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The Channel Tunnel:
Transport Patterns and Regional Impacts.

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Uneven geographical impacts

"…..there is a serious risk that the net effect of the tunnel-TGV system will be to accentuate disequilibrium and to widen inequalities." (Bruyelle & Thomas, 1994)

"While some locations have taken advantage of the Channel Tunnel and the high-speed rail system to enhance their image, others have been bypassed and some sub-regions face the prospect of spatial and economic marginalisation."

Structure of the Presentation

1. **Some Facts and Figures about the Tunnel**
2. **The Tunnel as a potential catalyst for Regional Economic Development**
3. **Socio-economic impacts on Kent and Nord-Pas-de Calais**
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- Tunnel opened in 1994
- The Tunnel was already served by a high-speed line on the French side immediately
- The Channel Tunnel Rail Link (later renamed High Speed 1) was built in two phases from 1996 onwards and was finally completed in 2007 (Digby, 2008).
- Traffic through the Channel Tunnel falls into three distinct categories
  - The shuttle service (*le Shuttle*) between Folkestone and Calais.
  - Passengers without vehicles use the *Eurostar* service.
  - Freight Services
- Daily connections between London, Paris and Brussels
  - Intermediate stops at stations such as Stratford, Ebbsfleet, Ashford, Calais and Lille.
- *Eurostar* also operates a direct service from London to Marne-la-Vallée (Disneyland Paris) on certain days per week and provides a limited winter service to Moutiers and Bourg St. Maurice in the French Alps as well as a restricted summer service to Avignon (Figure 1).
- Although the Channel Tunnel's overall length is slightly less than that of the Seikan Tunnel in Japan, its submarine section (37.9 kilometres) is the longest in the world.
- London and Paris now have a direct rail connection in just 2 hours 15 minutes and by the end of 2010, over 260 million rail passengers had travelled through the Tunnel, either by *Eurostar* or on the vehicle shuttle.
- The Tunnel also has a wider significance as a symbol of integration and as a potential tool of regional development and it is these aspects which are the principal focus of the present paper.

