

REPORT 1008

Nigel Halpern and Svein Bråthen

**CATALYTIC IMPACT OF AIRPORTS
IN NORWAY**

Nigel Halpern and Svein Bråthen

Catalytic impact of airports in Norway

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Abstract

This study investigates the catalytic impact of airports in Norway. In particular, it investigates the impact that airports have on regional accessibility, social development and economic competitiveness. The findings are based on two phases of research. The first phase consists of desk research on the findings of previous studies in Norway and of original analysis of published data for Norway. The second phase consists of a case study on two airports in Norway; Ålesund Airport and Brønnøysund Airport. The case study compares the opinions of residents and businesses served by the respective airports and is based on the findings of a postal survey that was completed by over 2 000 residents and an online survey that was completed by over 350 businesses.

The analysis finds that airports play an important role in securing the accessibility of regions in Norway. Regional accessibility as a result of having a local airport is able to enhance opportunities for the social development of residents such as being better able to: travel for work and leisure; maintain contact with friends or relatives; attend or participate in sport or cultural activities and events; and, access basic services such as health and education. Regional accessibility as a result of having a local airport is also able to enhance regional economic competitiveness by: providing opportunities for the development of businesses; promoting the export of products or services; enhancing business operations and production; and, influencing business investment decisions. Local airports also have a wider impact on their region by influencing the location and retention of residents and businesses.

The analysis finds that impacts vary for the different airports and tend to reflect the size and scope of services at the airport and the specific characteristics of the region.

PREFACE

In January 2009, The Norwegian Ministry of Transport and Communications commissioned Møreforskning Molde to conduct a study on the catalytic impact of airports in Norway. The study supported the Regional Development theme of The Ministry of Transport and Communications Transport Research Programme, 2008-2009.

The study had three main objectives: (1) to investigate the impact of airports on regional accessibility; (2) to investigate the impact of airports on regional social development; (3) to investigate the impact of airports on regional economic competitiveness. The study consisted of two main phases of research: (1) desk research on the catalytic impact of airports in Norway; (2) a comparative case study on the catalytic impact of two airports in Norway. The case study was based on a survey of residents and businesses in regions served by each of the two airports.

This report provides a written account of the study and its findings. The report consists of five main sections. Section one provides an introduction to the study. Section two provides some Norwegian context to the study, including the findings of the desk research. Section three introduces the case study airports and their regions, survey design and sampling procedures, and methods of data analysis. Section four provides the findings of the resident survey. Section five provides the findings of the business survey. The main findings of the study are highlighted by a summary that is provided at the start of this report. A Norwegian and English version of the summary is provided.

Nigel Halpern was project leader for the study and has been responsible for all aspects of the study including the desk research, survey work and analysis, and writing the report. Svein Bråthen has assisted with the design of the surveys, produced the Norwegian version of the summary, and has been responsible for quality control of the report.

Disclaimer. Texts and maps stemming from research projects under the ESPON programme in this report do not necessarily reflect the opinion of the ESPON Monitoring Committee.



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SAMMENDRAG

Denne rapporten tar for seg katalytiske virkninger av flyplasser i to norske regioner. Virkninger knyttet til regional tilgjengelighet, regional samfunnsutvikling og regional konkurransevne har stått i fokus. Studien er gjort i to faser. I den første fasen har vi benyttet sekundærdata til å belyse problemstillingen. Grunnlaget for analysene i denne delen er hentet fra andre studier samt fra tilgjengelige data fra offentlige kilder. Den andre fasen består av en casestudie der det er hentet primærdata fra respondenter i regionene rundt 2 lufthavner; Ålesund lufthavn, Vigra (AES) og Brønnøysund lufthavn, Brønnøy (BNN). Analysene er basert på 4 spørreundersøkelser, en for husholdninger og en for bedrifter, gjennomført for begge lufthavnene. Undersøkelsene er gjennomført i lufthavnenes influensområder.

Hovedfunn fase 1

Regional tilgjengelighet

Norsk topografi tilsier at det landbaserte transportnettverket er relativt lite utviklet, særlig utenom de større byområdene, sammenlignet med tettbefolkede områder i Europa. Dette kan sies å være delvis kompensert med en relativt velutviklet infrastruktur for luftfart. 52 lufthavner i Norge hadde sivil luftfart i 2009. Det innenlandske rutenettet er relativt tett, og det er direkteforbindelser til utlandet fra alle de største lufthavnene, og fra en del av de mellomstore.

Generelt så har befolkningen god atkomst til en flyplass i nærheten. I gjennomsnitt er kjøreavstanden til nærmeste flyplass 64 minutter. Rundt 40 % av befolkningen har mindre enn 30 minutters kjøreavstand, rundt 70 % har mindre enn en time mens rundt 3 % har mer enn to timer til nærmeste flyplass. Tilgjengeligheten er særlig god i Vest- og Nord-Norge hvor rundt 70 % har mindre enn en halv time til nærmeste flyplass.

Tilgjengeligheten til flyplass er viktig, fordi det er få alternativer til flytransport på lange reiser i Norge. Lian m fl (2007) hevder at 92 % av luftfartens andel av samlede passasjerkilometer, ikke har noe realistisk alternativ. Vi har blant annet sett på hva slags tilgjengelighet luftfartsnettverket gir til Oslo som hovedstad. Rundt 53 % av befolkningen bor i områder der fly til Oslo er et relevant alternativ. Av disse er det kun 0,5 % som vil trenge overnatting. De resterende 47 % bor i Østlandsområdet. Noen av disse kan ha relativt lang tilbringertid til Oslo, men de kan oftest velge bil, buss og tog innenfor en reiseavstand på 4-5 timer. Netto spart reisetid i forhold til fly, er liten.

Sammenlignet med raskest alternative, så sparer man over 9 timer hver vei ved en gjennomsnittlig flyreise til Oslo. For en reise mellom Oslo og Finnmark er besparelsen 32,5 timer hver vei. 40 % av befolkningen kan spare 5 timer eller mer på flyreise sammenlignet med vegtransport. 10 % kan spare 10 timer eller mer.

Regional samfunnsutvikling

Økt tilgjengelighet via rask transport kan gi rom for noen utviklingsmuligheter. SSB (2010b) oppgir at 21,1 mill turistreiser ble foretatt av nordmenn i 2009, herav 70 % utenlandsreiser. 80 % av disse reisene var rene fritidsreiser, mens 20 % var relatert til arbeid. Nest etter bil var flyet det viktigste transportmiddelet med en andel på ca en tredel av alle reiselivsrelaterte reiser, eller rundt 7 millioner reiser. Det er i denne sammenhengen grunn til å være

oppmerksom på retningsbalansen i turiststrømmene. På grunn av vanskelig sammenlignbare tall i datagrunnlaget, så har vi ikke kunnet tallfeste denne balansen. Men eksport av turisme er sterkere enn import, og en bedring av denne balansen er en viktig og vel kjent utfordring for reiselivsnæringen.

Denstadli m fl (2008) viser veksten i ulike hovedsegmenter mellom 2005 og 2007. Direkte arbeidsrelaterte tjenestereiser hadde en vekst på 37 %, mens kurs- og konferansereiser hadde en vekst på 31 %. Korte ferier og besøk hos slekt og venner hadde også en sterk vekst, 28 %. Utenlandsreiser for å besøke slekt og venner hadde en særlig sterk vekst på 44 %. Går vi bak tallene fra passasjerstatistikken, så finner vi blant annet at mer enn 250 000 reiser ble foretatt av mindreårige som reiste alene og andre som trengte assistanse (Avinor 2010b).

30 000 flybevegelser er knyttet til ambulanseflyvninger, og rundt 400 000 passasjerer benyttet rutefly til helseformål i 2009. Rundt 42 000 flybevegelser er knyttet til såkalt G/A-trafikk som er trafikk med småfly til hovedsakelig passasjerbefordring og luftsport (Avinor 2010a).

Flytransport er særlig viktig for helsesektoren i Nord-Norge. I henhold til Helse Nord (2010) var det i 2008 rundt 8000 pasienter som ble fløyet med luftambulans, dette tilsvarer drøyt 20 personer pr. dag. Rundt 100 000 pasientturer ble i 2008 gjennomført for å nå helsetilbud innen eller utenfor regionen, dette tilsvarer ca 275 turer daglig. Som eksempel er 20 % av reisene på Widerøes rute mellom Bodø og Tromsø relatert til medisinsk behandling. Flyet utgjør en viktig del av helsetilbudet i flere deler av distrikts-Norge.

Norge har en desentralisert struktur for høyere utdanning, og studenter er mobile. I tillegg krever et høyere utdanningstilbud ofte mobilitet på personellsiden. Det er i norsk forsknings- og utdanningspolitikk et uttalt mål om slik mobilitet. Det er grunn til å tro at en del steder nyter godt av at det finnes et flytilbud i så måte. Vi har imidlertid ikke undersøkt betydningen av dette forholdet nærmere. I 2008 fantes det dessuten rundt 11 000 studenter i utlandet.

Transporttilbudet kan påvirke lokaliseringsbeslutninger, og *a priori* kan en vente at risikoen for fraflytting og vanskeligheter med å rekruttere og beholde personell er størst i distriktene. Vi har sett litt på befolkningsutviklingen, og vi finner at i perioden 1998-2010 så har i store trekk antall innbyggere avtatt i kommuner med mer enn 2 timer til nærmeste flyplass. De eneste kommunene med vekst i folketallet i Nord-Norge er der hvor kommunesenteret ligger i en avstand av mindre enn en halv time fra nærmeste flyplass. Statistisk sett så virker sammenhengen mellom befolkningsutvikling og avstand til flyplass til å være nokså svak. Lian m fl (2007) fremhever snarere næringsstruktur og sentralitet i seg selv som mulige underliggende årsaksfaktorer.

Denne studien finner, i likhet med Lian m fl (2007) at det er en sterk sammenheng mellom etterspørsel etter flyreiser og økonomisk utvikling, målt ved BNP. Studier indikerer at luftfarten har skapt økt produktivitet og økt investeringsaktivitet (Cooper og Smith 2005, europeiske forhold).

Gjennomsnittlig avstand fra et foretak i Norge (ca 480 000 foretak totalt) og til en flyplass er i overkant av 60 minutter. Over en tredel av alle foretak ligger mindre enn en halv time fra nærmeste flyplass. Om lag 4 % har mer enn to timers avstand til nærmeste flyplass. Vi ser, i likhet med Lian m fl (2007), en sterkere vekst i kommuner som ligger nærmest en flyplass. Sammenhengen er imidlertid ikke entydig – det kan være andre underliggende strukturelle forhold som kan skape disse forskjellene.

Det samlede volumet av utenlandske turister til Norge var rundt 4,3 mill i 2009. 42 % av disse benyttet fly. Betydningen av fly som transportform ser ut til å være økende, det er en vekst i denne andelen på knappe 10 % i siste 10-års periode, fra 33 % i 2001. Utenlandsturistene legger igjen rundt 30 mrd kr totalt i Norge gjennom sitt forbruk. Det er som nevnt en skjev retningsbalanse i den forstand at det er flere nordmenn som reiser på ferie i utlandet med fly, enn antall besøkende utlendinger. Vi kan derfor ikke konkludere med at flytilbudet i seg selv skaper netto et overskudd for reiselivet i Norge når vi tar hensyn til at flytilbudet også kan gjøre at mange nordmenn ferierer i utlandet. Det er likevel grunn til å si at denne valgmuligheten innebærer en velferdseffekt i seg selv.

Hovedfunn fase 2, husstandsundersøkelsen

Bruk av nærmeste flyplass

Gjennomsnittlig antall innkomne besøksreiser per innbygger på Sunnmøre og Sør-Helgeland i 2009 er 5,1. Gjennomsnittlig antall reiser foretatt av regionenes innbyggere er 5,5. Hovedforskjellene mellom regionene er knyttet til fordelingen mellom innenriks og utenriks reiser, der bosatte på Sunnmøre har en vesentlig større andel utenlandsreiser. En av forklaringene på dette ligger i forskjellen i rutetilbud.

Tidligere undersøkelser, blant annet Lian m fl (2007) viser at flytilbudet i regionene er viktig for helserelevante reiser. Når det gjelder helserelevante reiser så ble det i løpet av 2009 foretatt 0,8 slike flyreiser pr. innbygger i Sør-Helgeland, mens tilsvarende tall for Sunnmøre er 0,2. Dette er rimelig ut fra at tilgjengeligheten til sykehus er lavere i førstnevnte region.

Respondenter som er sysselsatte i sektorer som i denne studien av husholdninger framstår som flyintensive (finans og forsikring, energi, eiendom, lager og transport, samt annen offentlig og privat tjenesteyting herunder konsulentvirksomhet) viser nær dobbelt så høy reiseaktivitet som andre. Grupper med høyere utdanning og høyere husholdningsinntekt reiser også mer enn andre. Her er det ingen signifikante forskjeller mellom regionene.

I underkant av 40 % benyttet en alternativ flyplass for utgående reiser i løpet av siste år. Dette skyldes i hovedsak forskjeller i rutetilbud og pris. Når det gjelder holdninger til mulige forbedringer i rutetilbudet, så svarer knappe 50 % at et styrket tilbud til flere innenriksdestinasjoner sannsynligvis ville bli benyttet. Rundt 30 % svarer at de sannsynligvis ville benyttet seg av flere utenriksavganger og tilsvarende andel ville kunne benytte seg av flere charteravganger. Svarene gir kun holdepunkter for at det er forskjellig styrke i behovene. Behovet for øvrige forbedringer i transportsystemet rangeres lavt av de spurte.

Flyplassens bidrag til regional tilgjengelighet og velferdsutvikling

Flyplassens betydning for tilgjengelighet og velferd kommer til uttrykk blant annet ved at rundt 2/3 av de spurte fremhever tilgjengelighet til ferie- og fritidstilbud som en viktig følge av at flyplassen finnes. Rundt halvparten av de spurte fremhever bedret tilgjengelighet til helsetilbud samt slekt og venner som viktige følger av at det finnes en flyplass i nærområdet. Ser vi på forskjellene regionene i mellom, ser flyplassens betydning for tilgjengelighet til helsetjenester ut til å være sterkere på Sør-Helgeland enn på Sunnmøre, mens flyplassens betydning for feriereiser ser ut til å være større på Sunnmøre. Sistnevnte forhold vil ha

sammenheng med det rutetilbudet som finnes, der Ålesund har et mer direkte tilbud blant annet til viktige feriedestinasjoner i utlandet.

