Deconcentration and commuter traffic: trends and policies in the Netherlands

1 Introduction

Like in most other European countries, commuter traffic has become a mass phenomenon in the Netherlands in the 1960s. Until recently, the continuous growth of commuter traffic was easy to explain. Because more and more people moved out of the cities but kept working in those same cities, the distance between home and work grew, and with cars getting affordable for broader segments of society, more and more people could afford to live at increasing distances from their workplace. From the start, mass commuting was mostly taking place by car. Government and business incentives like tax deduction for kilometres travelled from home to work, car leasing and “company cars” only added to the spectacular growth of car commuting in the Netherlands.

In recent years, however, jobs have become more deconcentrated, too. An increasing share of people is working in city-edge and (post-)suburban office complexes. Relatively new cities and former suburbs that started as pure residential areas, like the planned new towns of the 1970s and 1980s, have meanwhile become major job concentrations as well. Nevertheless, commuting and especially car commuting kept growing and so did the distances between home and work, albeit very slowly. Apparently, even though more and more jobs “moved to the people” in the (former) suburbs and new towns, this did not lead to a better match between residential and job locations.

This article discusses recent empirical evidence of trends in commuter traffic in the Netherlands and the extent to which deconcentration tendencies of people and jobs have influenced these commuter traffic trends. It will pay specific attention to the Amsterdam urban region, which is probably the most advanced part of the Netherlands in terms of the development from a monocentric towards a polycentric urban region.1

2 Suburbanisation and the rise of commuter traffic in the Netherlands: long-term trends and national policies

Although a first significant wave of residential suburbanisation in the Netherlands could already be observed in the early 20th century2, it did not become a mass phenomenon until the 1960s. A rapid rise of wages in the early 1960s and the increasing availability and affordability of the private car were the main engines behind the upsurge of suburbanisation. An additional push factor was the poor state of maintenance of many neighbourhoods in the large cities, in particular the 19th-century city extensions. More in general, the large cities were seen as an unhealthy, unpleasant and unsafe living environment in those days, especially among families with young children.3 Most suburbanisation in the 1960s and 1970s took place within a radius of about 30 km around the large cities Amsterdam, Rotterdam, The Hague and Utrecht. To a lesser extent, the medium-sized cities also lost inhabitants to their suburban surroundings, but this loss was partly or completely compensated by in-migration from the largest cities.

In the initial phase of this mass suburbanisation, most suburbanites kept working in or very close to the large cities. The vast majority of commuters travelled to and from their workplace by car. Therefore, mass commuter traffic to and from the large cities also emerged as a new phenomenon which soon became problematic. The very first traffic jam in the Netherlands, in 1955, was not connected to commuting at all: it was the result of mass leisure traffic on a sunny day, for which the then still very modest highway network of the Netherlands apparently was not prepared yet. From the late 1960s on, however, most traffic jams were directly or indirectly connected to mass commuting. Since then, the amount of traffic jams, as well as their length in distance and time, has continuously increased. Between 1990 and 2003, the number of car commutes in

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the morning rush hour has increased with no less than 25%.4

The position of the Dutch government towards suburbanisation and commuting has always been very ambiguous.5 At first, suburbanisation was even encouraged in the context of the negative image of the large cities in the 1960s. With the policy of “clustered deconcentration”, the Dutch physical planners tried to prevent two undesired settlement developments at once: on the one hand, putting a limit to further expansion of the large cities to true metropolises; on the other, trying to limit the loss of agricultural and nature areas to urban sprawl. Suburbanisation was allowed to take place, even to accelerate, but it should largely be channelled into a small number of new and expanded towns, or “growth centres” in the Dutch terminology. Existing small cities like Alkmaar, Hoorn and Purmerend, and villages like Hoofddorp and Zoetermeer, were selected to be expanded with mass suburban housing, mainly in the social rental sector. Also, two completely new cities were planned: Almere and Lelystad. However, while residential construction in those growth centres was subsidised and encouraged, the Dutch government hardly invested in the employment base of the growth centres. A part of the growth centres was actually destined by the physical planners to become new regional economic centres as well, but they were mainly supposed to do this on their own strength. The optimistic expectation was that many companies would follow the people from the large cities to the growth centres on their own initiative, but this did not happen. It took until the 1990s, a decade of rapid employment growth in the Netherlands, before most growth centres finally managed to expand their employment base significantly.6 In the meantime, many migrants from the large cities to the growth centres had no other choice than to commute to the large cities. The intensity of car commuter traffic was increased even more while some of the growth centres, the new towns of Almere and Lelystad in particular, had to wait many years until they got connected to the national railway system.