Eurostar train at St Pancras International

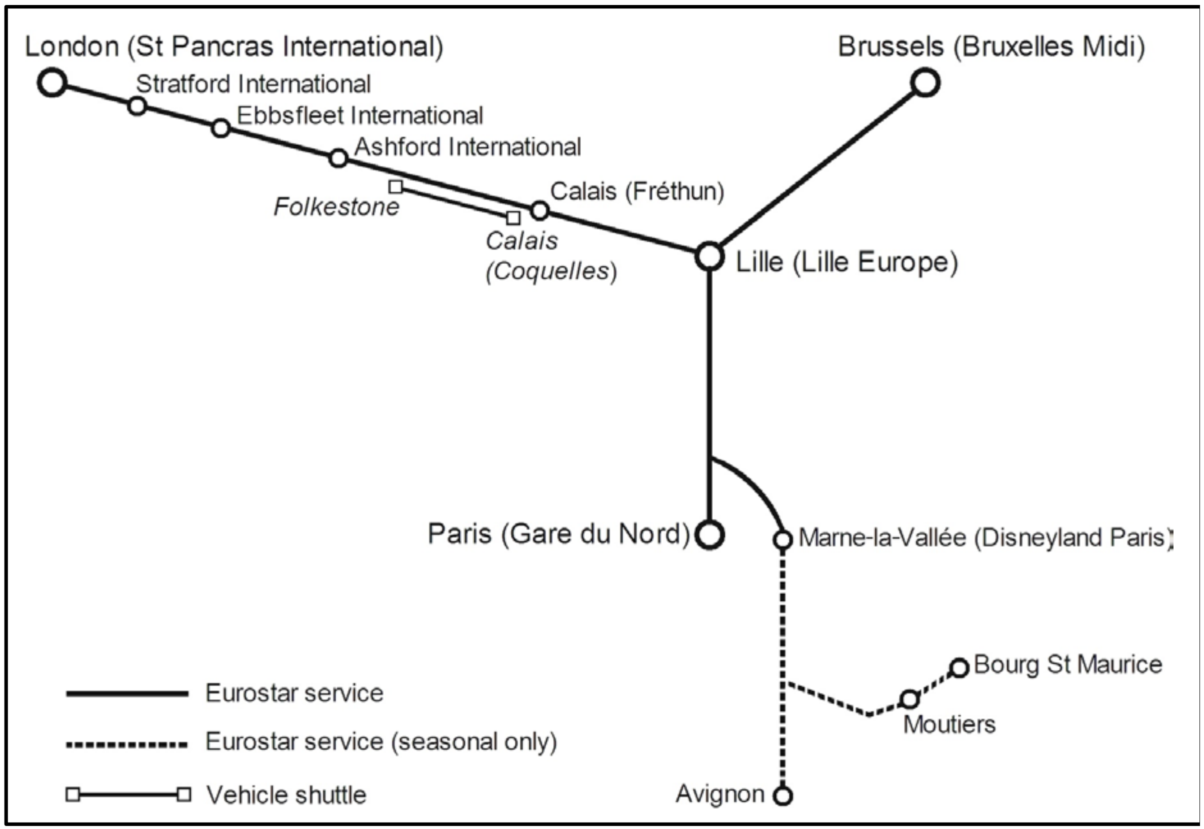

Figure 1. Diagrammatic representaion of the Channel Tunnel and the *Eurostar* rail network.