På spørsmål om flyplassen vil påvirke framtidig valg av bosted, er rundt 70 % av de spurte helt enige i at flyplassens eksistens gjør det mer sannsynlig at de vil bli værende i regionen. Forskjellen mellom regionene er her signifikant; 75 % av de spurte på Sør-Helgeland hevder dette, mens andelen for Sunnmøre er 63 %. Dette kan si noe om styrken i flyplassens betydning for tilgjengelighet til de to regionene, og om forskjellen i reisetid ved alternativ transport til sentrale destinasjoner.

Blant innflyttere og tilbakeflyttere til regionen, kommer viktigheten av å ha en flyplass i nærheten ut på fjerdeplass i en rangering av de forholdene som er betegnet som "svært viktige" for flyttebeslutningen, ca 30 % oppgir flyplassen som "svært viktig" i så måte. Familie-/vennetilknytning i regionen, friluftsliv samt arbeids- og studiemuligheter rangeres foran flyplass når det gjelder svært viktige faktorer for flyttebeslutningen. Inkluderer vi også de som har angitt flyplassen som en "viktig" faktor, har 55 % av de spurte vist til flyplass som en "viktig" eller "svært viktig" faktor for at de valgte å flytte til regionen. Flyplassens eksistens er signifikant viktigere for de som har valgt å flytte til Sør-Helgeland enn til Sunnmøre, noe som også understreker forskjellen i tilgjengelighet.

Hovedfunn fase 2, bedriftsundersøkelsen

Bruk av nærmeste flyplass

Vi har sett på hvordan bedriftene i undersøkelsesområdene benytter de lokale flyplassene. Ca ¾ av de spurte bedriftene benyttet flyplassene i nærområdet til forretningsreiser i 2009, andelen var 79 % på Sunnmøre og 73 % på Sør-Helgeland. Tilgang til kurs/konferanser (30 % av bedriftene) og markedskontakt (minst 25 % av bedriftene) er rangert som de viktigste formålene med flyreisene. Det er tre områder der respondentene på Sør-Helgeland oppgir større viktighet av flytilbudet enn på Sunnmøre, nemlig for områdene "kontakt med myndigheter", "servicepersonell inn til bedriften" og "deltakelse på kurs/konferanser". Fylkesadministrasjonen for Nordland ligger i Bodø som ligger i flyavstand fra Sør-Helgeland, men fylkesadministrasjonen i Molde ligger i kjøreavstand fra Sunnmøre. Dette forklarer antakelig en del av forskjellen når det gjelder kontakten med myndigheter. De to andre elementene der Sør-Helgeland scorer høyere på viktighet av flytilbudet, tilhører områder der svak tilgjengelighet kan slå sterkt ut.

Når det gjelder flyfrakt, benyttet 35 % av de spurte seg av dette tilbudet via flyplassene i regionen. Det er ingen signifikant forskjell regionene i mellom, men tendensen er at respondentene på Sør-Helgeland benytter dette tilbudet i noe større grad. Fleksibilitet er angitt som den viktigste grunnen til å benytte dette tilbudet. Bedriftene på Sør-Helgeland oppgir større avhengighet av flyfrakt for å få inn kapitalvarer og halvfabrikata til bedriftene, noe som kan gjenspeile forskjeller i både tilgjengelighet og i næringsstruktur. Avhengigheten av et flyfrakttilbud er angitt som størst for inn- og uttransport av reservedeler, rundt 30 % i regionene samlet har oppgitt dette som "svært viktig".

Når det gjelder verdien av flyfrakt, så er gjennomsnittlig årlig forsendelsesverdi vesentlig høyere for bedrifter på Sunnmøre (2,3 mill kr) enn på Sør-Helgeland (57 000 kr). Dette kan gjenspeile bedriftsstørrelse og næringsstruktur. Materialet i undersøkelsen er for lite til å

trekke noen sikre slutninger. Noen bedrifter (ca 10 % av de spurte) oppgir at en høy andel av transportverdien (ca 60 %) går med fly. De fleste bedrifter i vårt materiale benytter fly til en moderat til liten andel av transportverdien.

Viktigheten av flyplass i regionen

I følge respondentene er de viktigste effektene av en flyplass i regionen at bedriftene når et større marked (15 % oppgir dette som svært viktig), den muliggjør økt eksport (10 %) og den bedrer konkurranseevnen (8 % oppgir dette som svært viktig). Økt omsetning og bedret lønnsomhet er oppgitt som viktige effekter av henholdsvis 12 % og 8 % av bedriftene. Det er ingen signifikante forskjeller mellom de to regionene.

Når det gjelder virkninger for investeringsaktiviteten svarer om lag 1/5 av bedriftene at eksistensen av en flyplass i nærheten har påvirket investeringsbeslutningene. Rundt 2/3 av disse bedriftene hevder at de har investert mer i regionen enn de ellers ville ha gjort. Tendensen er at dette omfanget er noe større i Sør-Helgeland (noe som kan indikere tilgjengelighetens betydning), men forskjellen mellom regionene er ikke signifikante.

Bedriftene er gjennomgående fornøyde med flyrutetilbudet i sine regioner, med to unntak; internasjonale ruter (14 % av respondentene uttrykte misnøye), og pris (9 % uttrykte misnøye). Misnøyen på Sør-Helgeland er sterkest, hvilket er rimelig gitt fravær av enkelt tilgang på internasjonale ruter, og det relativt høye prisnivået som er i FOT-nettet.

I likhet med for husholdningene, er bedre direkteforbindelser til andre byer i Norge det viktigste forbedringspotensialet (knappe 30 % av respondentene angir dette som den viktigste forbedringen). Derneft følger økt konkurranse på rutene og direkteforbindelser til utlandet (ca ¼ angir begge disse). Respondentene fra Sør-Helgeland angir signifikant høyere score på alle disse tre faktorene, samt også på behovet for bedre kapasitet på flyfrakt. Dette er i tråd med de ovenstående resultatene, og er en indikasjon på regionens svakere tilgjengelighet.

Det er vanskelig å tallfeste flyplassenes betydning for bedriftene. På spørsmål om hvor stor andel av omsetningen som er avhengig av tilgang til flyplass i nærheten, angir knappe 40 % av de som har besvart spørsmålet at dette ikke hadde noen effekt på omsetningen. Om lag 30 % svarte at mellom 1 % og 20 % av omsetningen var avhengig av et lokalt flytilbud. De resterende 30 % svarte at mer enn 20 % av omsetningen var betinget av et eksisterende flytilbud, hvorav rundt ¼ anga at over 60 % av omsetningen var avhengig av slik tilgang. Dette understøtter funn i Lian m fl (2007), der et flytilbud kan ha vesentlige katalytiske virkninger på bedriftenes aktivitetsnivå. Det er en tendens til at mindre bedrifter på Sunnmøre som er orientert mot tjenesteyting, utgjør en betydelig andel av disse.

Flyplasser og lokalisering

Respondentene ble spurt om de viktigste faktorene som påvirket lokalisering av bedriften. Faktorene er rangert etter hvor stor andel som vurderer dem som "svært viktig". Kontakt med kunder er angitt som viktigste faktor av 44 % av respondentene. Derneft følger generell livskvalitet, tilgang til kvalifisert arbeidskraft og tilgang til flyplass med rundt 35 % på hver, for sistnevnte faktor er det en signifikant høyere andel i Sør-Helgeland som signaliserer avhengighet av en flyplass i nærheten. I følge vårt materiale er flyplasser rangert som en langt viktigere lokaliseringsfaktor enn vegsystemet (20 %), havner (18 %) og jernbane (2 %). Disse

preferansene kan skyldes selvseleksjon og kan ikke generaliseres; de bedriftene som ligger i disse områdene er antagelig mer flyavhengige enn andre.

Nærhet til flyplass er nevnt som viktigere for respondenter innen bransjer som tradisjonelt er regnet som flyavhengige (se ovenfor). Nærheten er også nevnt som viktigere av bedrifter som har kontorer, avdelinger eller datterselskaper i andre deler av landet, og/eller i utlandet.

Studiens begrensninger

Vi mener at denne studien gir et viktig bidrag til kunnskapen om luftfartens betydning for regioner i et land der luftfarten spiller en viktig rolle for rask tilgjengelighet. Men studien har sine begrensninger. En av dem er at det antakelig har vært en viss selvseleksjon blant respondentene fordi hele 98 % av husholdningene har svart at de har reist i løpet av de siste 12 måneder. Kanskje noe mer plausibelt, har rundt 80 % av de spurte bedriftene benyttet flytilbudet i løpet av 2009. En utvidelse både med hensyn til antall regioner, andre transportformer og til ikke-brukere av flytilbudet vil kunne gi et videre og muligens mer nyansert bilde av de katalytiske virkningene av luftfart.

SUMMARY

This study investigates the catalytic impact of airports in Norway. The study is interested in impacts relating to regional accessibility, social development and economic competitiveness. The study is based on two phases of research. The first phase consists of desk research on the catalytic impact of airports in Norway. The desk research is partly based on the findings of previous studies in Norway but also includes original analysis of published data. The second phase consists of a case study on the catalytic impact of two airports in Norway; Ålesund Airport in the region of Sunnmøre and Brønnøysund Airport in the region of Sør-Helgeland. The findings are based on a survey of over 2 000 residents and 350 businesses in the regions. In addition to investigating resident and business opinions in general, a comparison is made between the opinions of residents and businesses in the respective regions.

Main findings – desk research

Regional accessibility

Due partly to the low population density, long coastline, mountainous terrain and arctic climate, Norway's land-based transport system is relatively undeveloped, especially outside of the main towns. Norway does however have relatively good infrastructure for air services. 52 airports provided commercial passenger movements in Norway in 2009. The country is served by a good network of domestic connections. International connections are available from all of the large-sized airports and a number of medium-sized airports.

In general, the country's population has good access to a local airport¹. On average, the Norwegian population is a 64-minute drive by road from its nearest airport. Almost 40% of the population is less than 30 minutes. Over three quarters is less than 60 minutes. Only 3% of the population is 120 minutes or more from its nearest airport. Access is particularly good in western and northern parts of Norway where over two thirds of the population is able to travel to its nearest airport in less than 30 minutes.

Access to an airport is important given that there are few alternatives to air travel available in Norway, especially for longer journeys. 92% of the air transport share of total passenger kilometres in Norway has no realistic alternative (Lian et al., 2007). This study investigates access that airports in Norway provide to the capital city; Oslo. 53% of the population is able to travel to Oslo and back on the same day from their nearest airport. Almost 47% of the population live in Oslo or so close to Oslo that they are unlikely to be dependent on air access to the city. Only 0,3% of the population is not able to travel to Oslo and back on the same day from their nearest airport and would need an overnight stay in Oslo or somewhere en-route.

Over nine hours is saved, on average, when using air travel versus travel by road for one-way trips to Oslo from municipalities in Norway². Almost 40% of the population is able to save 5 hours or more, 10% is able to save 10 hours or more. Time savings are particularly high in municipalities in Northern Norway (e.g. 32.5 hours from municipalities in Finnmark).

¹ The term 'local airport' is sometimes used as part of a classification of airports (e.g. the British airport system consists of gateway international airports, regional airports, local airports and general aviation airports). The term is used in this report when referring to the nearest airport (to a person or business) and not as part of a classification.

² Calculations do not include a number of municipalities in Eastern Norway that are located in or around Oslo.

Regional social development

Air transport makes it possible to travel and there are a number of social development opportunities that are enhanced by the availability of air travel in Norway. 21,1 million trips for tourism were taken by Norwegians in 2009 (Statistics Norway, 2010b)³; 80% for leisure purposes, 20% for work. Air travel is the second most important mode of transport after the personal or hire car with one third of all trips. Air travel therefore supports social and economic integration by providing opportunities to travel for leisure and work.

Denstadli et al. (2008) show the market growth for air travel in Norway by main purpose between 2005 and 2007. Strong growth has been experienced from those travelling to/from work (37%), to attend a course, conference or exhibition (31%), for a holiday/short break (28%) and to visit friends and relatives (28%). The foreign market for visiting friends and relatives has demonstrated particularly strong growth of 44%.

Air travel allows people to travel to attend or participate in cultural and sporting activities and events. It is important for the mobility of less mobile people; more than 250 000 journeys were made by unaccompanied minors, the elderly and disabled persons in 2009 (Avinor, 2010b). There were almost 42 000 General Aviation aircraft movements in 2009 (Avinor, 2010a), supporting personal flying and related activities such as parachuting. Air travel is also important for those needing to access basic services such as health and education.

The country's airports supported 30 000 air ambulance movements in 2009 and 400 000 patients are transported on scheduled flights each year (Avinor, 2010b). Air travel is particularly important for the health sector in Northern Norway. According to the Northern Norway Regional Health Authority (2010), almost 8 000 patients were transported by air ambulance in 2008 (daily average of 21). About 100 000 patient trips were taken on scheduled flights in order to access health services (daily average of 275). 20% of traffic on Widerøes route between Bodø and Tromsø was health-related. Without air access, residents in many parts of Norway would have long travel times to their nearest major hospital.

Despite having a decentralised strategy for the localisation of higher education facilities, there are still many parts of Norway where access to higher education facilities by road is limited. Many of these areas are served by a local airport which means that access is vastly improved. Over 11 000 Norwegian's were registered with institutions abroad in 2008 (Statistics Norway, 2010d). Air access is likely to be important for students studying abroad.

The presence of a local airport and opportunities that air access offers for social development might influence the location and retention of residents, especially in smaller and more remote areas where the risk of outward migration might be high. This study investigates average population change in municipalities in Norway between 1998 and 2010 according to travel time by road to the nearest airport. In general, population has declined in municipalities that are two hours or more from their nearest airport. Population growth in Northern Norway has only occurred, on average, in municipalities that have travel times of less than 30 minutes. Lian et al. (2007) emphasise that industry structure and centrality may be causal factors of change (as opposed to proximity to an airport). Such factors have not been controlled for in this study.

³ This includes trips for leisure or business purposes with at least one overnight stay.

Regional economic competitiveness

This study finds a significant relationship between demand for airports and gross national product in Norway suggesting that airports are an important part of the national economic infrastructure. Evidence is provided to suggest that airports are also an important part of the regional economic infrastructure in Norway as demand for airports is generally higher in regions with higher levels of gross regional product. A significant relationship was found between demand for airports and the value of production, investment and exports in Norway. Of course, some businesses are more dependent on air transport than others and the relationship between demand for airports and the value of exports in Norway is particularly strong for air-intensive sectors such as travel, transport, finance, business and other services.