The switch to a compact city policy in the mid-1980s took place in the context of an increasing environmental consciousness and the increasing recognition of the negative impact of suburbanisation on liveability in the large cities. In addition, the large cities showed clear signs of recovery and enjoyed a more positive image after a quite successful urban renewal programme in the 1970s and 1980s. Two of the key priorities of the compact city policy were to decrease commuter distances and encourage the use of public transport instead of the private car. This resulted 1993 with the “Vierde Nota Ruimtelijke Ordening Extra” in the VINEX-locations, large-scale residential areas in or directly attached to the large and medium-sized cities; and in the internationally famous policy of A-, B- and C-locations for companies. A-locations were situated near railway stations in inner-city areas; B-locations were planned at city edges near multimodal traffic nodes; and C-locations only had direct highway access. It was clear that the Dutch government strongly preferred A-locations and to a lesser extent also B-locations. Meanwhile, it has become clear that developers and companies have other location preferences. The B-locations can still be called quite successful, but most planned A-locations have failed to materialise.7 The least wanted type of locations, the C-locations, have rapidly grown in number despite the restrictive planning policies. The opinions on the success of the residential VINEX-locations are mixed. Most of them seem to reach their quantitative building targets, though with considerable delays. If the VINEX-locations have also contributed to a decrease of commuting distances and of the share of car commuting is still an unanswered question. We will return to this issue in the next section.

Around the turn of the century, sustainable urban and economic development seemed to have claimed a prominent place on the Dutch political and societal agenda. Many ambitious plans for sustainable business parks and sustainable transport were announced. The fact that employment had meanwhile deconcentrated to a larger extent, too, and that several mono-functional suburban places were transforming into a multifunctional “post-suburbia”, seemed to fit into those plans quite well.8 Finally, it looked like the “jobs were coming to the people” in the (former) suburbs. However, after some years of exuberant economic and employment growth, the Dutch
economy was hit by a severe crisis in the aftermath of “9-11”. The political agenda of national and local governments has also shifted considerably in recent years. Unfortunately, looking at the most recent policy initiatives and the results of recent opinion polls, sustainability is no longer an important priority for Dutch citizens and politicians. Parallel to this, the aim to put a stop to the further increase of car traffic and general and car commuter traffic in particular has disappeared. National public transport investments focus much more on prestigious projects like high speed trains than on improving regional networks; highway bottlenecks are mainly targeted with measures like additional highway lanes and tunnels, instead of with attempts to reduce car use; and various attempts to introduce road pricing have failed or been postponed under pressure of the strong private car lobby. The use of the private car is fiscally attractive because of significant tax deductions for kilometres travelled to and from work. Many companies make car use even more attractive by offering company cars or tempting lease contracts. In the most recent national mobility programme, the main aim is to reduce uncertainty of travel times, instead of reducing car use and trip length in terms of distance and time. Apparently, the traffic jams around the large cities have been accepted as a fact of life and it looks like they will not get less in the decades to come. The loss of ambition in physical planning policy, where the aim to prevent urban sprawl seems to have been abandoned for good, only makes a further increase in commuting distances and car commuting more likely.