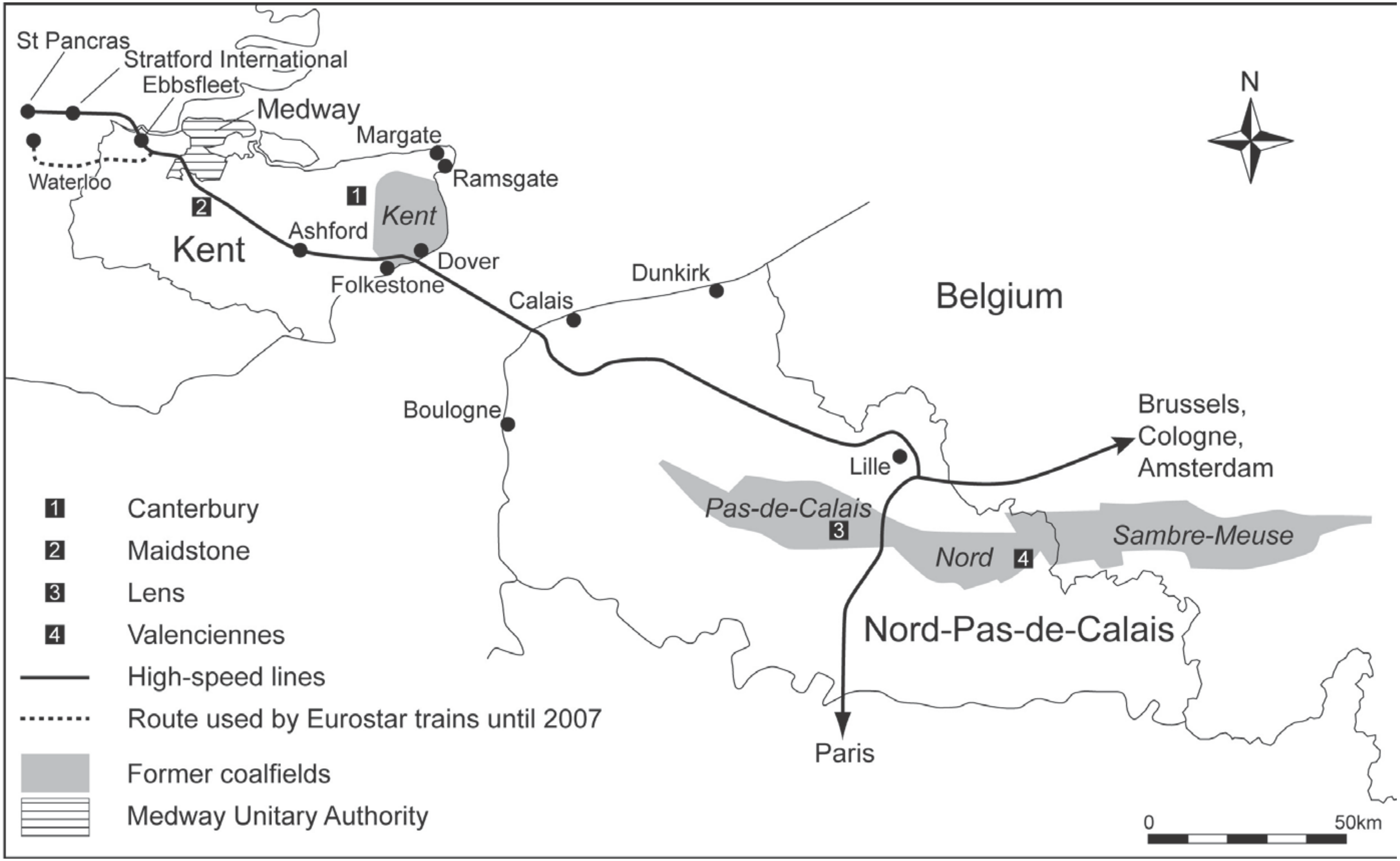

Figure 2. Kent and Nord-Pas-de-Calais in their regional setting.

Table 2. Cross-Channel passenger journeys (thousands) 1994-2010.

	1994	*1996*	*1998*	*2000*	*2002*	*2004*	*2006*	*2008*	*2010*
Kent ferry ports									
Sheerness - Vlissingen	194	81	-	-	-	-	-	-	-
Ramsgate - Dunkirk	1,720	1,195	-	-	-	-	-	-	-
Ramsgate - Ostend	1,801	1,460	161	76	117	148	214	222	186
Dover - Boulogne	21	126	2	3	-	243	738	592	283
Dover - Calais	**18,781**	**18,414**	**18,137**	**14,970**	**15,406**	**13,446**	**11,550**	**11,058**	**10,307**
Dover - Dunkirk	58	4	1	75	445	586	1,512	2,133	2,535
Dover - Ostend	-	-	958	814	266	-	-	-	-
Dover - Zeebrugge	248	216	231	216	212	-	-	-	-
Folkestone - Boulogne	867	856	905	440	-	-	-	-	-
Kent ferry ports total	23,690	22,352	20,396	16,595	16,446	14,423	14,013	14,005	13,311
Channel Tunnel									
Total	316	12,809	19,201	18,298	16,643	16,503	16,968	17,738	18,303
Eurostar	**-**	**4,800**	**6,300**	**7,100**	**6,603**	**7,277**	**7,859**	**9,113**	**9,529**
Vehicle shuttle	**-**	**8,009**	**12,901**	**11,198**	**10,040**	**9,226**	**9,109**	**8,625**	**8,774**
Total (ferry ports and Tunnel)	24,006	35,161	39,597	34,893	33,089	30,926	30,981	31,743	**31,614**
Channel Tunnel's percentage share of all journeys	1	36	48	52	50	53	55	56	58

Sources: Table SPAS0102, Department for Transport, 2011; Eurotunnel Annual Reports and Press Releases.

Table 3. Number of accompanied passenger vehicles (thousands).

	2000	*2002*	*2004*	*2006*	*2008*	*2010*
Dover						
Cars	2,433	2,466	2,507	2,648	2,729	2,729
Buses and coaches	148	148	128	106	98	84
Channel Tunnel						
Cars	2,784	2,336	2,101	2,046	1,907	2,125
Buses and coaches	79	72	63	67	61	57
Dover and Channel Tunnel combined total						
Cars	5,217	4,802	4,608	4,694	4,636	4,854
Buses and coaches	227	220	191	173	159	141
Vehicles via the Channel Tunnel as a percentage of the combined total						
Cars	53	49	46	44	41	44
Buses and coaches	35	33	33	39	38	41

Source: Tables SPAS0401 and SPAS0402, Department for Transport, 2011.

Note: Cars via the Channel Tunnel include minibuses with up to 16 seats.

The Tunnel as a potential catalyst for Regional Economic Development

- In the early-1990s, there were high hopes that the construction of the Channel Tunnel and its associated rail infrastructure would become a catalyst for regional economic growth in Kent and Nord-Pas-de-Calais

- Despite their favoured location within the central economic axis of Western Europe, neither Kent nor Nord-Pas-de-Calais had matched the economic performance of more dynamic regions in France and the UK and, by the mid-1980s, GDP *per capita* in both cases lay well below the West European average

- The relatively poor economic performance of Nord-Pas-de-Calais can largely be attributed to structural factors associated with the decline of the coal-mining, steel and textile industries

- A further handicap for Nord-Pas-de-Calais has been its northerly location in a French state where the sunny south has had an especially strong appeal (Bruyelle and Thomas, 1994).

- Since the 1970s, the region has experienced very high rates of net emigration and its share of the French population fell from 7.44 per cent in 1975 to just 6.48 per cent by 2008 (INSEE, 2008).