Tourism is an important part of the Norwegian economy contributing over 3% of gross domestic product in 2009 with as much as 8% in Akershus and over 5% in Oppland, Oslo, Finnmark and Nordland (Statistics Norway, 2010b). 4,3 million trips for tourism were made by foreigners to Norway in 2009 (Farstad and Rideng, 2009)⁴; 75% for leisure purposes, 25% for work. Air transport is the most important mode of transport for foreign tourism in Norway, providing over 40% of all trips. The importance of air transport is growing relative to other transport modes, from 33% in 2001 to 42% in 2009. 1,2 million additional trips were made in 2009 compared to 2001 and almost two thirds of those additional trips used air transport. Over 30 500 million Norwegian kroner was generated in foreign tourism consumption in Norway in 2009 (Innovation Norway, 2010). There is a significant relationship between demand for airports and foreign tourism consumption in Norway.

It is worth noting that tourism is a deficit trade activity in Norway. Norway imported 53 000 million Norwegian kroner more than it exported on tourism in 2009 and the trade gap has grown since the 1970's. 4,3 million trips abroad by air were taken by Norwegians in 2009 compared to 1,4 million trips by air by foreigners to Norway, which means that 2,9 million more trips by air are taken by Norwegians abroad than are taken by foreigners to Norway⁵.

There are almost 482 000 businesses in Norway that are, on average, a 64-minute drive by road from their nearest airport. Over a third of all businesses are less than 30 minutes. Almost three quarters are less than 60 minutes. Only 4% are 120 minutes or more. The number of businesses in Norway has increased from 436 000 in 2002 to 482 000 in 2010 and growth is generally strongest in municipalities that are closest to an airport. However, differences in industry structure and centrality may be the causal factors of business location (as opposed to proximity to the nearest airport). Such factors have not been controlled for in this study.

Main findings – resident survey

Use of the local airport

The average number of visits from friends or relatives to residents in Sunnmøre and Sør-Helgeland in 2009 was 5,1. The average number of trips taken by residents was 5,5. The average in Sør-Helgeland is significantly higher for domestic visits and trips and significantly

⁴ This includes day trips and trips with at least one overnight stay for leisure or business purposes.

⁵ Data in both instances includes trips with at least one overnight stay for leisure or business purposes but does not include day trips.

lower for international visits and trips. Differences may reflect the availability of air services in the regions given that Brønnøysund Airport does not have direct international services.

The average number of trips taken by residents was 9,8 for those that work in what this study found to be air-intensive employment sectors⁶ versus 5,8 for those that work in other sectors. Higher average trips taken were also found for residents with university/college education, full-time employment and an annual household income of at least 450 000 Norwegian kroner.

The greatest difference in terms of purpose of travel is for health (0,8 trips per person in Sør-Helgeland, 0,2 in Sunnmøre). This may reflect health infrastructure in the respective regions. Sunnmøre has a health authority and hospitals in the main towns. Helgeland has a health authority but hospitals are located outside of Sør-Helgeland. Residents therefore need to travel further to access local health services or larger hospitals in main cities. In many cases, the local health authority recommends air travel as the primary mode of transport.

Contribution to regional accessibility and social development

As a result of having a local airport, 87% of respondents in Sunnmøre and Sør-Helgeland strongly agree that their region is better connected nationally and 58% internationally. The lower figure for international connectivity may reflect the range of air services in the regions given that they are largely domestic versus international. 67% strongly agree that they have better opportunities for holidays, 54% that they have better access to health services, 50% that they have better contact with friends or relatives, 41% that they are able to do their job better. Average responses are significantly higher from respondents in Sør Helgeland for access to health services but are significantly higher from respondents in Sunnmøre for being better connected internationally and having better opportunities for holidays. This may reflect the regional infrastructure (e.g. for health services) and the availability of air services (e.g. for international connectivity and holidays) in the respective regions.

51% of respondents have always lived in their respective region; 60% in Sunnmøre, 46% in Sør-Helgeland. The average number of years that residents have lived in their respective region is 40 years; 42 years in Sunnmøre, 38 years in Sør-Helgeland. The presence of a local airport is important for the retention of residents in both regions but is significantly more important for residents in Sør-Helgeland. 70% of respondents strongly agree that they are more likely to continue living in the region as a result of having a local airport; 75% in Sør-Helgeland, 63% in Sunnmøre.

Many residents that have not always lived in their region might actually be from the region initially and/or have friends or relatives living in the region. 46% rated this factor as very important in influencing their decision to move to the region and it is the highest ranked factor in each region. Nature/leisure opportunities and opportunities for work/study are ranked number two or three, depending on the region. Access to a local airport is ranked number four with 29%. This increases to 56% when respondents that rated the factor as important or very important are combined, which means that almost six out of 10 respondents rate access to a local airport as important when deciding to locate in a region. Access to a local airport is significantly more important to those moving to Sør-Helgeland suggesting that it plays a greater role in people's decision to move to the smaller, more remote region.

⁶ Includes oil/gas, commercial services, finance/insurance, information/communication, transport/warehousing.

Airport competition

37% of respondents used an alternative airport to their local airport in 2009; 35% in Sunnmøre, 39% in Sør-Helgeland. The most common reasons for using an alternative airport are the range of flights/packages available, price and frequency of flights.

Respondents are more in favour of improvements in air transport compared to other modes of transport, especially direct scheduled air services to more large towns in Norway. 47% of respondents in Sunnmøre and Sør-Helgeland believe that they would use this type of improvement often or very often. This compares to 33% for charter air services to more holiday destinations, 32% for direct scheduled air services to more destinations abroad, 9% for scheduled coach services to the larger towns in Norway, 5% for international passenger ferry services and 4% for coach tours to more holiday destinations.

The greatest significant difference between regions is for direct scheduled air services to more large towns in Norway. The average response in Sør-Helgeland is significantly higher (i.e. more in favour of the development). This may reflect the availability of air services in the regions given that Ålesund Airport has a direct scheduled air service connection to Oslo and Brønnøysund Airport, at the time of the survey, does not. The potential use of air services to more destinations abroad is significantly higher for respondents in Sunnmøre. This may reflect the higher propensity to go on trips abroad by air by residents in Sunnmøre.

Main findings –business survey

Use of the local airport for business travel

77% of respondents used their local airport for business trips in 2009; 79% in Sunnmøre, 73% in Sør-Helgeland. 80% used their local airport for domestic trips, 47% for international trips. Respondents in Sunnmøre and Sør-Helgeland typically used their local airport for between 1-10 business trips in 2009.

43% of respondents used air travel for over 60% of total business trips in 2009. Business trips by air as a proportion of total business trips are significantly higher in Sunnmøre; 51% of respondents in Sunnmøre stated that air travel supports over 60% of all business trips compared to 27% of respondents in Sør-Helgeland.

According to responses in Sunnmøre and Sør-Helgeland, passenger air services are important for businesses as they: allow staff to attend courses and conferences (30% rated air passenger services as very important for this business function); allow businesses to maintain contact with customers and markets (27%); and, support sales and marketing (25%). Significant differences exist between regions for three business functions: contact with public authorities; service personnel into the company; and, attending courses and conferences. For each of the three business functions, average responses are significantly higher for Sør-Helgeland.

The difference for contact with public authorities may reflect the net sample in Sør-Helgeland that is biased towards businesses in the public administration sector. It may also be because there is a greater dependence on air travel for contact with public administration in the region. The higher responses for the two other business functions are likely to reflect the greater

dependence on air travel in Sør-Helgeland for accessing expertise (e.g. in terms of access to service personnel and courses and conferences).

Use of the local airport for freight/express delivery

35% of respondents used their local airport for freight/express delivery in 2009; 43% in Sør-Helgeland, 31% in Sunnmøre. This is much lower than the proportion of respondents that used their local airport for business travel and emphasises the greater use of passenger air travel versus air freight/express delivery in the regions.

Air freight/express delivery services are particularly important for businesses because of the flexibility that it provides, allowing businesses to send at short notice (45% rated air freight/express delivery as very important for this business function). It is also important as a means of securing fast access to raw materials (29%). The average response for accessing raw materials is significantly higher for Sør-Helgeland emphasising a greater dependence on air transport for that business function in Sør-Helgeland.

A greater dependence on air transport for accessing raw materials in Sør-Helgeland is further emphasised when considering which types of products businesses are dependent on air access for; dependence for transporting capital equipment and intermediate goods in to the company is significantly higher for businesses in Sør-Helgeland. There is also a significantly greater dependence on air access in Sør-Helgeland for the transport of medical information reflecting the health infrastructure in the respective regions. In Sunnmøre and Sør-Helgeland, dependence on air freight/express delivery is greatest for the delivery of spare parts; into the company (33% rated this to a very great extent) and out to customers (28%).

The average value of goods transported by air in 2009 was 1,6 million Norwegian kroner; 2,3 million in Sunnmøre, 57 000 in Sør-Helgeland. So while a higher proportion of businesses in Sør-Helgeland use their local airport for air freight/express delivery (43% compared to 31% in Sunnmøre), air freight/express delivery is more important for businesses in Sunnmøre in terms of value. There are too few observations in the net samples to justify conducting any statistical analysis on this finding and differences may therefore be the result of chance.

There is a relatively low dependence on air transport versus other modes of transport in terms of the proportion of total goods value transported by air in 2009. 74% of respondents in Sør-Helgeland and Sunnmøre stated that 20% or less of their total goods value was transported by air (21% stated less than 1%). Despite this, 10% of respondents stated that over 60% of their total goods value was transported by air so although businesses generally have a low dependence, some are very dependent.

Importance of the local airport

The main impacts that the local airports have on businesses are that they enable them to serve a larger market (15% of respondents from Sunnmøre and Sør-Helgeland rated this factor to a very great extent), promote exports (10%) and enhance competitiveness (8%). However, the local airport is also rated highly as having a subsequent impact on the economic performance of businesses; increasing turnover (12%) and strengthening profitability (8%).

One fifth of respondents in Sunnmøre and Sør-Helgeland stated that air service provision at their local airport has influenced investment decisions of their business. Two thirds of those

respondents stated that they invested more in their region than they would have done, so the influence that air service provision has had on investment decisions has been largely positive.

Of course, a local airport will not benefit a region or its businesses unless it has an appropriate provision of air services. Respondents in Sunnmøre and Sør-Helgeland generally feel that their local airport meets their business needs. The only two areas where respondents feel airports could do better is with destinations abroad (14% stated that their local airport did not at all meet their needs with this factor) and pricing (9%). This is especially the case for respondents in Sør-Helgeland where average responses for destinations abroad and pricing are significantly lower. This is to be expected considering that Brønnøysund Airport does not have international air services and has limited competition between airlines on existing routes.

Similarly, based on respondent's opinions about airport developments for the future, the most important developments for respondents in Sunnmøre and Sør-Helgeland are direct services to more towns in Norway (29% stated that this development is very important for the future), increased competition on existing routes (24%) and direct services to destinations abroad (24%). Average responses are significantly higher for respondents in Sør-Helgeland for each of these factors.

It is difficult to quantify the importance of local airports to businesses. The survey in this study asked respondents to estimate what proportion of their total turnover in 2009 was dependent on air services at their local airport. The largest proportion of respondents (39%) in Sunnmøre and Sør-Helgeland selected 0% as their response. However, 61% of respondents selected at least 1%. 25% selected at least 21%. 7% selected at least 60%.

Impact of the local airport on business location and retention

Respondents were asked to rate the importance of a number of key location factors for their business. Contact with customers is ranked first according to the proportion of respondents that consider the factor to be very important (44%). Proximity of an airport and general quality of life are ranked joint second (36%). This means that over a third of the respondents consider proximity of an airport to be a very important key location factor for their business. Proximity of an airport is more highly rated than other transport-related factors; 20% rated quality of the road system as very important, 18% proximity to a harbour and 2% access to rail.

Proximity of an airport is significantly more important to respondents in Sør-Helgeland. It is more important to businesses in air-intensive sectors such as hospitality and services, finance and insurance, energy, real estate and business, transport and warehousing. Proximity of an airport is also more important for businesses with offices, departments or sister companies in other regions or abroad compared to businesses that have offices, departments or sister companies in the same region.

Study limitations and future recommendations

The findings of this study contribute to literature on the subject. The findings also support the use of case studies when investigating the catalytic impact of airports as impacts are found to vary between airports, and seem to be related to the range of services available at the airport or to specific characteristics of the region.

This study has a number of limitations. One of the main limitations is the potential for bias in responses. In the resident survey, 98% of respondents used air services at their local airport in 2009. In the business survey, 80% of respondents used air services at their local airport in 2009. The findings may therefore be biased towards airport users and it would be interesting to survey the opinions of a sample of non-users in order to get a more balanced point of view. It would also be interesting to investigate and compare the catalytic impact of different modes of transport. This should reduce the potential for bias towards air transport.

Another limitation is that this study only provides evidence from two airports. Case study methodology is recommended when investigating the catalytic impact of airports because as this study found, significant variations exist between airports. However, it would be interesting to study, using surveys, the catalytic impact of airports at a national-level and subsequently develop a more detailed understanding of why differences exist.

A number of case studies now exist for a range of airports in Norway (e.g. Oslo Gardermoen Airport, Bergen Airport, Molde Airport and Leknes Airport in Lian et al., 2005; Molde Airport in Bråthen et al., 2006; Stavanger Airport and Mehamn Airport in Lian et al., 2007; and, Ålesund Airport and Brønnøysund Airport in this study). The case studies investigate a range of direct, indirect, induced and catalytic impacts. It would be interesting to document the findings of the different case studies (e.g. as an edited book of case studies). It would also be interesting to develop a number of comparative studies that measure the full range of airport impacts.

Finally, this study focuses largely on positive impacts of airports. The authors recognise that airports may also have negative impacts on the regions that they serve, especially relating to environmental issues such as noise and emissions. Investigating such impacts is beyond the remit of this study but should be taken into consideration when assessing the overall impact of airports. Furthermore, this study does not analyse the benefits of airports relative to the cost of providing airport infrastructure and services. This is an important issue given that Norway has such a dense network of airports, many of which are likely to have catchment areas that overlap. Indeed, this study finds that almost 40% of respondents in Sør-Helgeland and Sunnmøre chose to fly from an alternative airport to their local airport in 2009.

1 INTRODUCTION

1.1 Background

The airport impact analysis framework typically features four main types of impact.

1. Direct: relating to the operation of the airport itself.
2. Indirect: relating to the operations of suppliers in the area.
3. Induced: relating to the activity generated by direct and indirect operations.
4. Catalytic: relating to the wider role of the airport on regional development.

Direct, indirect and induced impacts typically include economic effects (e.g. on employment, income and tax revenues). Catalytic impacts typically capture the extent to which airports contribute to regional development. Previous studies tend to focus on the first three types of impact because they are relatively easy to measure and quantify (e.g. by conducting a survey of airports and their suppliers). Catalytic impacts are more difficult to measure and quantify because it is not easy to isolate the impact of the airport from other factors. Ironically, catalytic impacts represent the most important function of an airport (York Aviation, 2004) and literature often calls for a better understanding of them.