3 Recent national trends in commuter traffic

The most important recent trends in commuter traffic in the Netherlands will now be presented briefly to put the following regional case of the Amsterdam urban region in its proper national perspective. First, all recent data with relation to commuter traffic available from Statistics Netherlands point at a further increase of the dominance of the private car drivers in commuter traffic. While the total amount of people commuting rose with 13 % between 1996 and 2002, the number of car-driving commuters rose with 23 % in the same period. At the same time, the number of non-driving car passengers decreased with 20 %. A large part of these two trends can be explained by the rising phenomenon of the second (and sometimes even third) car in an increasing number of households. Another part of the rising share of car-driving commuters is related to the rising labour participation, especially among women, while yet another part might be explained by the location shifts of job concentrations, increasingly moving to highway locations and away from direct public transport access. While this rise in car drivers among commuters is of course not an exclusive Dutch phenomenon, a much more specific Dutch trend is that the bicycle continues to be the main competitor of the car in short-distance commutes. In 2002, about 60 % of commuters were either car drivers or car passengers; 25 % used their bicycle to get to work; and only 10 % used public transport.10

Table 1 illustrates these shifts in transport means of commuters for a slightly longer period, between 1996 and 2003, combined

<table>
<thead>
<tr>
<th>Mode of transport</th>
<th>Nr. of home-work travellers (x 1,000)</th>
<th>Average distance in km</th>
<th>Average time in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car drivers</td>
<td>2,338</td>
<td>2,791</td>
<td>21.9</td>
</tr>
<tr>
<td>Car passengers</td>
<td>399</td>
<td>285</td>
<td>22.3</td>
</tr>
<tr>
<td>Cyclists</td>
<td>1,113</td>
<td>1,270</td>
<td>4.4</td>
</tr>
<tr>
<td>By train</td>
<td>212</td>
<td>260</td>
<td>43.4</td>
</tr>
<tr>
<td>By bus/tram/subway</td>
<td>204</td>
<td>244</td>
<td>12.1</td>
</tr>
<tr>
<td>Mopeds, scooters</td>
<td>94</td>
<td>83</td>
<td>8.6</td>
</tr>
<tr>
<td>On foot</td>
<td>255</td>
<td>173</td>
<td>1.4</td>
</tr>
<tr>
<td>Other</td>
<td>72</td>
<td>78</td>
<td>22.8</td>
</tr>
<tr>
<td>Total</td>
<td>4,687</td>
<td>5,184</td>
<td>17.0</td>
</tr>
</tbody>
</table>

Source: Statistics Netherlands, Daily Mobility Survey
with two other, more surprising trends: a remarkable stability both in commuting distances and in commuting times. Apparently, the growth in mobility in general and car mobility in particular is much more a growth in volume than a growth in distance and time travelled: more trips of about the same length instead of longer trips.

The connections between trends in commuter traffic and the changing geographies of residences and work places have recently been explored in several studies of Dutch academics and government research and advisory agencies:

Vliegen and Oroh have used the “Dutch Virtual Census” to study trends in commuting at the national, municipal and urban regional level.\(^{11}\) This “Virtual Census” is a combination of several large-scale surveys of the Dutch population, compensating for the lack of an actual census that was no longer held in the Netherlands after 1971. The researchers demonstrate the enormous growth of the commuting phenomenon. In 1947, 544 000 people were working outside their residential municipality. This figure had already risen to 1.62 million in 1971, and after that, growth accelerated further to result in 3.79 million commuters in 2001. They also found a significant relation between the urbanisation level of a municipality (measured with the indicator address density) and the extent of inbound and outbound commuting. Despite job deconcentration, the most urbanised municipalities still showed the absolutely and relatively highest scores on inbound commuting, while the least urbanised municipalities scored highest on outbound commuting. Looking at commuting within and across regional borders (using the NUTS-3 level of so called COROP regions), Vliegen and Oroh found the highest level of commuting between Amsterdam and its neighbouring regions. This is a logical outcome as the regions surrounding Amsterdam were the main destination of residential suburbanisation from Amsterdam since the 1960s. These findings also indicate that the official regional division into these COROP-regions, defined in 1971 and amongst others based on the commuting patterns back then, is no longer suited to determine the geographic scale of commuting, at least not in the case of the Amsterdam urban region.

