). These two large shipping lines have entered into collaboration with a few smaller lines such as P&O and WAL. This concentration may generate increasing shipping costs (Pedersen 2001: 90) from a level that already may be significantly higher than in other developing regions (Naudé 2001).

4.4 Decentralization and local economic development

Current literature on spatial disparities and Africa focuses on the first (top) level of aggregation and generally explains the continent's lagging position in income and wealth compared to the rest of the world in terms of its geography. The second dimension of spatial inequalities within countries, however, is relatively neglected, but can be argued to be almost as important for the overall economic development as geography (Naudé 2003; Jansen van Rensburg and Naudé 2007). A subnational approach to Africa's spatial inequalities also highlights the necessity of different regions stretching across national borders to start planning and coordinating their initiatives for economic development (Kleynhans, Naudé and Van der Merwe 2003). It also emphasizes the importance of domestic transport costs and domestic transport infrastructure for economic development. Elbadawi, Mengistae and Zeufack (2006) find that domestic transport costs are an even stronger constraint on exports than international transport costs.

The proximity-productivity relationship implies that greater spatial concentration is necessary to allow the advantages of economies of scale and industrial specialization to be reaped, and that this spatial concentration is beneficial for conserving scarce infrastructure investment to a few key places. This does not mean, however, that upgrading infrastructure in the rest of a country should be neglected. A number of obstacles against domestic (non-international) transport infrastructure exist.

First, given the large number of civil clashes in Africa over the past 50 years, conflict has had a major impact on transport infrastructure. Conflict has destroyed infrastructure: governments often demolished domestic infrastructure deemed to be useful to rebel groups, whilst rebel groups sabotaged infrastructure to isolate the areas under their control. But despite conflict, international transport and communication channels—such as ports and main roads—have often been kept open. Finally, after conflict, the rehabilitation of infrastructure is often prioritized in the capitals.

Second, African populations are fairly heterogeneous, with high levels of ethnic conflict. At times investment in local infrastructure is used to reward or punish particular ethnic groups or to impose central control over the countryside. Ethnic diversity also makes collective action for investment in public goods more difficult to coordinate (Collier 2006c: 8).

Third, effective and efficient investments in local, subnational infrastructure require strong capacity at the local government level. In Africa, only limited progress has been made in fiscal decentralization and local economic development, with the result that

infrastructure investment tends to predominate in capital cities. Fourth, Africa's internal geography is often overlooked so that the diversity of terrain, which needs to be accommodated in road construction, is underestimated. This raises costs, construction times, as well as maintenance of transport infrastructure. Fifth, internal network effects are ignored in cost-benefit analyses for transport infrastructure projects, so that regional roads, airports and railway lines appear unprofitable in terms of standard budgeting.

These obstacles need to be resolved so that the greater overall growth originating from the cities can be shared across regions and that migration to African cities can be encouraged without increasing the extent of poverty as people leave the rural areas for urban centres. The recent experience of China, where rapid growth took place in coastal cities, adding to the widening inequalities of the interior, shows that benefits from city growth do not trickle down to rural areas (Kanbur and Zhang 2006). Domestic infrastructure within African countries could greatly benefit from fiscal decentralization and a greater emphasis on local economic development, promoting investment and locality marketing. Only when local politicians attempt to improve the investment environment of their localities, do they become acutely aware of the shortcomings in transport and related services. Thus, as a precondition to the involvement of local authorities in local economic development are the extension and deepening of participatory democracy, and the strengthening of the capacity of local governments, including institutions that can control corruption and self-serving councillors. (See, e.g. Rodrik (2000) and Jansen van Rensburg and Naudé (2007) on the South African case.)

In Africa, regional integration schemes can create consultative platforms for local authorities. A good case in point is the Maputo/Trans-Kalahari corridor, which stretches from southern Africa's east coast through to Mozambique, South Africa, Botswana and Namibia. In South Africa, local authorities—supported by their role and responsibility as enshrined with the country's Constitution and by the control of their own revenue as guaranteed by fiscal decentralization—were in a position to maximize the potential benefits of this transport corridor locally where it affected their jurisdictions (Kleynhans, Naudé and Van der Merwe 2003).