Bråthen (2003) provides a cost benefit analysis of regional airports in Norway. The study reveals cases for airport closure when considered from an economic point of view but makes it clear that regional development issues also need to be addressed when conducting such an analysis. The consequences for regional development are briefly mentioned and one of the main recommendations is that more information is needed on the catalytic impact of airports.

Lian et al. (2005) provide an economic analysis of air transport in Norway. The study focuses on direct, indirect and induced impacts but also analyses catalytic impacts using case studies on four airports; Oslo Gardermoen, Bergen, Molde and Leknes. Similarly to Bråthen (2003), the study concludes that a main challenge for the future is to document catalytic impacts.

Bråthen et al. (2006) provides an analysis of the social effects of aviation. The analysis includes a case study on the catalytic impact of Molde Airport on businesses in the surrounding area. The case study is based on a pilot survey of 78 businesses and concludes that catalytic impacts may be significant, are likely to vary by airport and region, and that more research is needed.

Lian et al. (2007) investigates the sustainability and social benefit of aviation. The study investigates a number of catalytic impacts including the impact that airports have on regional accessibility and population change by proximity to a local airport. The study also provides case studies on Stavanger Airport and Mehamn Airport. The case study on Stavanger Airport is based on interviews with staff of six international businesses in the Stavanger region. The case study on Mehamn Airport is based on a survey of 59 passengers in the terminal of Mehamn Airport, of which 25 were local residents. Samples in both case studies are somewhat limited.

The catalytic impact of airports has been considered by a number of studies in Europe (e.g. Bandstein et al., 2009; Kupfer and Lagneaux, 2009; York Aviation, 2005; York Aviation, 2004; York Consulting, 2000; ACI-Europe, 1998). These studies, along with the previously mentioned studies in Norway, generally find that airports have three main types of catalytic impact.

1. Airports contribute to regional accessibility e.g. by securing access for regions.
2. Airports contribute to regional social development e.g. by:
 - providing residents with opportunities to travel for work or leisure;
 - allowing residents to maintain contact with friends or relatives;
 - providing residents with access to services such as health and education; and,
 - influencing the location decisions and the retention of residents.
3. Airports contribute to regional economic competitiveness e.g. by:
 - promoting exports, including tourism;
 - enhancing business operations and production;
 - attracting inward investment; and,
 - influencing location decisions and the retention of businesses.

It is worth noting that catalytic impacts such as those listed above may subsequently result in economic impacts (e.g. on employment, income and tax revenues) due to the contribution of air transport to activities such as tourism and trade or the contribution that air transport has on productivity and value-added. The catalytic economic impact of air transport has been investigated by literature already cited in this introduction. Additional literature includes ATAG (2008), Oxford Economic Forecasting (2006), Cooper and Smith (2004). Disagreements exist regarding quantification of the catalytic economic impacts of air transport and an assessment of arguments put forward is provided by Boon and Wit (2005). This study is focused largely on catalytic socio-economic impacts as opposed to catalytic economic impacts.

1.2 Study aim and objectives

This study aims to contribute to existing literature by investigating the catalytic impact of airports in Norway. The main objectives are to investigate impacts on: (1) regional accessibility; (2) regional social development; and, (3) regional economic competitiveness. The main focus of the study is to investigate the opinions of residents and businesses. Their opinions are important given that they are the main beneficiaries of an airport. Opinions of businesses have been investigated by previous studies in Norway (e.g. see Bråthen et al., 2006; Lian et al., 2007). However, resident opinions are rarely investigated.

Improved regional accessibility as a result of having a local airport⁷ may enhance opportunities for the social development of residents such as being better able to: travel for work and leisure; maintain contact with friends or relatives; attend or participate in sport or cultural activities and events; and, access basic services such as health and education. It may also contribute to regional economic competitiveness by: enhancing opportunities for the development of businesses; promoting the export of products or services; enhancing business operations and production; and, influencing business investment decisions.

The presence of a local airport may be particularly important for residents and businesses in more remote areas where access to opportunities for social or business development may be more dependent on air travel compared to other modes of transport. Improved regional accessibility may also have a wider impact on the region by influencing the location and

⁷ The term 'local airport' is sometimes used as part of a classification of airports (e.g. the British airport system consists of gateway international airports, regional airports, local airports and general aviation airports). The term is used in this report when referring to the nearest airport (to a person or business) and not as part of a classification.

retention of residents and businesses, especially in smaller and more remote areas where the risk of outward migration of both residents and businesses might be particularly high.

This study therefore aims to investigate and compare resident use of their local airport and their opinions about the airport in terms of its contribution to regional accessibility, opportunities for social development, and location and retention. The study also aims to investigate and compare business use of their local airport and their opinions about the airport in terms of its contribution to regional accessibility, the export of products and services, business operations and production, investment, and location and retention.

In addition to investigating opinions of residents and businesses, this study aims to investigate the catalytic impact of airports in Norway through the analysis of secondary data in an attempt to quantify a number of catalytic impacts.

Readers should be aware that this study focuses largely on positive catalytic impacts. The authors recognise that airports may also have negative impacts on the regions that they serve, especially relating to environmental issues such as noise and emissions. Investigating such impacts is beyond the remit of this study. Furthermore, this study does not analyse the benefits of airports relative to the cost of providing airport infrastructure and services.

1.3 Methodology

This study consists of two phases of research. The first phase is based on desk research and provides a quantitative analysis of the catalytic impact of airports in Norway. The analysis draws on the findings of previous studies but also includes original analysis of published data. The analysis investigates the extent to which airports contribute to regional accessibility, social development and economic competitiveness.

Previous studies suggest the use of case studies when investigating the catalytic impact of airports (e.g. see Lian et al., 2007). This is because a case study can provide an in-depth analysis that draws on a wide range of evidence to illustrate the link between an airport and its wider role on regional development. In addition, York Consulting (2000) suggests that catalytic impacts are best described in qualitative terms, citing surveys on attitudes [e.g. of local residents or businesses] as the most appropriate methodology. Econometric studies are also recommended (e.g. see Lian et al, 2007; OEF, 2006) but this approach is more relevant for studies on catalytic economic impacts. This study is focused largely on catalytic socio-economic impacts. A case study based on attitudinal surveys is therefore appropriate for this study.

The second and main phase of this study is based on primary research that provides a comparative case study on the catalytic impact of airports in two regions of Norway. The findings are based on a survey of residents and businesses in Sunnmøre and Sør-Helgeland. The main towns of the respective regions are Ålesund and Brønnøysund and each of the towns has its own airport; Ålesund Airport and Brønnøysund Airport. Both regions are considered remote in the context of Europe (e.g. see Gloersen, 2005). However, the characteristics of the regions and their airports differ. In a Norwegian context, Sunnmøre is a larger and less remote region compared to Sør-Helgeland. This means that in addition to investigating resident and business opinions in general, a comparison can be made between the opinions of residents and businesses in the different regions.

1.4 Report structure

This report provides a written account of the study. Section one has provided a brief background to the study, outlined the aim and objectives, and introduced the methodological approach taken. Section two provides the Norwegian context; identifying specific issues relating to the contribution of airports to regional accessibility, social development and economic competitiveness. Section two also documents the findings of the first phase of research for this study; providing a quantitative analysis of the catalytic impact of airports in Norway based on the findings of previous studies and on original analysis of published data. Section three details the methodological approach taken for the second and main phase of research; the comparative case study on the catalytic impact of airports in two regions of Norway based on a survey of residents and businesses in each region. Section four provides the main findings of the resident survey. Section five provides the main findings of the business survey. Section six provides a list of references for literature that is cited in this report. Section seven consists of appendices to this report.

1.5 Acknowledgements

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The authors would like to thank Nordregio for producing maps used in this report and for recommending useful sources of literature. The authors would like to thank RRG Spatial Planning and Geoinformation and ESPON for authorising use of maps used in this report. The authors would like to thank the experts from industry and academia that provided comments on draft versions of the surveys used by this study (see table 3.1).

In addition, the authors would like to thank: Tone Finnøy Straumsheim (Higher Executive Officer at Møreforsking Molde) for administrative support during the project; Jens Erik Østergaard (Printer at Molde University College) for printing and folding the resident surveys; Jan Husdal (Researcher in Transport Economics at Møreforsking Molde) for assisting in the design of the resident survey and for responding to questions and comments from residents selected to take part in the resident survey; students of courses in Survey Design and Air Transport Economics at Molde University College for assisting in the design and pre-testing of the resident survey; and, Siu Lan Tjew (MSc Logistics student at Molde University College) and Uttam Regmi Kumar (PhD Air Transport student at Molde University College) for assisting with packing the resident survey and data entry of responses.

Finally, the authors would like to thank residents and businesses of Sunnmøre and Sør-Helgeland for participating in the surveys. This study would not have been possible without their contribution.

2 NORWEGIAN CONTEXT

Norway is located on the western part of the Scandinavian Peninsula in Northern Europe. According to Statistics Norway (2010a), the country extends 1 752 kilometres and has the greatest length of any country in Europe. The country has a surface area of 305 470 square kilometres and a population of 4,8 million. This means the country has a population density of 16 inhabitants per square kilometre. This is the second lowest population density in Europe after Iceland. 584 292 inhabitants live in the capital city of Oslo but settlements are spread across the entire length of the country. Many of these settlements are sparsely populated (see figure 2.1).

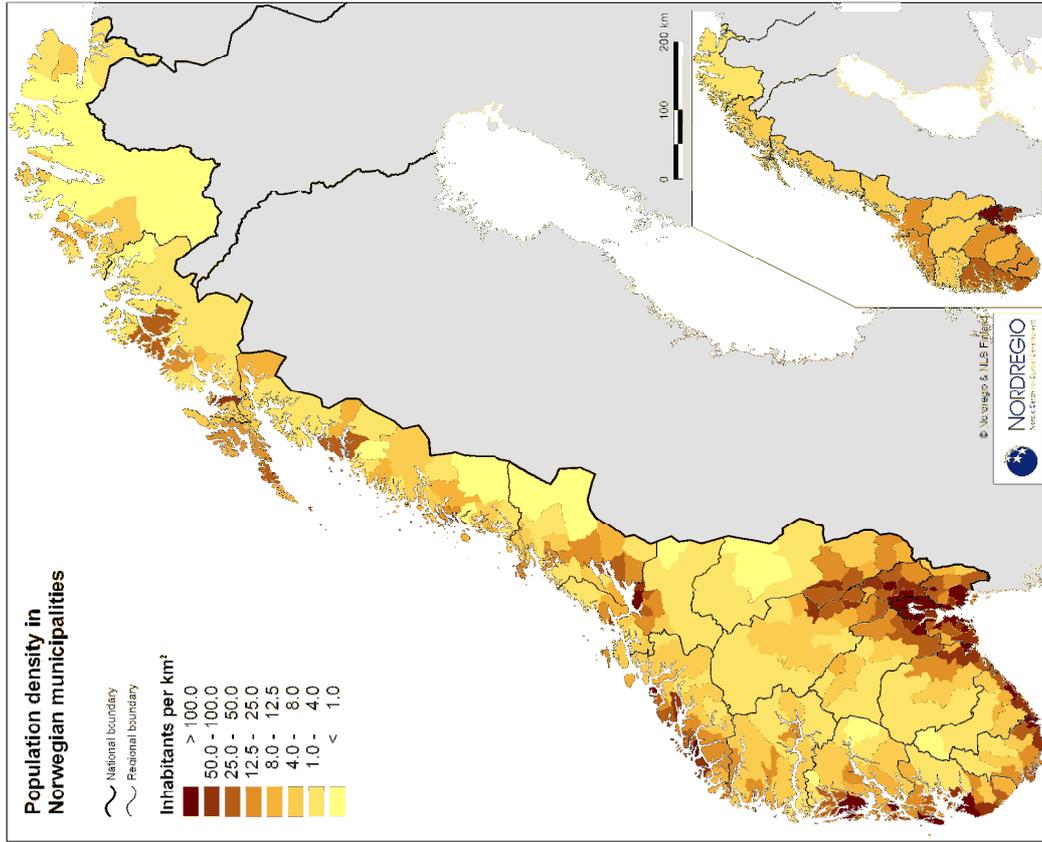
2.1 Regional accessibility

The size and length of the country, with sparsely populated settlements from north to south, provides some idea as to the challenges faced in terms of accessibility. The challenges are further exacerbated by the topography and climate of the country. A vast majority of the country is defined as being mountainous (see figure 2.2). The country also has long fjords, especially on the west coast. The Sognefjord is the longest fjord in Norway and the second longest in the world. It stretches 205 kilometers inland. Almost one-third of the country is located north of the Arctic Circle meaning that it experiences a harsh arctic climate, especially during the winter when snow and icy conditions, combined with mountainous terrain, can hinder travel by land and limit access to certain parts of the country.

Due partly to the low population density, long coastline, mountainous terrain and arctic climate, Norway's land-based transport system is relatively undeveloped, especially outside of the main towns. Rail infrastructure is limited to a conventional mainline network of long-haul routes from Oslo heading west to Stavanger and Bergen, and north to Åndalsnes, Trondheim and Bodø. The only high-speed line is the Gardermoen Line, connecting the city of Oslo to Oslo Gardermoen Airport. Norway has 72 033 kilometers of paved road including just 664 kilometers of motorway (Central Intelligence Agency, 2010). The most important routes are the E6 that goes from north to south and the E39 that follows the west coast. The Coastal Express ferry operates daily scheduled services from Bergen on the west coast to Kirkeness in the far north. The southbound service calls at 34 ports and takes 5 days. The northbound service calls at 34 ports and takes 6 days (Hurtigruten, 2010).