Van Ham, Mulder and Hooimeijer addressed the commuting phenomenon from another angle.\(^{12}\) They looked at the match between residential location and job location, more specifically the extent to which the number of jobs within reach in a reasonable amount of time influenced the preferred residential location of various household categories. They point at the effects of recent job deconcentration, contributing to a more polycentric urban regional structure. This has probably brought more jobs within reach for suburban households, but also decreased the number of jobs to be reached by inner-city households, especially those that cannot afford a car. The researchers conclude from their job location database that the ideal residential location of workers depends strongly on their “commuting tolerance”, which is the number of minutes one is willing to travel to work. For people that have no problems with commuting 30 to 45 minutes, it then appears to be smarter to look for a residence in-between the large cities than within or close to one of these cities. On such an “in-between” suburban or peri-urban location, workers can orient on more than one urban regional labour market, which is especially relevant for two-earner households and those working in advanced services.

Schwanen, Dieleman and Dijst compared the commuting patterns of workers in 26 urban areas in the Netherlands, using data from the Daily Mobility Survey of 1998.\(^{13}\) This is a yearly survey of Statistics Netherlands in which about 70,000 households across the country are asked to provide a trip dairy. The respondents report on their trip motives, trip duration, start and end location of each trip, and the means of transport used. From this general mobility overview, the researchers selected about 15,000 commuting trips for their analysis. They compared four types of urban regions: centralized (the traditional monocentric region), decentralized (with a large share of jobs located in suburban areas), cross-commuting (polycentric regions in which most people work close to home) and exchange-commuting (with many commuters from suburb to city and vice
versa). Schwanen et al. found evidence of considerable variation between those types of regions in commuting distances and the means of transport used. The most striking outcome, contrary to ‘conventional wisdom’ from many other studies (mainly from the US) is that polycentric urban regions do not show less commuting by car than monocentric regions. This contrast with US results might be related to the differences in direct and indirect government influence on spatial development in urban regions, as well as the different geographic scale of urban regions (much smaller in the Netherlands than in most other countries). The researchers suggest also, however, a relation to differences in attitude towards residential migration and changing job locations between the Dutch and the Americans, with the Dutch being generally much less mobile.

Finally, Snellen evaluates the extent to which the compact city policy has reached its mobility goals. As mentioned before, the combination of the residential VINEX locations in and close to existing built-up areas of cities and the A-B-C location policy for business sites was meant to reduce or at least stop the further growth of commuting distances and the share of private car use in commuting. Snellen compares two types of VINEX sites (inner-city redevelopment and new construction at city boundaries) with comparable recent residential projects that were not part of the VINEX compact city programme. Unfortunately, she does not look at commuting in particular, but at the total amount and distance of daily trips. This results in a positive effect of the inner-city redevelopment sites of VINEX on mobility behaviour: residents of those areas travel less distance per day and do so much less by car. All other location types show a higher than average car use and higher than average travelling distance per day. The differences are mainly explained by spatial characteristics like distance to the nearest city centre and to the nearest railway station, but partly also by differences in household type and lifestyle between the populations of the location types. The differences between the location types, however, are rather small, so the actual effect of physical planning policies on mobility behaviour should not be overestimated.

Now the focus will be on the functional urban region of Amsterdam, which is not only clearly the largest region in surface, but also the most advanced in terms of the shift from a monocentric to a polycentric urban region in the Netherlands. Earlier, it was indicated that the official regional division of the Netherlands at the NUTS-3 level (the COROP regions) did not reflect the actual scale of commuter relationships anymore, especially not in the Amsterdam area. Therefore, the following analysis includes a considerably larger area, consisting of several adjacent COROP regions and parts of such regions and based on the results of various mobility, housing market and labour market analyses.

Figure 1 shows the area considered as a functionally coherent whole which could be called the Amsterdam urban region. The borders of this region, which are probably less rigid than suggested by this map, mainly coincide with the area within which at least 10% of the employed inhabitants commutes either to Amsterdam or its agglomeration, or to one of the six regional sub-centres.