4.5 Migration

Large population groups of Africans may be residing in countries and regions that were artificially defined and which should be 'ghost towns/countries' (Easterly, Alesina and Matuszeski 2006: Pritchett 2004). Therefore, mass migration as a measure to improve the living standards of these sectors should perhaps be given more positive encouragement and be incorporated within the regional cooperation agenda. Without migration, the costs of adverse geography are borne disproportionately by labour (Venables 2006: 73).

Easterly, Alesina and Matuszeski (2006: 2) define an artificial state as one in which 'political borders do not coincide with a division of nationalities desired by the people on the ground'. According to these authors, most of Africa's borders were drawn up by former colonizers and more than 80 per cent of these borders can be deemed artificial (see also the large number of landlocked, small economies that this created) (*ibid.*: 13). These artificial borders may limit the ability of populations to migrate, especially during

adverse external shocks.²² Pritchett (2004: 50) argues that improving the living standards of a population is not the only way to raise their wellbeing; people should be allowed the option to migrate. There is no denying that strong pressures for mass migration exist in Africa—pressures which need to be taken into consideration with regard to regional cooperation. For instance, Glaeser (quoted in Sachs et al. 2004: 231) remarks that ‘were it not for strict immigration laws in developed countries no one would be living in Sub-Sahara Africa today’. Pritchett (2004: 3) using Zambia as an example claims that ‘Zambia is a potential ghost [country]—but because people are not allowed to move across borders, Zambia is not an actual ghost with declining population but is a zombie country (not an actual ghost but the living dead)—trapped into low and falling income and wages by lack of population mobility’.

Despite limitations on migration, the extent of out-migration in African countries is already significant. Of the estimated 150 million migrants globally, 50 million are Africans, the majority of who appear to reside outside the continent. When in-migration takes place to Africa, only Côte d’Ivoire and South Africa are the major countries of immigration. Migration here is driven by livelihood concerns rather than conflict (Black 2004: 5).²³ This is borne out by Konseiga (2007) who notes that the main motivation for out-migration from Burkina Faso to Côte D’Ivoire is survival because of resource scarcity in Burkina Faso.

Climate change may encourage further migration. It has been estimated that even with a modest (1–2 degree) global warming, more than 60 million Africans could be significantly affected by increases in tropical diseases such as malaria alone; many more will be affected by declining crop yields in the northern and southern parts (Stern 2006: 56-7).

Migration is not exclusively an African phenomenon, nor is it recent phenomenon. On a global scale populations are moving (or attempt to move) from poor inland regions toward coastal areas (Venables 2006: 62). Given the proximity-productivity arguments made earlier in this paper, migration should be awarded high priority in the regional cooperation agenda. Explicit recognition needs to be given to the underlying forces driving migration and to the greater overall efficiency that the resulting redistribution of the African labour force would generate²⁴—as well as to the implications of urbanization for the continent. Where (limited) agreements for the free movement of labour have been made in regional contexts in Africa, as in WAEMU, there was a

²² Although much migration from African countries is driven by adverse political/conflict situations, underlying geographic disadvantages are also a strong factor. In Africa a significant proportion of the population is dependent on the extraction and utilization of natural resource extraction which have finite horizons and/or are subject to external demand shocks. For instance, if it becomes uneconomical to extract or utilize these resources, people will need to relocate in search of livelihoods unless an alternative economic base can be successfully established.

²³ Refugees are a relatively small proportion of migrants in Africa, and have peaked at 6.8 million in 1995. African conflicts have resulted in much greater numbers of people being internationally displaced than refugees (Black 2004: 5, 10).

²⁴ Migration can also be a catalyst for entrepreneurship development in Africa, as migrants often save money that is used to start a business on their return. Remittances have also been found to have a positive impact on business start-ups in poor regions (Mesnard and Ravallion 2005).

significant movement of people: WAEMU documented more than 6.4 million migrations between 1988 and 1992 (Konseiga 2007: 198).

5 The role of the international community

Regional cooperation, as discussed here, could be supported by the international community in at least four ways.