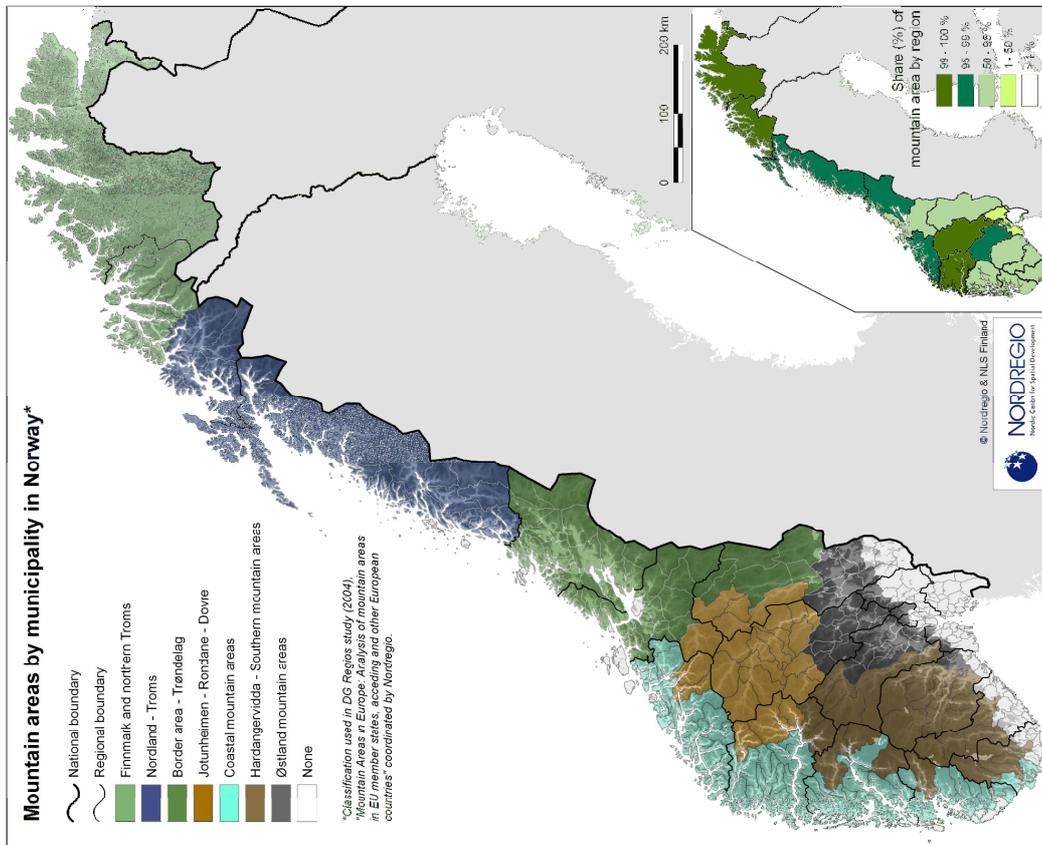
Norway has a relatively good infrastructure for air services. 52 airports provided commercial passenger movements in 2009 (Avinor, 2010a). 46 of the airports are operated by the state-owned airport operator; Avinor. Six of the airports are independently-operated. Figure 2.3 shows the distribution of 51 airports in Norway. One independently-operated airport is not shown in figure 2.3; Moss Airport Rygge, which opened in October 2007 and is 63 kilometres south of Oslo. The country is served by a good network of domestic connections (see figure 2.4), which includes 42 public service obligations (European Commission, 2010). International connections are available from all of the large-sized airports. A number of medium-sized airports also have international connections, although it is worth noting that many of the international connections from those airports are charter versus scheduled (see figure 2.5, which excludes Oslo Gardermoen Airport - OSL).

Figure 2.1 Population density in Norwegian municipalities



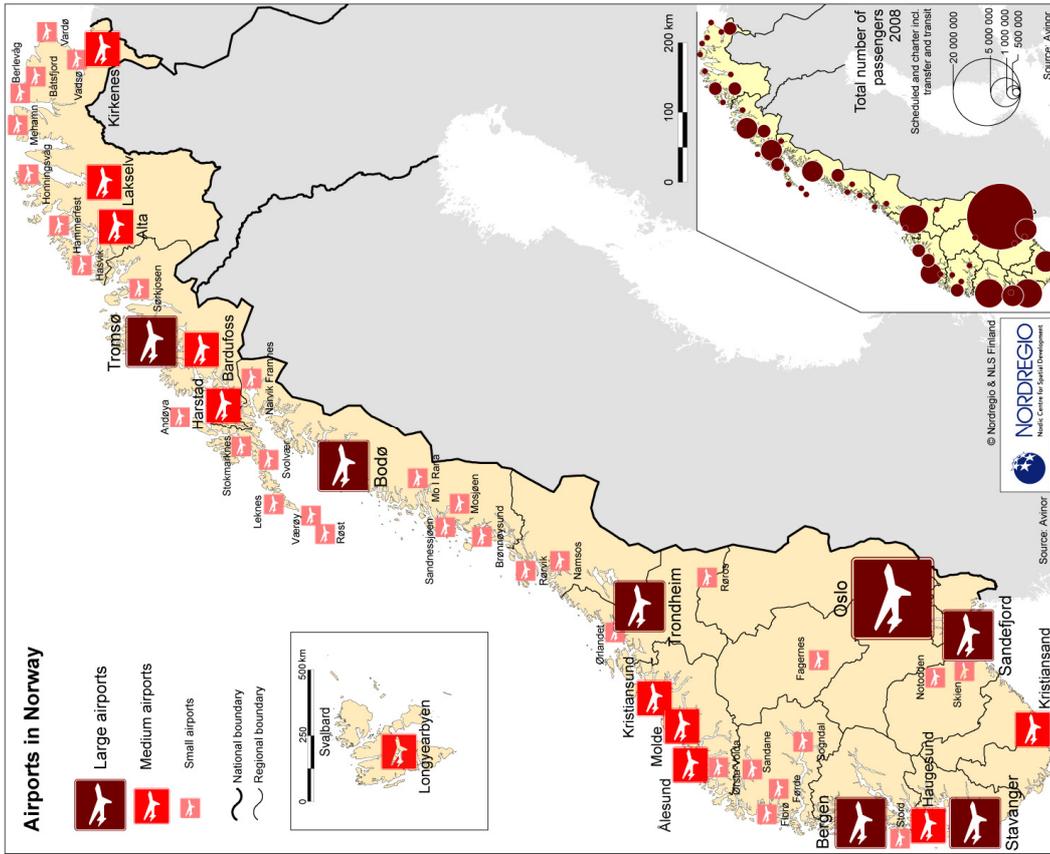
Map developed for this project by NORDREGIO.

Figure 2.2 Mountain areas by municipality in Norway*



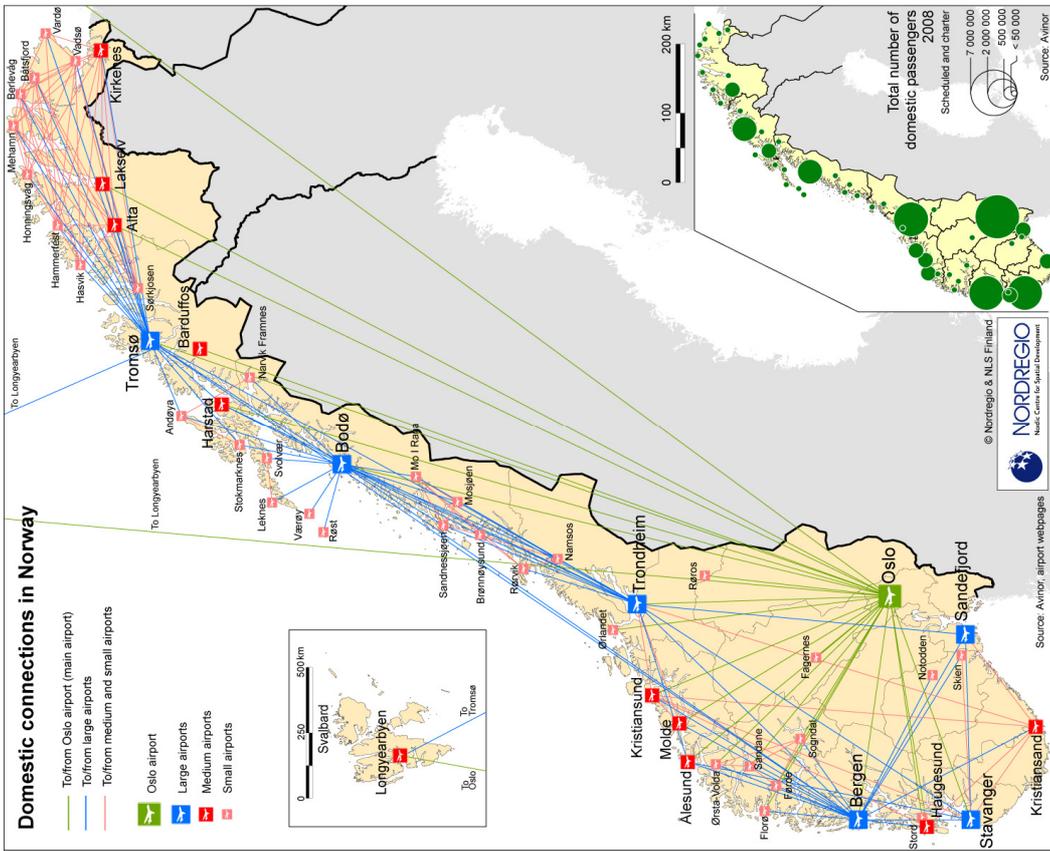
Map developed for this project by NORDREGIO.

Figure 2.3 Airports in Norway



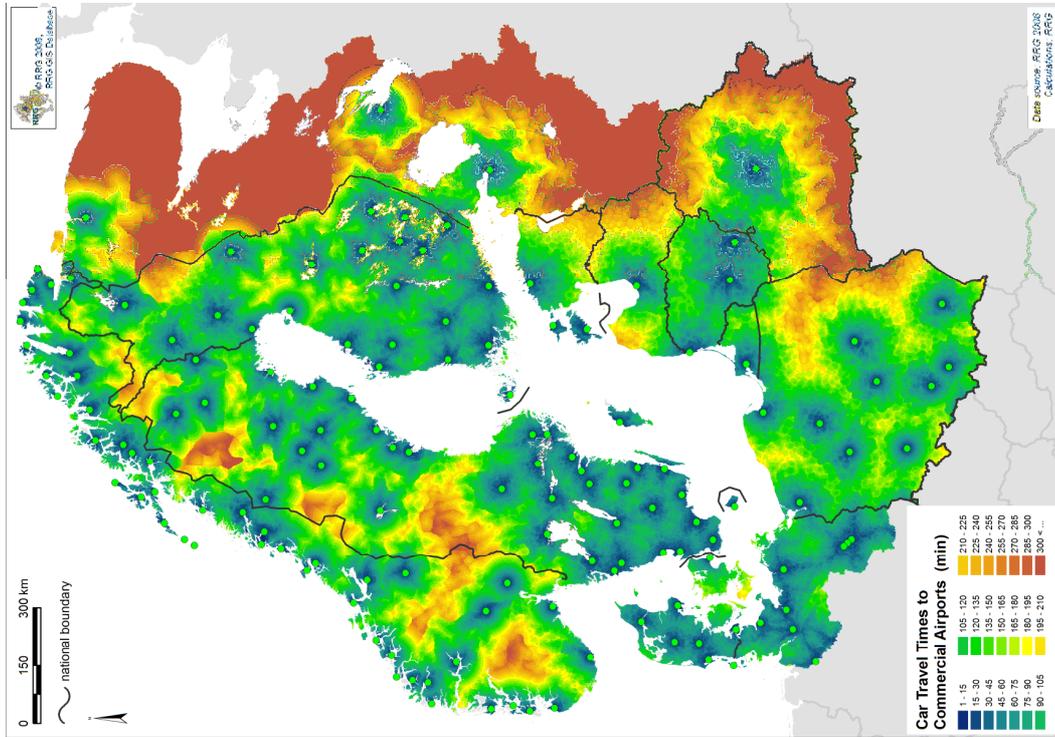
Map developed for this project by NORDREGIO.

Figure 2.4 Domestic connections in Norway



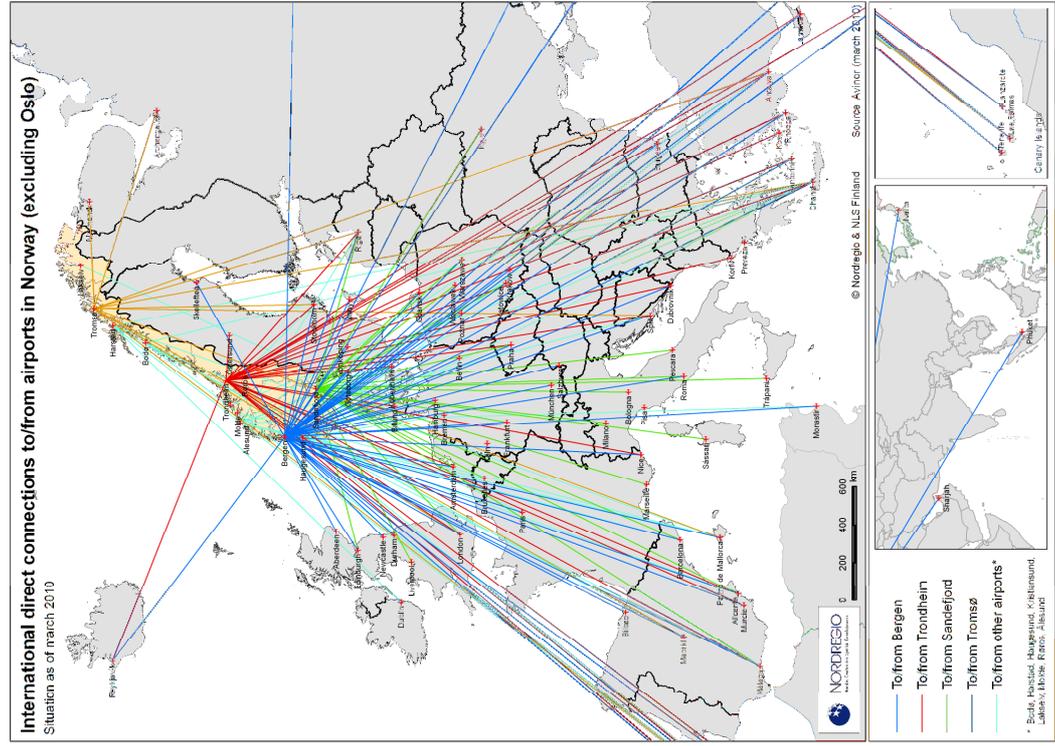
Map developed for this project by NORDREGIO.

Figure 2.6 Car travel times to commercial airports



Source: Schmitt and Dubois (2008). Calculation by C. Schürmann (RRG).