The extent to which the Amsterdam urban region has indeed become polycentric...
is demonstrated in Table 2. In 2000, the six sub-centres of the region (Haarlem, Haarlemmermeer, Almere, Alkmaar, Zaanstad and Amstelveen) already had almost as many inhabitants as the traditional core city, Amsterdam. Almere in particular grew rapidly and has meanwhile become the second centre of the region after Amsterdam. Actually, Amsterdam only has about 29% of the total regional population left; this share used to be much higher in a not too distant past.\(^{14}\) In terms of jobs, Amsterdam was still slightly more dominant, but still, only about one-third of the regional jobs were located within the Amsterdam borders in 2000. The share of Amsterdam in regional employment has also declined in recent decades, while the share of the six sub-centres grew fast. The major part of this growth took place in Haarlemmermeer and Almere, two municipalities that recently transformed from suburban to “post-suburban” in terms of an increasing functional mix and an increasing importance as job locations.\(^{17}\) The fast growth of employment in Haarlemmermeer is largely explained by the presence of the national airport, Schiphol, on its territory.

One would expect that with this increasing deconcentration of jobs, commuting to Amsterdam from other parts of the region would decrease. So far, however, empirical evidence points in the opposite direction. Between 1994 and 2001, the (estimated) absolute number of inbound commuters working in Amsterdam rose from about 155,000 to about 170,000. Although the number of jobs in Amsterdam was growing at an almost equal pace, the share of inbound commuters at Amsterdam workplaces remained almost stable at about 42%. At the same time, about 25% of people living in Amsterdam left their city to work in other municipalities, a share that slightly decreased between 1994 and 2001.\(^{18}\) Both the share of inbound and that of outbound commuters of Amsterdam indicate that commuting to the traditional core city, despite the gradually more equal spread of jobs across the region through deconcentration, remains a mass phenomenon. Contrary to what would be expected as an effect of job deconcentration, inbound commuting to Amsterdam is not decreasing, but outbound commuting from Amsterdam is! A part of the explanation might lie in the fact that even though the sub-centres and the neighbouring municipalities had considerably faster job growth than Amsterdam, the city itself also managed to create new job concentrations at its edges. New employment centres like the South Axis, Amsterdam Southeast and Teleport, all along the A10 ring road, are actually also the result of job deconcentration, but this part of the trend remained within the municipal boundaries of Amsterdam.\(^{19}\)

The focus will now move from the traditional core city Amsterdam to the two fastest growing employment concentrations of recent decades, Haarlemmermeer and Almere. The commuting patterns of these two “new economic poles” show some similarities, but also striking differences. The presence of Schiphol airport and its very rapid employment growth in the 1990s has turned Haarlemmermeer into an exchange commuting area. While many inhabitants of Haarlemmermeer still work outside their own municipality, fitting the traditional suburban picture, the municipality attracts many inbound commuters at the same time, which is much less what we would expect in a suburban area. In 2001, 82,500 people commuted to their workplace in Haarlemmermeer from other municipalities, while 30,500 residents of Haarlemmermeer commuted to workplaces outside their municipality. Of the local working population of 56,600, only 46% (26,100) worked in their own municipality, even though Haarlemmermeer had almost twice as much jobs as people in the working population.\(^{20}\) This is a clear indication that commuting patterns in the Amsterdam region have become more complex than planners tend to think. Apparently, locating large employment complexes close to large-scale suburban residential areas does not
always result in low commuting scores. The dynamics in commuting from and to Haarlemmermeer in recent years do not point at a decrease in commuting; a further growth of commuting is actually more likely in the coming years.

More than half of the inbound commuting in Haarlemmermeer goes to Schiphol Airport. The Dutch national airport appears to attract its employees across a considerable part of the Netherlands, far beyond the borders of the municipality and even beyond the Amsterdam urban region. Schiphol probably is one of the few employers in the Randstad area that already has a "Randstad reach" in terms of commuting relations (Figure 2).

Interestingly, the municipality with most Schiphol employees among its residents is not Haarlemmermeer, but Amsterdam. About 60% of Schiphol employees live in the Amsterdam region; most others live elsewhere in the province of North Holland or other provinces in the Randstad, the densely urbanised zone including the four largest cities of the Netherlands.