The first option is through higher levels of foreign aid, including non-financial aid, such as technical assistance, and linking aid to transport infrastructure with commitments to binding rules on trade facilitation. Here, the criticism and shortcomings of aid,²⁵ should be acknowledged and consideration given to proposals on more generous non-financial aid (Chauvet and Collier 2006), and non-aid support such as security guarantees (proposed by Collier 2006a: 189) although these, given Africa's geography, will be more credible if the continent's transport infrastructure can be improved. Perhaps security issues for international/cross-border transport infrastructure could be a starting point. Funding for infrastructure should also be accompanied by complementary measures to reduce the potential for corruption in infrastructure construction. Corruption constitutes a significant risk that could reduce the extent, quality, returns on, and types of infrastructure investment, and could raise the maintenance costs of infrastructure as well as limit access to it (Collier 2006a: 199-202).

Second, the international community should ensure full implementation and adherence to international law on the rights of landlocked countries to access to the sea. In terms of international law, important agreements that provide landlocked countries with access to the sea include Article V of the General Agreement on Trade and Transport (GATT), the United Nations Convention on the Law of the Sea (1982, 1994) and the UN Convention on the transit trade of landlocked countries (1965). Zanamwe (2005: 38) argues that in many cases these have not been fully implemented, and that GATT Article V needs to be strengthened.

The third channel is through the extension of trade preferences (special and differential treatment) to African regions. Trade preferences are advocated by Collier and Venables (2007) who base their argument on the need for African countries to overcome a threshold effect as a location for international production—because Asian economies have already built up a competitive advantage in this regard. Furthermore, the heavy investments to be made for transport infrastructure in Africa would need to be supported by higher volumes of trade. Trade preferences can result in a positive and substantial export response—as the experience of Mauritius (with its preferences under the MFA) and, more recently, that of many African countries with the African Growth and Opportunity Act (AGOA) prove. However, care must be taken in the design of these preferences to avoid undermining the ability of countries to diversify their export structures (Mold 2005). Gamberoni (2007: 2), for instance, finds evidence that some EU preference schemes have hindered export diversification, either by creating an incentive for countries to specialize in product(s) with preferential access, or by limiting developing-country efforts to open up their markets in general.

²⁵ A discussion of the merits of greater international aid to Africa falls outside the scope of this paper.

The fourth area is though greater consistency in international agreements and trade preferences with regional integration and cooperation schemes in Africa. Currently, the EU is negotiating economic partnership agreements (EPAs) with regional bodies in Africa. Different agreements are in effect being finalized with SACU and SADC members despite overlapping memberships.²⁶ In addition a trade agreement exists between South Africa and the EU. Not only can this process retard regional integration in southern Africa, but the fact of overlapping memberships in RTAs could result in complex rules regarding origin (Sandrey 2006: 42). These rules of origin can, however, have significant impacts on a region's ability to take advantage of trade preference, as Venables (2006) points out.

Through these channels, the international community can assist in the promotion of Africa's regional cooperation on infrastructure investment. But changes in the international economy can also offer opportunities in the way that Africa's regional cooperation approaches the current proximity gap. One of the most significant changes is the increasing importance of Asia in African trade, and in particular, the rise of China (Phillips 2007: 14; Zafar 2007).

Traditionally, the European market has been vital for Africa (which is why the alignment of RTAs and EPAs is important). However, in developing its international trade position and networks, Africa's relationship with Asia—and with China in particular—is crucial for success in managing its industrialization and urbanization. Perhaps too often the perception is that Africa's main market is the EU, where Africa competes the 'competitor'—Asia. In this view the challenge for Africa is merely 'how to compete with Asia' (Collier 2006b: 11) but Asia should not be viewed as a mere competitor—Asia is an important market for African goods, especially from the eastern seaboard. Exports to China and India have the potential of making a significant positive impact on economic growth in SSA (Phillips 2007: 14; Zafar 2007: 103). Studies have already shown that the growth of China and India have had substantial benefits for Latin America through higher commodity prices, cheaper inputs and growing capital inflows, for instance (Bizquez-Lidoy, Rodriquez and Santiso 2006). Similar benefits can be expected for Africa (Zafar 2007), and African countries are beginning to avail themselves of this opportunity. South-south trade is rising dramatically: exports to China and India have been growing 1.7 times faster than the continent's total exports to the rest of the world. Between 1999 and 2004 exports from Africa to China and Indian grew 48 and 14 per cent per annum respectively. In total, 27 per cent of Africa's exports are now destined for Asia (compared to 14 per cent in 2000) which is almost equivalent to the share of its traditional EU markets (Broadman 2007: 11, 2).