Figure 2.5 International direct connections in Norway (exc. OSL)

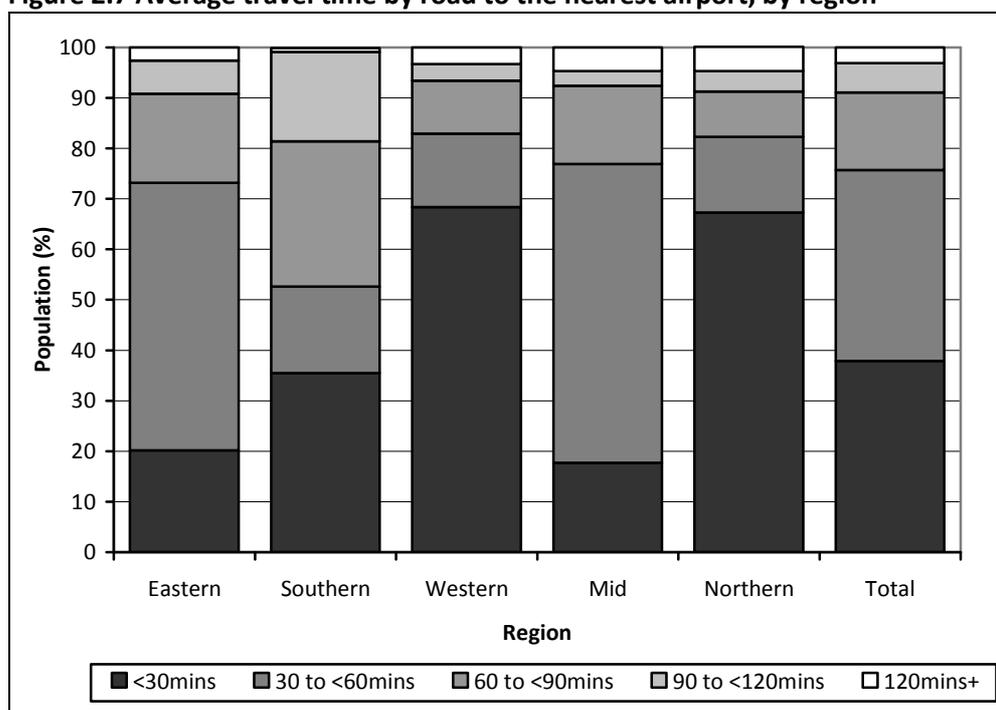


Map developed for this project by NORDREGIO.

Figure 2.6 shows car travel times to commercial airports in Norway. Access is particularly good along the coast, which is where most of the airports and urban settlements are located. It is worth noting that the data used to create figure 2.6 is from 2006. This means that some airports that are currently used for commercial services are missing from the analysis (e.g. Moss Airport Rygge). However, the general situation for the country is unchanged.

Travel times to commercial airports in Norway were analysed as part of this study. Car travel times from the administration centre of each of the 430 municipalities in Norway to the nearest commercial airport were calculated using the online planning tool of the Norwegian Public Roads Administration (www.visveg.no). Results by region are summarised in figure 2.7. Results are also summarised at the national-level (total). 37,9% of the population in Norway is able to travel from the administration centre of their municipality to the nearest airport in less than 30 minutes, 75,7% in less than 60 minutes, 91,1% in less than 90 minutes, 96,9% in less than 120 minutes. Only 3,1% of the population is 120 minutes or more from their nearest airport. The average for all 430 municipalities is 64 minutes. Access to airports is particularly good in the western and northern regions of Norway where over two thirds of the population in both regions is able to travel to their nearest airport in less than 30 minutes.

Figure 2.7 Average travel time by road to the nearest airport, by region



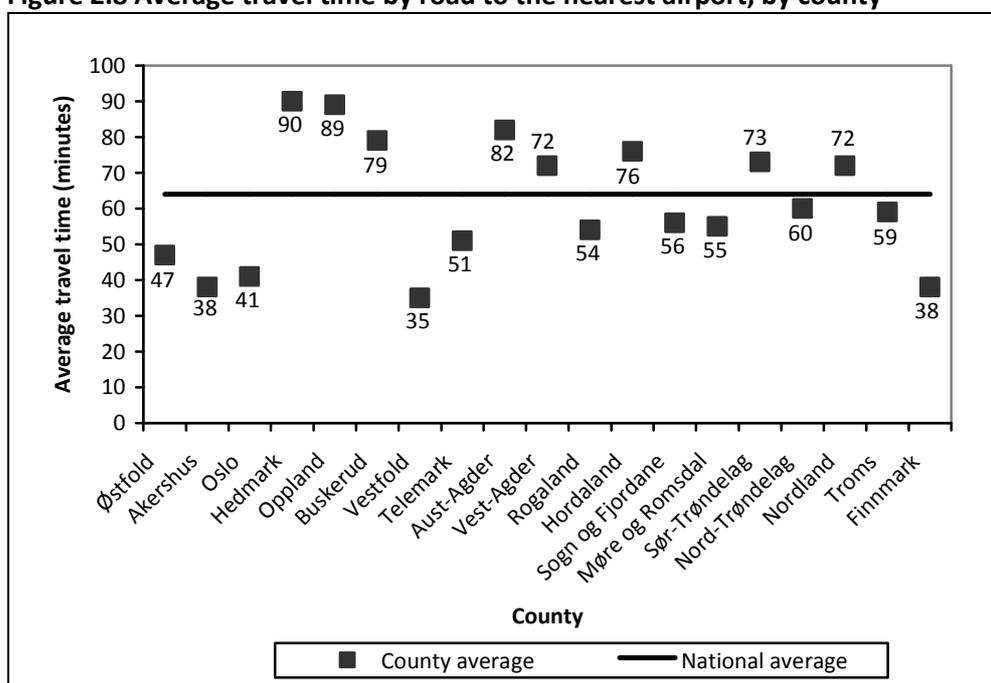
The longest travel time is for Træna municipality in the county of Nordland. It is 385 minutes from Mo i Rana Airport. This includes the 140 minute car ferry from Træna to Stokkvågen. This can be reduced if not travelling by car as there is a passenger ferry from Træna to Sandnessjøen that takes 160 minutes. Sandnessjøen Airport is then about 10 minutes away so the journey can be made in 170 minutes.

Airport substitution is a typical feature of the Norwegian airport system. Residents of many municipalities have multiple choices when it comes to airport access. The results in figure 2.7 are based only on the shortest travel time by car between the administration centre of each municipality and an airport. Average travel times may change if using alternative methods (e.g.

Træna is 170 minutes from Sandnessjøen if using the passenger ferry compared to 385 minutes from Mo i Rana if using the car ferry). In addition, residents of some municipalities may be closer to, or prefer to use services at alternative airports. However, the use of alternative methods is unlikely to have a significant impact on the results in figure 2.7 as the proportions within categories would remain largely unchanged (e.g. Træna is in the 120 minutes or more category whether travel time to Sandnessjøen Airport or Mo i Rana Airport is used).

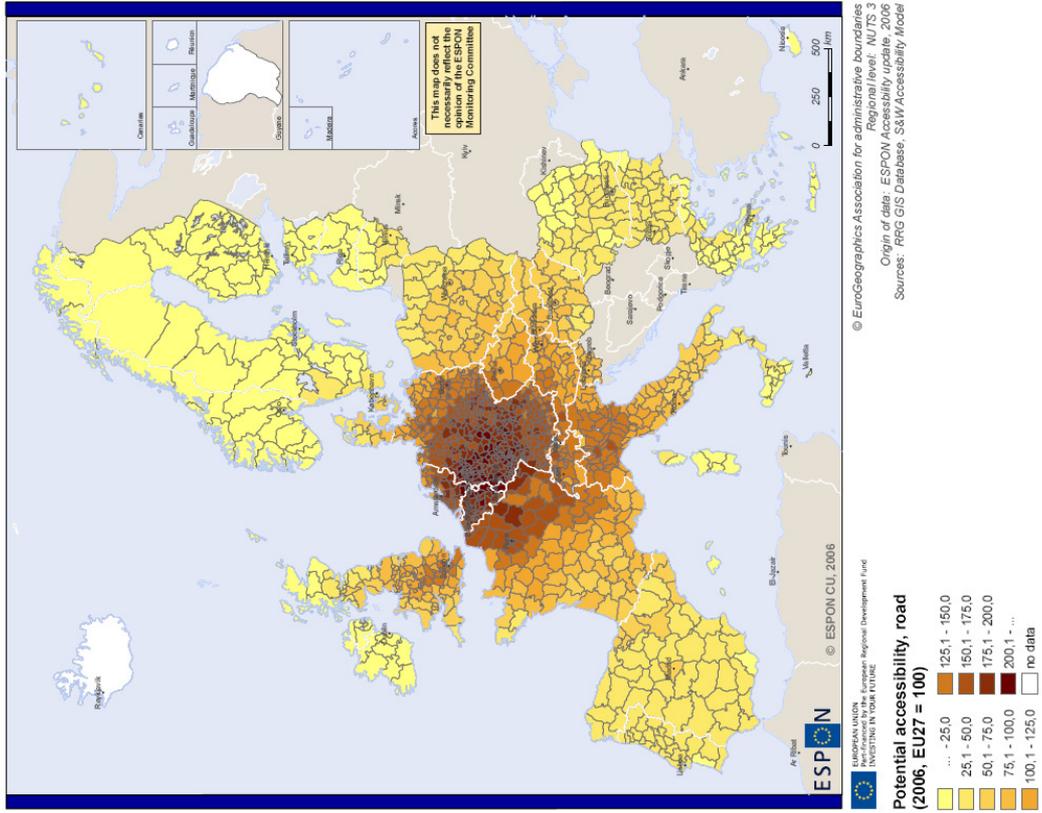
Figure 2.8 provides average travel times to the nearest airport by county. Averages are based on the municipality-level data used to create figure 2.7. The national average is 64 minutes. The lowest average is for Vestfold with 35 minutes. The highest is for Hedmark with 90 minutes.

Figure 2.8 Average travel time by road to the nearest airport, by county



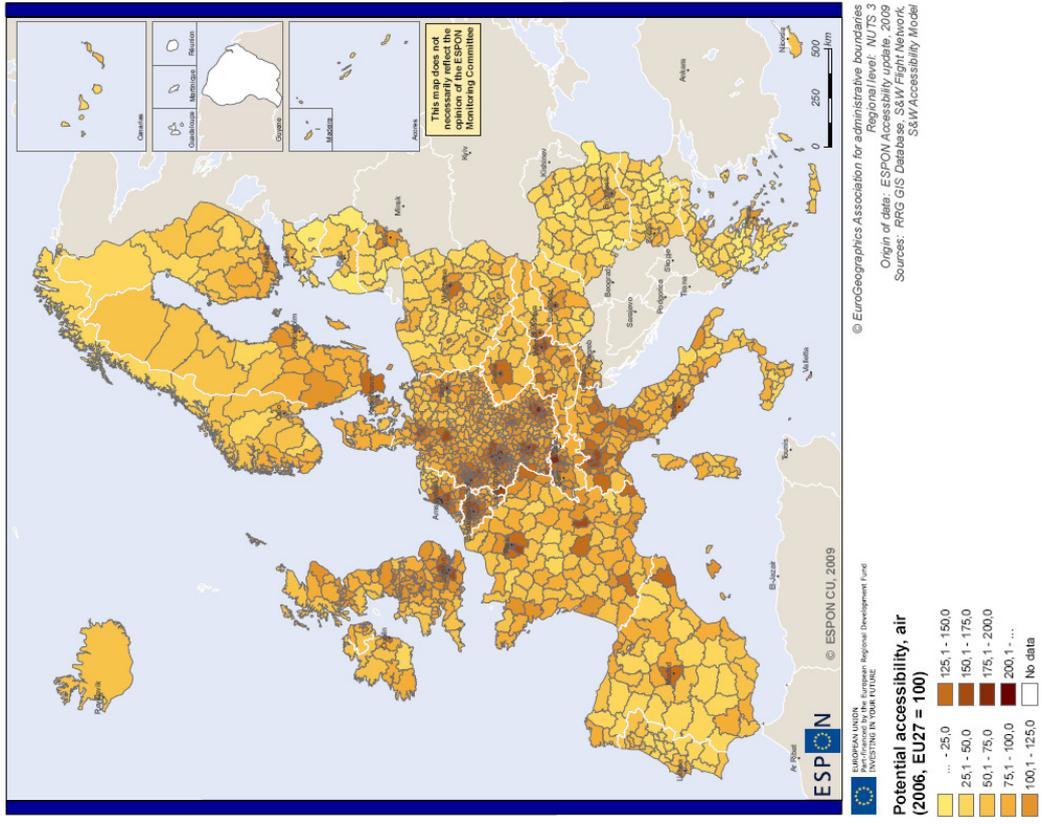
A range of accessibility indicators have been developed at the European-level (e.g. see ESPON, 2009; ESPON, 2004). At the European-level, Norway and its regions are typically defined as having low levels of accessibility. For instance, figure 2.9 shows the potential accessibility of regions to population in Europe by road. All of Norway's regions are in the lowest category of potential accessibility (index of below 25 with the average for Europe being 100). The same is found for Norway if using potential accessibility by rail (all of the regions have an index of below 25). However, when calculating potential accessibility by air (see figure 2.10), regions of Norway have much higher levels of potential accessibility. The region of Oslo has an index of 100 (equivalent to the European average) and Akershus has an index of 95,9. Nord-Trøndelag has the lowest potential accessibility by air in Norway (index of 33,7). However, this is much higher than its potential accessibility by road (index of 1,3). On average, regions of Norway have an index of 62,5 by air compared to 5,5 by road.

Figure 2.9 Potential accessibility by road, 2006



Source: Schürmann and Spiekermann (2007).

Figure 2.10 Potential accessibility by air, 2006



Source: ESPON (2009).

Spatial indicators such as those in figure 2.9 and 2.10 are used at the European level to compare levels of peripherality. The indicators (also known as gravity models) typically compare levels of accessibility to potential markets (e.g. population) or economic activity (e.g. gross domestic product). In this context, peripherality implies that central areas with better access to markets will be more productive, competitive and successful than remoter and more isolated peripheral areas (Linneker, 1997). Further information on spatial indicators can be found in Spiekermann and Neubauer (2002).

Airports only enhance regional accessibility if they have good air services. A number of European studies (e.g. see Gloersen, 2005) and Norwegian studies (e.g. see Lian et al., 2007) use access to the capital city as a key indicator of regional accessibility, especially the ability to travel to the capital city and back on the same day. Some rationale for using this type of indicator is provided by Lian et al. (2007).

Table 2.1 lists each airport in Norway. It includes the arrival time at OSL of the first available flight from the airport and the last available departure from OSL. This means that the time available in Oslo, which in table 2.1 does not include travel time between OSL and Oslo, can be calculated. The table also shows if it is a direct flight connection and the population (number) that has the airport as its local airport - note that this does not necessarily reflect the actual size of the airports catchment area. The valid and cumulative proportion of the total population served by the connection is also listed.