Almere, on the other hand, still demonstrates the commuting pattern typical of a residential suburban area, despite the fact that it has meanwhile become a city of respectable size. Almere had about 175,000 inhabitants in early 2005, and plans for future growth aim at 300,000 or even 400,000 inhabitants. Like Haarlemmermeer, Almere was one of the "growth centres" in the policy of clustered deconcentration in the 1970s and 1980s. The development of employment and service facilities has lagged behind the extremely rapid population growth for decades. Only recently, Almere could finally also enjoy fast employment growth. Employment growth in the 1990s and early 2000s has been abundant, meanwhile resulting in over 50,000 jobs in Almere. However, this amount of jobs still is far too little to cater for the working population of the city, apart from the fact that a part of these jobs are occupied by inbound commuters from neighbouring municipalities. The contrast with Haarlemmermeer is striking: Haarlemmermeer had 144 jobs per 100 inhabitants in 2003; Almere only had 51 jobs per 100 inhabitants.21

However, looking at recent data on the relation between place of residence and place of work in Almere, it seems like the growth of commuting out of Almere has ended. Figure 3 shows not only a slight decline of outbound and inbound commuting, but also a quite spectacular growth of Almere residents working in their own municipality. If this is the start of a long-term trend, this would certainly be welcomed by local, regional and national physical planners and traffic planners. We should be cautious with drawing such a conclusion already, however; the figures only cover a three-year period and the recent Dutch economic recession has probably had a strong impact on the Almere trends. Almere was...
one of the very few municipalities in the Amsterdam region where employment growth continued, albeit at a much slower pace, during the recession that started in 2001. At the same time, some of the most frequent commuting destinations of Almere residents, like Schiphol and the ICT office complex of Amsterdam Southeast, were hit hard by the recession. The effect of these contrasting employment trends within the region could well have been that Almere residents lost their jobs elsewhere and continued their careers at work locations in their own municipality. We have to wait some more years before we know if the short-term trends shown in Figure 3 were actually the start of a long-term trend making Almere less dependent on the rest of the Amsterdam region (most notably Amsterdam itself and Schiphol) in terms of employment.

Despite the possible turnaround in commuting dynamics, outbound commuting is still a mass phenomenon in Almere. Even though the railway connections with Amsterdam and Schiphol are frequent and rather fast, the vast majority of commuting still takes place by car. The big bottleneck for commuters to the Amsterdam area is the Holland Bridge, crossing a lake that divides Flevoland from the rest of the country. Table 3 summarizes the results of a survey among people travelling by car from Flevoland to the rest of the Netherlands via the Holland Bridge on an average working day. Almost 80% of all car drivers on the survey day started their trip in Almere, and over 40% of all car drivers were travelling from home to work. Amsterdam was clearly the most frequent destination: 46% of all surveyed car drivers was heading for the Dutch capital or its “satellite city” Amsterdam Southeast.

5 Concluding remarks

Even though the number of jobs has increased rapidly in formerly mono-functional residential suburban environments in the 1990s, this does not automatically mean that the suburbanites have increasingly found jobs in their place of residence. So, despite the transformation of several mono-functional suburban residential environments into a multifunctional “post-suburbia” in several European countries including the Netherlands22, mass commuting between (former) suburbs and large cities will probably remain in the decades to come. There are several possible reasons for this. Probably the most important reason is that the qualifications and specialisations of the inhabitants often do not match to those required for the jobs in their place of residence. Another reason is probably that people still switch jobs and/or residence much less easily than policy makers might presuppose in their spatial plans.

It is more likely that the new job concentrations in formerly suburban areas will attract more inbound commuters, than that outbound commuting from those same areas will significantly decrease. This would imply an increasing complexity of commuting patterns, with exchange commuting relationships between cities, (former) suburbs and their surroundings becoming the dominant pattern. The urban region of Amsterdam, the largest and most polycentric urban region of the Netherlands, seems to be heading in that direction and might set the trend for the rest of the country. The case of Almere could become the exception to that rule, but it is still too early to conclude that decreasing commuting is an emerging long-term trend in Almere The possibilities to influence commuter flows by creating new job concentrations in (former) suburban areas and/or by building mixed-use environments should not be overestimated. In the end, the individual choices of people have much more influence on their residential and their job location than the physical planners, even in the Netherlands.