- Structural factors also provided part of the explanation for the relatively poor economic performance of East Kent. The Kent coalfield ceased production in 1989 and traditional seaside holiday resorts such as Margate, Ramsgate and Folkestone have struggled to compete with cheap foreign package holidays (Thomas, 2004; Vickerman, 1998).

Table 1. Regional GDP *per capita* relative to the average for EU 15.

	1986	*1996*	*2008*
Belgium	102.8	112.1	103.6
Brussels	**163.3**	**173.1**	**194.6**
Flanders	102.7	115.3	103.6
Wallonia	84.5	89.1	75.5
France	109.8	103.9	96.0
Île-de-France (the Paris Region)	**162.4**	**159.9**	**151.1**
Nord-Pas-de-Calais	**88.2**	**85.4**	**78.1**
UK	98.6	99.8	103.2
South East England	116.1	117.8	134.4
Greater London	**147.5**	**140.4**	**177.0**
Berkshire, Bucks and Oxfordshire	105.9	123.7	138.5
Bedfordshire and Hertfordshire	103.3	102.2	113.3
Surrey, East and West Sussex	93.4	104.5	105.0
Hampshire and the Isle of Wight	101.6	103.5	104.0
Essex	84.9	87.2	86.3
Kent	**86.4**	**91.8**	**83.5**

Source: Authors' calculations derived from Eurostat News Releases, various dates.

Note: Gross Domestic Product (GDP) *per capita* is expressed in purchasing power standards (PPS) as a percentage of the average for EU 15.

- But structural factors only provide part of the explanation for the relatively poor performance of Kent and Nord-Pas-de-Calais.

- A further significant factor is their peripheral location within the national territories of France and the UK. Although close to London in terms of distance, Kent has suffered as a result of its peninsular location and its poor transport links with the rest of the UK.

- Poor access to Heathrow airport and a semi-peripheral location within South East England have restricted Kent's ability to attract employment in growth sectors of the economy

- Kent and Nord-Pas-de-Calais have suffered as a result of their border location.

- Previous studies have shown that proximity to an international boundary can deter inward investment and that boundaries act as institutional and psychological barriers to the development of frontier regions as single economic spaces (Collier and Vickerman, 2001; Vickerman, 1988).

- But the Single Market and the Channel Tunnel project now offered the exciting possibility that Kent and Nord-Pas-de-Calais might at last be able to overcome the handicap of peripherality and instead transform their economic fortunes by exploiting their strategic location at the geographical heart of the West European economy (Thomas, 2006).

Socio-economic impacts on Kent and Nord-Pas-de Calais

- The opening of the Channel Tunnel created the possibility that the *Région Transmanche* would begin to develop as a trans-frontier space in which the Anglo-French border would no longer act as a barrier to social and economic interaction (Séguy, 1998).

- For Kent residents, the Channel Tunnel offered the prospect of a faster journey to France and also a more comfortable and reliable journey than by ferry in the event of bad weather.

- The convenience of the Channel Tunnel also encouraged an increase in leisure travel of all kinds from the UK to France and Belgium,

- *Région Transmanche* has failed to develop as an integrated labour market. In Nord-Pas-de-Calais as a whole, only 1.8 per cent of the resident employed population worked outside France at the time of the 2008 census (INSEE, 2008).

- As Houtum and Van der Velde (2004) have pointed out, group identities are still defined and constrained by international boundaries. In this context, the Dover Strait represents a major linguistic and psychological barrier to the free flow of labour

- By 2001, 39 French firms were operating in Kent (Collier and Vickerman, 2001) and, according to the latest survey by the *Observatoire régional des entreprises à capitaux étrangers,* 95 projects involving investment by British companies have been initiated in Nord-Pas-de-Calais since 1993.

- Nord-Pas-de-Calais currently ranks third among French regions as a focus for foreign inward investment and foreign companies have funded 820 projects in the region since 1993 (La Voix du Nord, 2011). Belgian and German firms together account for over 300 of these and it is likely that the opening of the Channel Tunnel will have influenced some of their decisions, as well as encouraging British firms to invest in northern France.

- However, it is difficult to assess the specific impact of the Channel Tunnel on the economic performance of the *Région Transmanche* or to demonstrate categorically that there has been a positive economic benefit at the regional scale.