Table 2.1 Travel to Oslo from airports in Norway

Airport	Arrive OSL	Depart OSL	Time in Oslo	Direct flight	Number	Population Valid %	Cumulative %
Sørkjosen	12:05	16:20	04:15	No	11 161	0,23	0,23
Båtsfjord	13:40	18:25	04:45	No	2 070	0,04	0,27
Kirkenes	13:40	18:25	04:45	Yes	9 738	0,20	0,47
Vardø	13:40	18:25	04:45	No	2 124	0,04	0,52
Namsos	13:20	18:20	05:00	No	53 523	1,10	1,62
Honningsvåg	10:20	16:20	06:00	No	3 185	0,07	1,68
Mehamn	10:20	16:20	06:00	No	2 351	0,05	1,73
Mosjøen	11:50	18:35	06:45	No	16 328	0,34	2,07
Narvik	11:50	18:35	06:45	No	24 175	0,50	2,57
Fagernes	09:25	17:15	07:50	Yes	140 150	2,88	5,45
Lakselv	10:20	18:30	08:10	No	8 047	0,17	5,62
Vadsø	10:20	18:30	08:10	No	9 887	0,20	5,82
Ørland	08:40	18:00	09:20	Yes	25 577	0,53	6,35
Alta	07:35	19:55	09:35	Yes	22 716	0,47	6,81
Hammerfest	10:20	19:55	09:35	No	10 750	0,22	7,04
Andøya	08:50	18:35	09:45	No	5 002	0,10	7,14
Leknes	08:50	18:35	09:45	No	13 173	0,27	7,41
Stokmarknes	08:50	18:35	09:45	No	25 027	0,52	7,92
Stord	07:55	18:00	10:05	Yes	47 737	0,98	8,91
Mo i Rana	09:10	19:25	10:15	No	34 041	0,70	9,61
Rørvik	09:10	19:25	10:15	No	11 306	0,23	9,84
Bardufoss	09:00	19:30	10:30	Yes	38 416	0,79	10,63
Brønnøysund	08:50	19:25	10:35	No	11 499	0,24	10,87
Sandnessjøen	08:50	19:25	10:35	No	12 385	0,25	11,12
Sogndal	08:25	19:35	11:10	Yes	32 464	0,67	11,79
Røros	07:30	19:15	11:45	Yes	27 055	0,56	12,35
Harstad/Narvik	08:30	21:05	12:35	Yes	35 934	0,74	13,09
Tromsø	08:45	22:00	13:15	Yes	74 716	1,54	14,63

Table 2.1 Travel to Oslo from airports in Norway (continued)

Airport	Arrive	Depart	Time in	Direct	Number	Population	
	OSL	OSL	Oslo	flight		Valid %	Cumulative %
Bodø	08:20	22:00	13:40	Yes	78 911	1,62	16,25
Florø	08:10	21:55	13:45	Yes	15 494	0,32	16,57
Ørsta-Volda	07:25	21:10	13:45	Yes	74 164	1,53	18,10
Ålesund	07:55	21:45	13:50	Yes	89 415	1,84	19,94
Kristiansund	07:30	21:45	14:15	Yes	41 535	0,85	20,79
Førde	07:30	22:05	14:35	Yes	35 241	0,73	21,52
Haugesund	07:15	21:50	14:35	Yes	117 319	2,41	23,93
Molde	07:40	22:15	14:35	Yes	77 613	1,60	25,53
Kristiansand	07:10	22:05	14:55	Yes	255 855	5,27	30,80
Trondheim	07:10	22:35	15:25	Yes	327 698	6,75	37,54
Bergen	07:05	22:50	15:45	Yes	413 510	8,51	46,05
Stavanger	07:10	23:40	16:30	Yes	337 349	6,94	53,00
Berlevåg	08:40+1	18:25	O'night	No	1 044	0,02	53,02
Hasvik	13:40	08:00+1	O'night	No	934	0,02	53,04
Røst	07:05+1	15:35	O'night	No	1 373	0,03	53,06
Svolvær	08:50	22:00	O'night	No	9 023	0,19	53,25
Sandefjord	N/A	N/A	N/A	N/A	222 411	4,58	57,83
Moss	N/A	N/A	N/A	N/A	421 013	8,67	66,49
Notodden	N/A	N/A	N/A	N/A	130 605	2,69	69,18
Skien	N/A	N/A	N/A	N/A	139 187	2,86	72,05
Oslo	N/A	N/A	N/A	N/A	1 357 958	27,95	100,00
Total population					4 858 199	100,00	

Notes:

1. Calculations are based on scheduled flight timetables on Monday 7 June 2010.
2. The longest possible time in Oslo has been given priority over flight schedules. In addition, the possibility of travelling to and from Oslo on the same day has been given priority over direct flights. For instance, Brønnøysund Airport has a direct flight that arrives at OSL at 15:35 but the return flight departs OSL at 12:00.
3. Calculations have not been made for Værøy Heliport or Sandane Airport (closed from 1 May to 26 August). Municipalities that have these airports as their nearest airport have been allocated to their next nearest airport.
4. The table does not include Norway's outermost regions such as Svalbard.

From table 2.1, it can be seen that 53,0% of the population is able to travel to Oslo and back on the same day from their nearest airport. 46,7% of the population is served by an airport that does not have an air service connection to Oslo, largely because it is located relatively close to Oslo and the population served by the airport either live in Oslo or so close to Oslo that they are unlikely to be dependent on air access to the city. Only 0,3% (from 4 airports) is not able to travel to Oslo and back on the same day from their nearest airport and would need an overnight stay in Oslo or somewhere en-route.

Lian et al. (2007) suggest that few alternatives to air travel are available in Norway, especially for longer journeys. 92% of the air transport share of total passenger kilometres has no realistic alternative. Table 2.2 compares travel times by road versus air. The table lists the results by county and provides a total figure for Norway. However, the analysis was conducted at the municipality-level and results are averaged at the county-level. In total, an average of 553 minutes (9 hours 13 minutes) is saved when using air travel to Oslo versus travel by road. As to be expected, the greater savings are experienced as distance from Oslo increases and are particularly high in the counties of northern Norway (Nordland, Troms and Finnmark). Table 2.3 presents the results of the analysis according to time saved by air by number and proportion of municipalities and population.

Table 2.2 Travel time to Oslo by air and road (one-way trip)

County	Municipalities		Average travel time (minutes)		Difference (minutes)
	Total	Excluded ¹	By air ²	By road ³	
Østfold	18	18	n/a	n/a	n/a
Akershus	22	22	n/a	n/a	n/a
Oslo	1	1	n/a	n/a	n/a
Hedmark	22	14	221	326	-106
Oppland	26	5	214	242	-27
Buskerud	21	0	201	182	-19
Vestfold	14	14	n/a	n/a	n/a
Telemark	18	18	n/a	n/a	n/a
Aust-Agder	15	4	269	207	-62
Vest-Agder	15	0	209	387	-178
Rogaland	26	0	200	517	-318
Hordaland	33	0	224	497	-273
Sogn og Fjordane	26	0	196	490	-294
Møre og Romsdal	36	0	197	570	-373
Sør-Trøndelag	25	0	228	528	-299
Nord-Trøndelag	24	0	250	691	-441
Nordland	44	0	286	1 275	-989
Troms	25	0	272	1 656	-1 385
Finnmark	19	0	326	2 268	-1 942
Total for Norway	430	111	235	788	-553

¹ Served by one of the following airports: Sandefjord, Moss, Notodden, Skien or Oslo.

² Includes travel time by road from the administration centre of the municipality to the nearest airport, check-in time (50 minutes for Tromsø, Bodø, Trondheim and Bergen. 40 minutes for other airports), flight time to OSL, 45 minutes to exit OSL and travel to Oslo Central on the Airport Express Train.

³ Includes travel time by road from the administration centre of the municipality to the centre of Oslo and includes one 30 minute break for every 4,5 hours.

Table 2.3 Time saved travelling to Oslo by air versus road (one-way trip)

Time saved by air	Municipalities		Population	
	Number	% total	Number	% total
Served by Sandefjord, Moss, Notodden, Skien or Oslo	111	25,8	2 271 174	46,7
Time not saved by air	9	2,1	81 204	1,7
1 hour or less	19	4,4	107 369	2,2
Over 1-5 hours	86	20,0	514 800	10,6
Over 5-10 hours	119	27,7	1 411 685	29,1
Over 10-15 hours	18	4,2	89 287	1,8
Over 15-20 hours	9	2,1	76 447	1,6
Over 20-25 hours	35	8,1	221 440	4,6
Over 25-30 hours	8	1,9	35 308	0,7
Over 30-35 hours	13	3,0	31 522	0,6
Over 35-40 hours	3	0,7	17 963	0,4
Total	430	100,0	4 858 199	100,0

According to table 2.3, 25,8% of municipalities and 46,7% of the population in Norway is not likely to consider air travel to Oslo as a viable alternative to road as they are already located in or around Oslo. A further 2,1% of municipalities and 1,7% of the population would save time travelling by road versus air. A further 4,4% of municipalities and 2,2% of the population would only save one hour or less if travelling by air versus road so road travel is the most likely option for this category. Competition between road and air is likely to exist in the over one to five hours category which represents 20,0% of municipalities and 10,6% of the population. Competition may also exist in the over five to 10 hours category which represents 27,7% of municipalities and 29,1% of the population although air travel may be the most likely option for this category. Air travel is expected to be the most likely option for remaining categories (i.e. over 10 hours) which represents 20,0% of municipalities and 9,7% of the population.

Obviously, readers should note that travel by rail or sea has not been considered in this analysis but that they also feature as alternative options to travel by air or road.

2.2 Regional social development

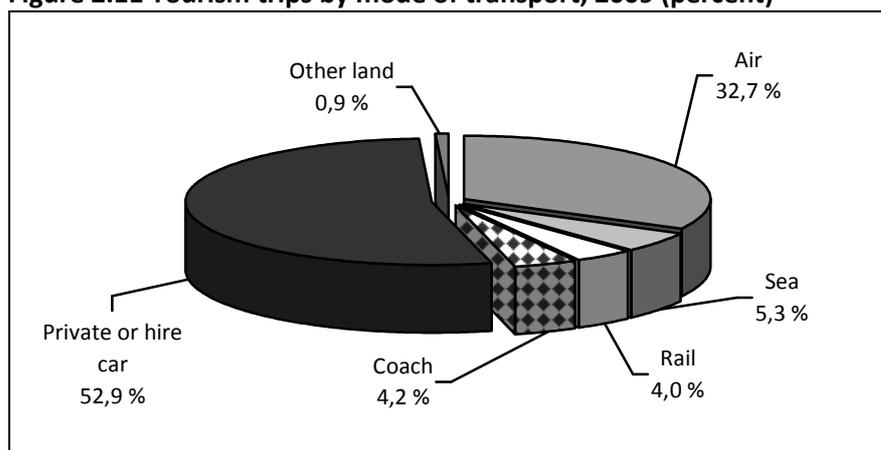
Air transport makes it possible to travel. According to a survey of air passengers in Norway (see Denstadli and Rideng, 2010), 27,3 million one-way trips were taken by air in 2009 (12,6 million on domestic routes and 14,7 million on international routes). The total number of trips has increased from 11,0 million in 1992.

For Norway, the average number of trips per person in 2009 was 2,3 on scheduled domestic routes and 1,6 on scheduled international routes. Residents of Northern Norway had the highest frequency of trips on scheduled domestic routes (5,4 trips per person, increasing to 6,6 in the Northern Norway municipality of Finnmark). Residents of Oslo had the highest frequency of trips on scheduled international routes (2,8 trips per person).

The customer base for air travel in Norway is defined as the number of Norwegians taking at least one trip by air during a given year. In 2009, the customer base was estimated as 1,6 for both domestic and international trips. This is in a country with a population of just 4,8 million.

There are a number of social development opportunities that are enhanced by the availability of air travel. One of the greatest opportunities is to be able to travel for leisure and work. According to Statistics Norway (2010b), 21,1 million trips for tourism were taken by Norwegians in 2009⁸; 14,5 million abroad, 6,6 million in Norway. 16,8 million trips were for leisure purposes, 4,3 million for work. Air travel is the second most important mode of transport after the personal or hire car with 6,9 million trips (32,7% of total trips) (see figure 2.11). If the personal or hire car is excluded the proportion by air increases to 69,3%, sea is 11,3%, coach is 8,9%, rail is 8,4% and other is 2,1%. Air travel therefore supports social and economic integration by providing opportunities to travel for leisure and work.

Figure 2.11 Tourism trips by mode of transport, 2009 (percent)



Data source: Statistics Norway (2010b).

⁸ This includes trips for leisure or business purposes with at least one overnight stay.

Denstadli and Rideng (2010) and earlier studies by the Norwegian Transport Economics Institute such as Denstadli et al. (1999) investigate the travel habits of air passengers in Norway including the main purpose for travel on domestic and international routes (see table 2.4). Studies generally find that the majority of air passengers travel on business trips (38% of passengers on domestic routes, 27% on international routes in 2009). Holiday/short-break travel is also a main market that has demonstrated particularly strong growth relative to other markets since 1992, especially on international routes, growing from 18% in 1992 to 37% in 2009.

Table 2.4 Main purpose of air travel on routes in Norway (percent)

Main purpose	Domestic		International	
	2009	1992	2009	1992
Total	100	100	100	100
Work	52	62	35	60
-Business trips	38	53	27	57
-Travel to/from work	14	9	8	3
Private	48	38	65	40
-Visit friends and relatives	21	18	20	15
-Holiday/short-break	17	8	37	18
-To/from a place of study	2	3	*	1
-Other	8	9	8	6

* Figure not provided for 2009.

Data source: Denstadli and Rideng (2010); Denstadli et al. (1999).

Table 2.4 also shows that air travel supports the visiting friends and relatives market, providing opportunities to visit or be visited. This market has grown relative to other markets since 1992; from 18% to 21% on domestic routes, and from 15% to 20% on international routes. A similar trend has been experienced in other European countries. For example, the proportion of international air passengers in the United Kingdom that are travelling to visit friends and relatives has increased from 18% in 2000 to 24% in 2008 (UK CAA, 2009).

Denstadli et al. (2008) show the actual market growth for air travel in Norway by main purpose between 2005 and 2007 (see table 2.5). The strongest growth has been experienced from those travelling to/from work (37% growth) and from those travelling to attend a course, conference or exhibition (31% growth). Strong growth has also been experienced from those taking holiday/short break trips and those travelling to visit friends and relatives (28% growth respectively). The foreign market for visiting friends and relatives has demonstrated particularly strong growth of 44%.

Table 2.5 Market growth for air travel in Norway by main purpose, 2005-2007

Main purpose	Market		
	Norwegian	Foreign	Total
Total	+23%	+34%	+26%
Work	+23%	+34%	+28%
-Travel to/from work	+15%	+51%	+37%
-Course, conference or exhibition	+32%	+29%	+31%
-Other business	+20%	+27%	+24%
Private	+23%	+33%	+26%
-Visit friends and relatives	+18%	+44%	+28%
-Holiday/short-break	+27%	+36%	+28%
-To/from a place of study	+13%	+20%	+15%
-Other	+13%	+10%	+12%

Data source: Denstadli et al. (2008).