Important lessons can also be learned from Asia. For instance, much of the transport systems over the past two decades has been transformed successfully in east and southeast Asia, and the development of Mauritius—often touted as Africa's one successful manufacturing exporter (Bigsten and Söderbom 2006)—has much to do with the linkages to Asia.

²⁶ Overlapping memberships of RTAs (the 'spaghetti bowl') are seen as a complicating factor and a number of current efforts—including the Regional Integration Facilitation Forum (RIFF) in Eastern and Southern Africa—are underway to address these (Mutai 2003). International organizations could provide greater support for these initiatives.

Africa's geography, together with developments in international maritime and air transport, is making trade with Asia increasingly attractive. The technical advances made in new large container-ships and the growth of large transnational freight forwarders managing the logistic chains have driven the development of 'hubports' by large global shipping companies. Increasingly, Africa trade is being transported via the hubports in Asia and the Middle East, replacing direct shipment to its main market, the EU.

Africa could also take advantage of Dubai's development as a transfer centre for air cargo between Europe, the USA and Asia, and of Mauritius's ambitions to develop into an intercontinental air hub for African-Asian trade (Pedersen 2001: 89-90). These advancements could give a further push to African airborne trade; currently about 25 per cent of African exports are transported by air (Venables 2006: 61) and this is likely to increase given the opportunities presented by the growth of China and India.

6 Summary and conclusions

In this paper it was argued that in addition to certain *policy syndromes*, *geographical syndromes* are also central to Africa's poor economic performance. At least two of these syndromes were identified: the *proximity syndrome* which is the cumulative outcome of long distances to markets, being landlocked, and sub-optimal agglomeration patterns, and the *health syndrome* which is, among others, the result of tropical diseases and adverse climatic and soil conditions. The focus in this paper was on Africa's *proximity syndrome*.

Proximity (to markets, customers, suppliers, competitors, supporting industries, governments, etc.) affects African productivity. Productivity is often low because of insufficient proximity between economic agents. This lack of proximity has two dimensions: (i) the lack of proximity between African countries and international markets, and (ii) lack of proximity between economic agents within Africa, due to insufficient agglomeration of economic activity.

If Africa is to develop, progress is needed in two interdependent directions: the continent needs to industrialize and move away from the dependence on primary commodities, and it needs to encourage urbanization. Successful industrialization requires integration into the world economy and will require industry to concentrate on export labour-intensive manufactured goods. Currently, both of these are hindered by the lack of proximity.

It has been argued in this paper that Africa's lack of proximity is largely due to adverse geographical conditions which make investment and productivity growth more expensive than elsewhere. To overcome the proximity gap that has a nonlinear relationship with investment and growth because of the effects of threshold, networking and coordination, a big push may be needed, particularly in infrastructure. The cross-border nature of the required infrastructure investments suggests that regional cooperation is important. Four longer-term issues need to be prioritized in regional cooperation: transport infrastructure, trade facilitation, decentralization and local economic development, and migration. Because incentives for cooperation are not symmetrical, there is the danger that commitments in regional agreements are

incredible. Thus, transport infrastructure should be included in WTO binding rules on trade facilitation to provide third party enforcement. The additional measures discussed for improving the incentives for cooperation included transport corridor design and collective peer pressure by landlocked countries.

Regional cooperation should be supported by the international community through aid, through ensuring full implementation and adherence to international law on the rights of landlocked countries to access to the sea, through extension of trade preferences to African regions and through ensuring greater consistency of international agreements and trade preferences with current regional integration agreements in Africa.

In conclusion, measures for Africa's success in overcoming the proximity gap should include not only higher levels of urbanization, agglomeration, industrialization, and per capita incomes, but also—at least initially—greater spatial inequalities within Africa: between cities and rural areas, and between countries and regions. Such spatial inequalities will come about as a result of the imperatives of achieving economies of scale and specialization in manufacturing, and due to the benefits of localization and urbanization economies in expanding cities. Similar processes are playing out in China. As long as these spatial inequalities are supported by population migration to denser, richer areas, they should be seen as an important route for closing the global spatial disparities between Africa and the rest of the world, and could be a prerequisite for industrial success in Africa.

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