- Whereas in 1986, regional GDP *per capita* in Nord-Pas-de-Calais was 88.2 per cent of the EU15 average, this had fallen to just 78.1 per cent of the average by 2008.

- Kent's score on the same measure also fell, though less dramatically, from 86.4 per cent of the EU15 average in 1986 to 83.5 per cent of the average in 2008 (Table 1).

Spatial impacts – Nord-Pas-de-Calais

- In Nord-Pas-de-Calais, most of the benefits of new transport infrastructure have accrued to the city of Lille.

- Lille is also a major hub in the French TGV *(train à grande vitesse)* network and the development of the Euralille complex, adjacent to the new Lille Europe station, has formed a key element in the city's marketing strategy (Moulaert *et al.,* 2001

- The Greater Lille metropolitan area accounted for 87.5 per cent of the net population growth occurring within Nord-Pas-de-Calais between 1990 and 2008 (INSEE, 2008).

- But functional links between Lille and its hinterland are quite limited and Lille's relatively dynamic economy has failed to generate a wider multiplier effect (Dumont and Wackermann, 2002).

- Parts of Nord-Pas-de-Calais are still over-reliant on manufacturing industry and, beyond Lille itself, there has been only limited growth in the knowledge-intensive sector (Chen and Hall, 2011).

- Perhaps most surprising however is the apparent failure of Calais to benefit from the construction of the Channel Tunnel and the high-speed rail link.
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- Although the percentage rate of unemployment in Calais fell by almost three percentage points between 1999 and 2008, its relative position has actually worsened slightly compared with other *zones d'emploi* and in 2008, only Lens-Hénin and Maubeuge exceeded Calais's unemployment rate of 17 per cent

Table 7. The unemployed population as a percentage of the economically active population aged 15-64.

	1999	2008
France	**12.9**	**11.1**
Nord-Pas-de-Calais	**17.7**	**14.9**
Lens-Hénin	22.2	18.6
Maubeuge	20.8	18.0
Calais	19.7	17.0
Valenciennes	22.4	17.0
Roubaix-Tourcoing	18.5	16.6
Douai	19.5	16.0
Boulogne-sur-Mer	19.1	15.0
Dunkerque	17.9	15.0
Cambrai	18.3	14.8
Bethune-Bruay	17.4	14.3
Saint-Omer	15.4	13.6
Lille	14.5	12.9
Berck-Montreuil	14.6	12.3
Arras	12.9	10.9
Flandre-Lys	12.0	9.6

Source: INSEE, *Recensement de la population,* 2008.

Note: Districts of Nord-Pas-de-Calais are ranked according to the percentage unemployment rate in 2008.

Spatial impacts – Kent and Medway

- Although South East England as a whole is a wealthy region, the internal geography of Kent displays a marked contrast between west and east

- While it was hoped that the opening of the Channel Tunnel and the high-speed rail link would be of economic benefit to East Kent, there is limited evidence of this.

- Between 1994 and 1999, Thanet was designated as an assisted area, however the relative performance of the Thanet district declined significantly between 1998 and 2010 (Table 8).

- Following the completion of the HS1 rail link between the Channel Tunnel and London St Pancras in 2007, a new generation of Hitachi commuter trains was introduced in 2009. These 'high-speed' trains use the Channel Tunnel rail link for all or part of their journey, thereby reducing journey times from Kent to London.

- Ashford is the greatest beneficiary, with a commuter service to St Pancras in 37 minutes. High-speed trains from Canterbury also run on high-speed track via Ashford for most of their journey and reach St Pancras within one hour.

- But other locations in North and East Kent are much less well served due to poorer access to the high-speed system.

- Further constraints in the case of Kent relate to the urban geography of the county and to the poor relationship between this and the chosen route of the high-speed line.

- But there is no Kentish counterpart to Lille.

- Medway Unitary Authority contains the largest urban area within the combined territory of Kent and Medway; but its population is only one fifth the size of Greater Lille. Neither Medway nor Maidstone (the administrative capital of Kent) is served by a station on the high-speed line.

- Instead, one station serving Kent is located west of Medway at Ebbsfleet (close to a brownfield site on which future urban development is proposed) and the other is at Ashford in East Kent (Figure 2).

Table 8. Median full-time weekly earnings as a percentage of the Great Britain average.

	Earnings by residence	*Earnings by workplace*	
	2010	**1998**	**2010**
South East	109.17	104.32	104.66
Kent	105.70	96.25	97.66
Sevenoaks	122.22	101.46	104.60
Tunbridge Wells	118.29	94.55	96.52
Dartford	112.16	109.41	111.25
Maidstone	110.96	92.82	94.78
Tonbridge and Malling	110.04	109.14	106.87
Gravesham	109.80	98.81	106.10
Swale	**104.26**	**101.22**	**97.06**
Canterbury	**101.95**	**86.48**	**92.29**
Dover	**101.63**	**98.93**	**101.96**
Shepway	**95.82**	**86.12**	**90.99**
Ashford	**93.92**	**98.72**	**93.53**
Thanet	**80.01**	**85.41**	**73.72**
Medway	103.35	106.28	100.92

Source: Annual Surveys of Hours and Earnings, Office of National Statistics, 1998 and 2010.

Note: Districts of Kent are ranked according to earnings by residence in 2010.

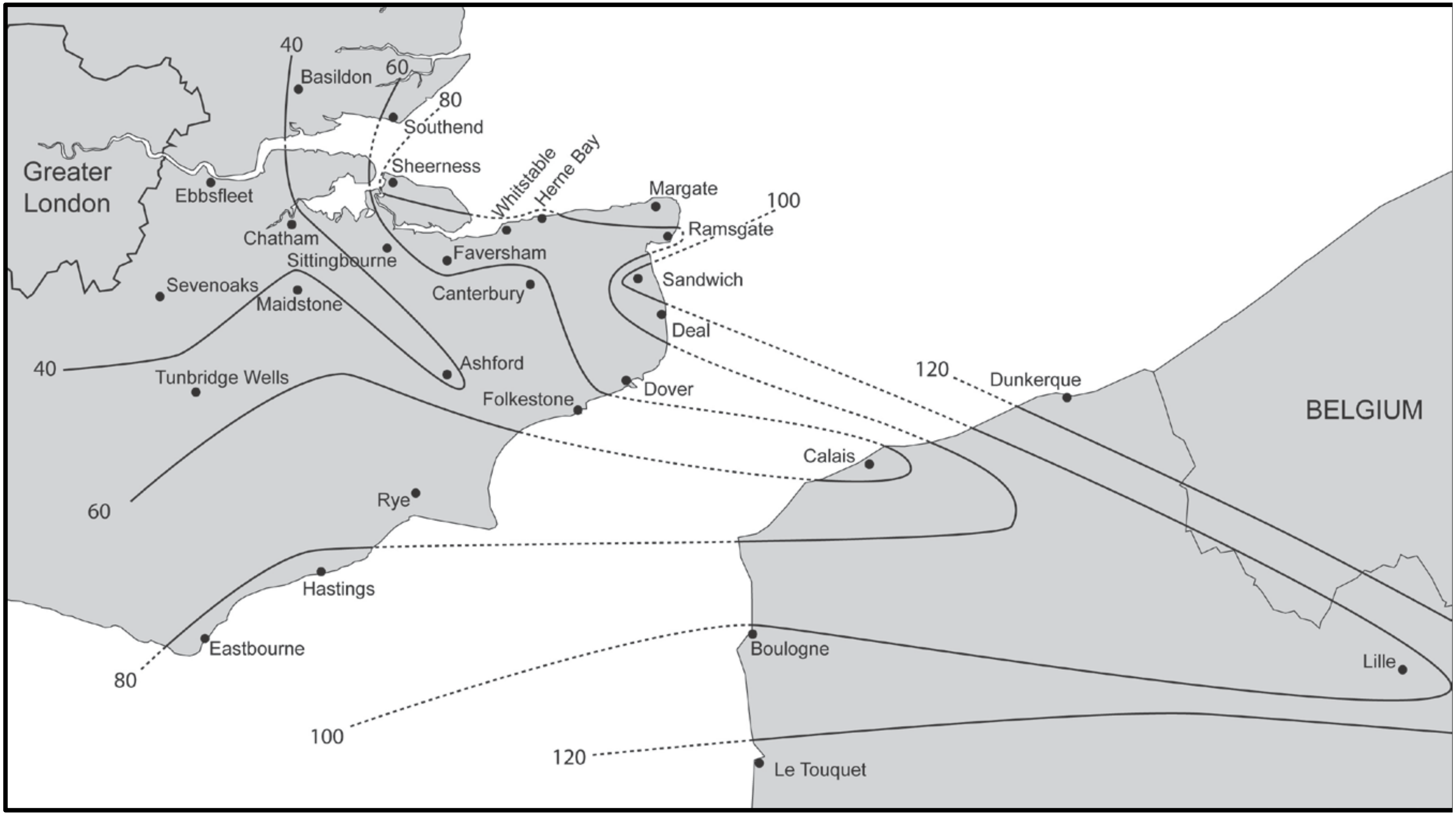

Figure 5. Fastest journey times from London by rail in minutes (weekdays, November 2011).

Source: Authors' calculations from published timetables.

Ashford as a potential growth pole

- Ashford had already been identified as a potential growth centre during the 1960s and its designation was confirmed in the *Strategic Plan for the South East* (Keeble, 1970).
- The opening of the international station in 1996 therefore represented a fresh opportunity to stimulate economic growth by exploiting Ashford's direct rail connections to continental Europe.
- Ashford's profile was raised further in 2003 when it was named by the UK government as one of four major growth zones in South East England (Office of the Deputy Prime Minister, 2003).
- The strategy set ambitious goals of 31,000 new homes and 28,000 new jobs to be created by 2031. The completion of the high-speed rail link, together with an ambitious urban expansion strategy, now gave Ashford the opportunity to replicate the '*garopolis*' model of rapid growth stimulated by fast rail links, as described by Hall (1993) in the context of provincial France.
- Following the opening of Ebbsfleet International in 2007, Ashford lost its status as the only international station in Kent and the frequency of its *Eurostar* service was significantly reduced.
- But the pessimistic scenario focusing on the likely threat to Ashford from Ebbsfleet was possibly premature and certainly incomplete in its assessment of Ashford's prospects.
- As Vickerman (1994) has suggested, the subjective impacts of new transport infrastructure can be just as important as the purely objective effects in changing attitudes. Whereas Ashford hitherto had been seen as a rather anonymous town which lacked a clear identity, the opening of the international station was a major boost to the town's self-image.
- Vivid depictions of the *Eurostar* service were used to re-brand Ashford as a town with European connections. Moreover, infrastructure projects associated with Ashford's £2.5 billion urban development strategy have also helped to promote a new external image of Ashford as a town with an exciting future and as 'the new hub for business in the South East'.
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- New projects involving substantial capital investment include the upgrading of motorway junctions on the M20, the phased development of the Eureka Business Park as a flagship project and the opening of the McArthurGlen Designer Outlet as a major retail complex. 5,000 new homes have also been built since 2001 and since 1995,

Table 9. Selected growth indicators for Kent and Medway districts.

	Total population				*Number of business enterprises*			
	1995	*2010*	*net change*	*% change*	*2004*	*2009*	*net change*	*% change*
England	48,383,500	52,234,000	3,850,500	7.96	1,885,265	2,040,150	154,885	8.22
South East	7,763,000	8,523,100	760,100	9.79	353,770	375,595	21,825	6.17
Kent and Medway	1,535,200	1,684,100	148,900	9.70	59,755	63,420	3,665	6.13
Ashford	**95,100**	**115,500**	**20,400**	**21.45**	**4,875**	**5,400**	**525**	**10.77**
Canterbury	130,700	153,200	22,500	17.21	4,725	5,030	305	6.46
Tonbridge / Malling	103,500	118,800	15,300	14.78	4,810	5,295	485	10.08
Dartford	82,600	94,600	12,000	14.53	2,970	3,280	310	10.44
Swale	117,600	133,400	15,800	13.44	4,225	4,460	235	5.56
Maidstone	137,400	149,800	12,400	9.02	6,410	6,770	360	5.62
Shepway	94,000	101,200	7,200	7.66	3,405	3,565	160	4.70
Gravesham	93,400	99,600	6,200	6.64	3,005	3,100	95	3.16
Thanet	124,300	132,200	7,900	6.36	3,490	3,630	140	4.01
Medway	241,400	256,700	15,300	6.34	7,080	7,320	240	3.39
Sevenoaks	108,400	114,100	5,700	5.26	5,940	6,385	445	7.49
Tunbridge Wells	102,800	108,200	5,400	5.25	5,735	6,045	310	5.41
Dover	104,100	106,900	2,800	2.69	3,085	3,140	55	1.78

Sources: Mid-year population estimates, Office for National Statistics; *Business Demography,* Kent County Council Research and Intelligence, 2011.

Note: Districts within Kent and Medway are ranked according to the percentage rate of population change between 1995 and 2010.

- Ashford’s population has grown at a faster rate than that of any district in Kent.
- It is very clear from the growth indicators that Ashford has outperformed other districts within East Kent.
- But Ashford is the exception within East Kent and its prospects are far more favourable. Ashford’s fast rail connection to London St Pancras already ties it firmly to the capital and it is this link which will provide the essential catalyst for further expansion, thereby ensuring Ashford’s future success.
- The construction of High Speed 1 was an integral part of the Channel Tunnel project and since 2009 two high-speed trains per hour have linked Ashford to London in just 37 minutes.
- This has already enabled Ashford and the surrounding villages to attract an influx of commuters.
- Ashford is actively exploiting the high-speed link with London as a key element in its promotional strategy. Using the slogan ‘Ashford – best placed in Britain’.
- Ashford has launched a vigorous marketing campaign to attract inward investment and in particular to entice companies to relocate from London.
- .If this marketing strategy succeeds, it is possible that Ashford, in its relations to London, might in due course even emulate the city of Lille, which in effect now functions as part of the Paris Region, thanks to its fast rail link to the French capital in just one hour (Chen and Hall, 2011). In this respect, with its connection to London in only 37 minutes, Ashford is perhaps even better placed than Lille.

Impacts on metropolitan areas beyond Kent and Nord-Pas-de-Calais

- The benefits of reduced journey times are likely to be concentrated on the major nodes (London, Paris, Brussels and Lille) rather than on the intervening spaces between these (Bruyelle *et al.,* 1996).
- It is likely also that direct *Eurostar* services from the UK to Marne-la-Vallée near Paris have contributed to the success of the Disneyland Paris resort.
- The high-speed rail link has also had a major impact on the changing geography of the Thames Gateway
- As well as large tracts of derelict land and "the largest brownfield urban development opportunity in Europe" (Pacione, 2007, p. 257) the Thames Gateway also includes some of the most deprived urban areas in Britain.
- A central aim of the strategy therefore was to diversify employment opportunities, thereby reducing the marked imbalance in incomes between the west and east sides of London (Page, 1993).
- East London has also received a major boost as a result of London's successful bid to host the 2012 Olympics, with total expenditure on the Olympic Park and associated facilities likely to exceed £3 billion (Kelso, 2007).
- The Olympic Park is located mainly in the borough of Newham, one of the poorest in England, and the opportunity to use the Olympics to regenerate a deprived urban area was undoubtedly one reason for the success of the London bid.
- The landscape of the Lower Lea Valley has been transformed and Stratford, where it is hoped to create 34,000 jobs, is developing as a significant urban node.
- But, with the urgent focus on the Olympics, most new investment has gone to East London, rather than to the Thames Gateway zone as a whole.
- The Bluewater shopping centre, near Ebbsfleet International station, is one of the few substantial investments located in the Kent section of the Thames Gateway and it is likely that the multiplier effects associated with the 2012 Olympics will be a further boost for metropolitan London, rather than for Kent or Essex.

Conclusion – the overall impacts of the Channel Tunnel

- As well as being one of the largest engineering projects of the twentieth century, the Channel Tunnel also became a powerful symbol of integration and a pointer towards a European future without borders (Darian-Smith, 1999).

- The Channel Tunnel is only one of the means by which the Dover Strait can be crossed and its overall impacts have been both more limited and less universally positive than had been anticipated.

- For a variety of reasons, the Channel Tunnel has not displaced the ferries but instead operates alongside them, as one element in a mixed system of cross-Channel provision.

- The English Channel still represents a significant physical and cultural and psychological barrier.

- The overall impact of the Channel Tunnel on the regional economies of Kent and Nord-Pas-de-Calais has been quite limited.

- Spatial inequalities seem to have been reinforced by the high-speed rail system, as indeed was predicted in the academic literature (Bruyelle and Thomas, 1994; Vickerman, 1994).

- While the Channel Tunnel terminals are located in East Kent and in the coastal zone of Nord-Pas-de-Calais these immediate areas appear to have gained relatively little. One exception appears to be Ashford.

- The Channel Tunnel system has undoubtedly had a significant impact on Western Europe's changing geography, though evidence of its impact can be found just as much in locations such as the Olympic Park in East London or in Lille as in Kent or Nord-Pas-de-Calais.