Air travel provides other social development opportunities that are not always shown in air transport user statistics. It allows people to travel to attend or participate in cultural and sporting activities and events such as football matches, shopping and shows. Air travel is important for the mobility of otherwise less mobile people. More than 250 000 journeys were made by unaccompanied minors, the elderly and disabled persons in 2009 (Avinor, 2010b). There were almost 42 000 General Aviation aircraft movements in 2009 in Norway (Avinor, 2010a), supporting personal flying and related activities such as parachuting.

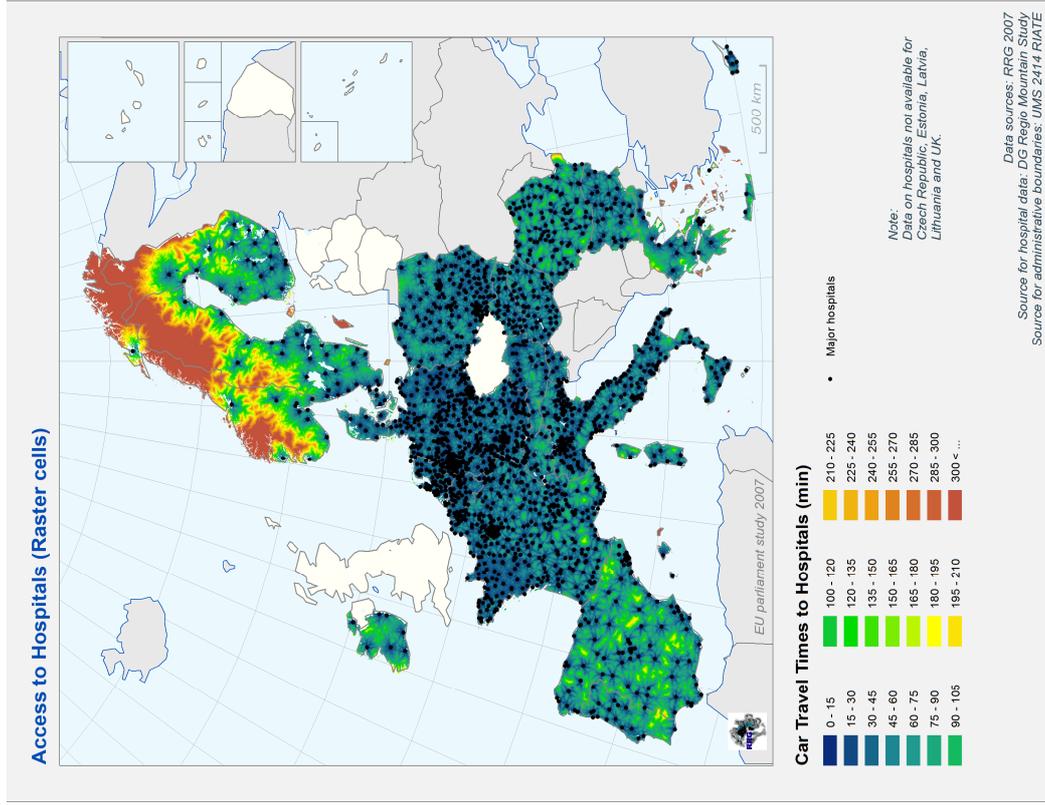
Air travel is also important for those needing to access basic services in Norway such as health and education. According to Avinor (2010b), the country's airports supported 30 000 air ambulance movements in 2009; approximately 30% of all movements took place at the small airports in figure 2.3. 400 000 patients are transported on scheduled flights each year. Air travel is particularly important for the health sector in Northern Norway. According to the Northern Norway Regional Health Authority (2010), 7 745 patients were transported by air ambulance in 2008 (daily average of 21,2); 79,2% by ambulance aircraft, 14,9% by ambulance helicopter, 5,9% by rescue helicopter. About 100 000 patient trips were taken on scheduled flights in order to access health services within and outside of Northern Norway (daily average of about 275). 20% of traffic on Widerøes route between Bodø and Tromsø was health-related. The dependence on air access to health services in Norway is emphasised by figure 2.12. It illustrates car travel times to major hospitals in Europe. Without air access, residents in many parts of Norway would have long travel times to their nearest major hospital.

Norway has a decentralised strategy when it comes to the localisation of higher education facilities. This is illustrated in figure 2.13 where the localisation of facilities seems to be closely correlated to the distribution of the population seen in figure 2.1. Despite having a decentralised strategy, there are still a number of populated parts of Norway where access to higher education by road is limited (e.g. northern parts of Finnmark, Lofoten, and parts of Nordland and Nord-Trøndelag). Many of these areas are served by local airports meaning that access is vastly improved. For example, residents of Kirkeness in the far north-east of Norway can travel to Alta; the main campus for Finnmark University College in less than one and a half hours by air on a direct flight compared to a journey-time by road of almost eight hours.

Demand for higher education is typically mobile and students may choose to study in a different part of Norway or abroad (as opposed to studying at the institution that is closest to where they live). According to Statistics Norway (2010d), 11 286 Norwegian's were registered with institutions abroad in 2008; 2 822 in Denmark or Sweden, 5 993 in other European countries and 2 471 in countries outside of Europe (mainly the United States of America or Australia). 8% of the 201 599 students studying at Norwegian institutions in 2009 are from abroad. Air access to/from and within Norway is likely to be important for students needing to travel long distances in order to access higher education. It is also likely to be important for institutions in Norway that are particularly dependent on non-local student markets. Table 2.4 shows that 2% of all passengers on domestic routes in Norway in 2009 were travelling to or from a place of study. No figure was provided for international passengers in 2009. In addition, table 2.5 shows that this market has grown by 15% between 2005 and 2007.

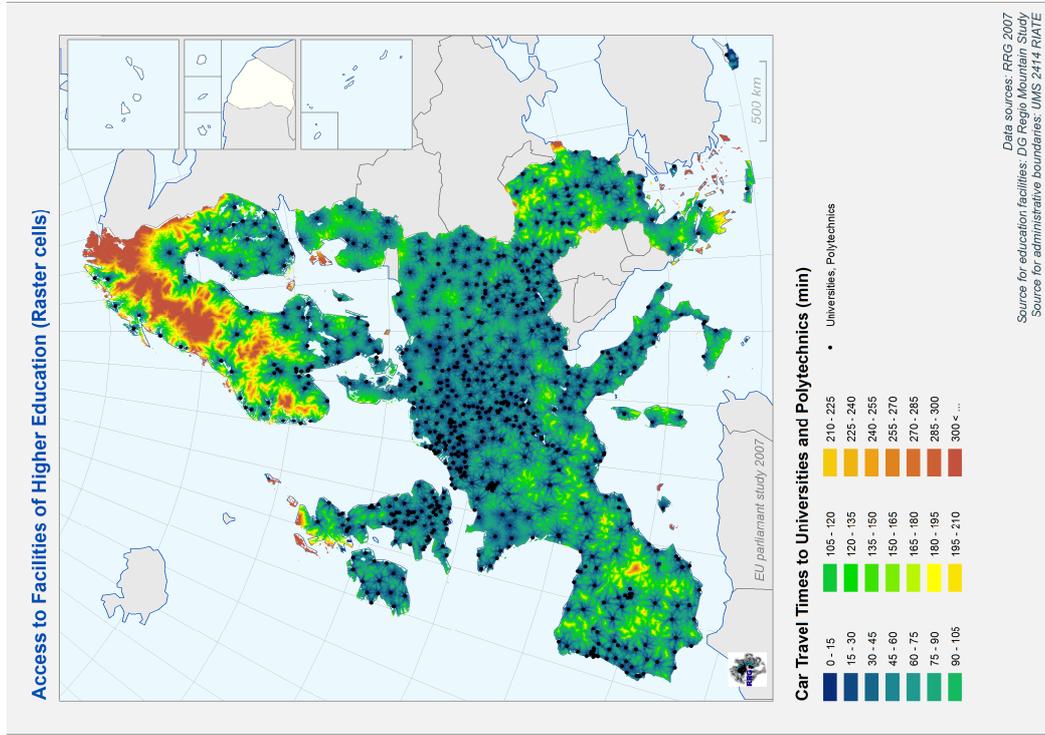
The European Union Lifelong Learning Programme supports the movement of staff between higher education institutions in Europe for the purpose of receiving training or conducting teaching. In 2009, institutions in Norway supported 817 outbound staff and 560 inbound staff (Statistics Norway, 2010d). Air access is likely to be important in supporting staff mobility.

Figure 2.12 Access to hospitals (Raster cells)



Source: Dubois et al. (2007). Calculation by C. Schürmann (RRG).

Figure 2.13 Access to facilities of higher education (Raster cells)



Source: Dubois et al. (2007). Calculation by C. Schürmann (RRG).

The presence of a local airport and the opportunities that air access offers for social development might ultimately influence location decisions and the retention of residents, especially in smaller and more remote areas where the risk of outward migration might be particularly high. This study provides evidence of this by investigating average population change in municipalities in the five main regions of Norway between 1998 and 2010 according to travel time by road to the nearest airport (see figure 2.14). In four of the five regions, the average population has declined for municipalities that are two hours or more from their nearest airport. The exception is Mid Norway where strong population growth has been experienced in a few municipalities, especially the mountain resort of Oppdal, which have travel times of two or more hours. Population growth in Northern Norway has only occurred, on average, in municipalities that have travel times of less than 30 minutes.

Figure 2.14 Population change by travel time to the nearest airport, 1998-2010

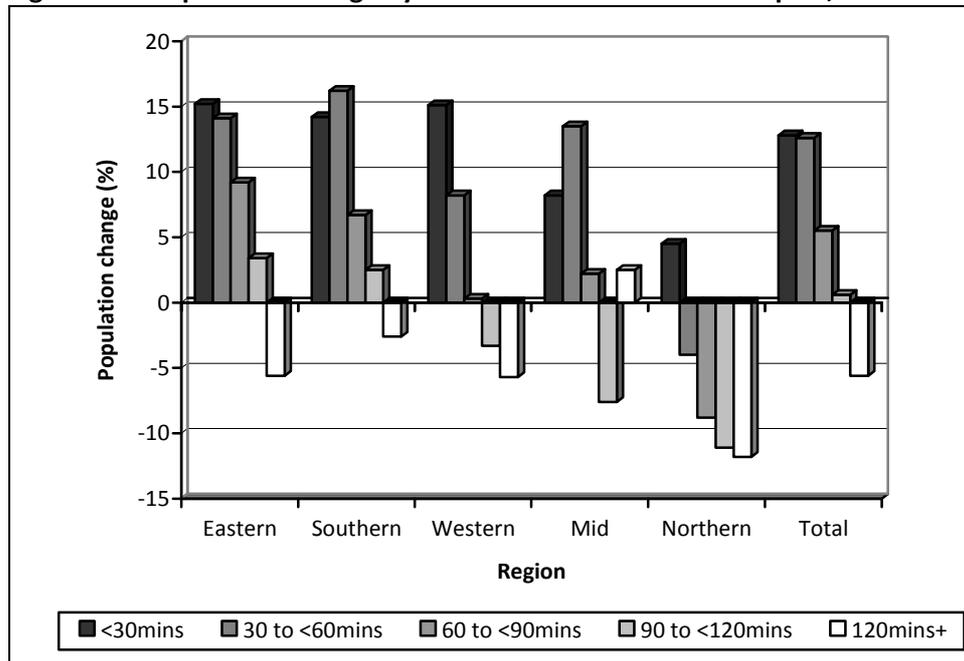
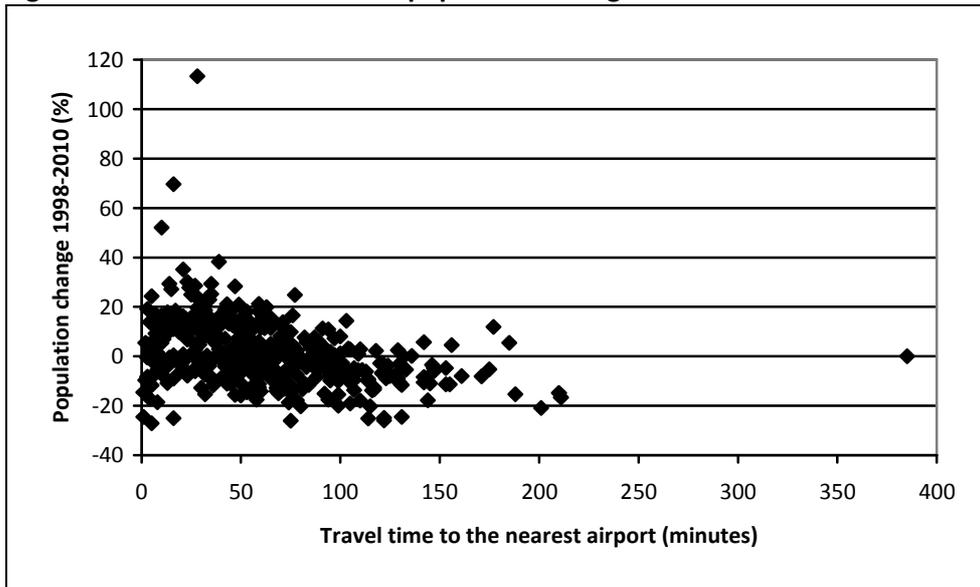


Figure 2.14 suggests that population growth increases as travel time by road to the nearest airport decreases. However, correlation analysis⁹ on municipality-level data finds that the relationship is fairly weak (see figure 2.15). Lian et al. (2007) emphasise that differences in industry structure and centrality may be causal factors of population change (as opposed to proximity to the nearest airport). Such factors have not been controlled for in this analysis.

⁹ Correlation analysis measures the strength and direction of a linear relationship between two variables. This study uses Pearson's Product-Moment Correlation Coefficient. The coefficient ranges from +1 to -1. +1 indicates a perfect positive linear relationship. -1 indicates a perfect negative linear relationship. 0 indicates that the variables are independent of each other. A coefficient of >0,8 is generally considered to indicate a strong relationship, <0,5 a weak relationship, anything in-between is moderate. A p-value is also provided and indicates the level of significance (i.e. the extent to which the finding is not the result of chance). A value of less than 0,05, in percentage terms, means that there is less than a 5% probability that the observed relationship is not the result of chance. A value of less than 0,05 is generally considered by researchers to be an acceptable level.

Figure 2.15 Correlation between population change and travel time to the nearest airport

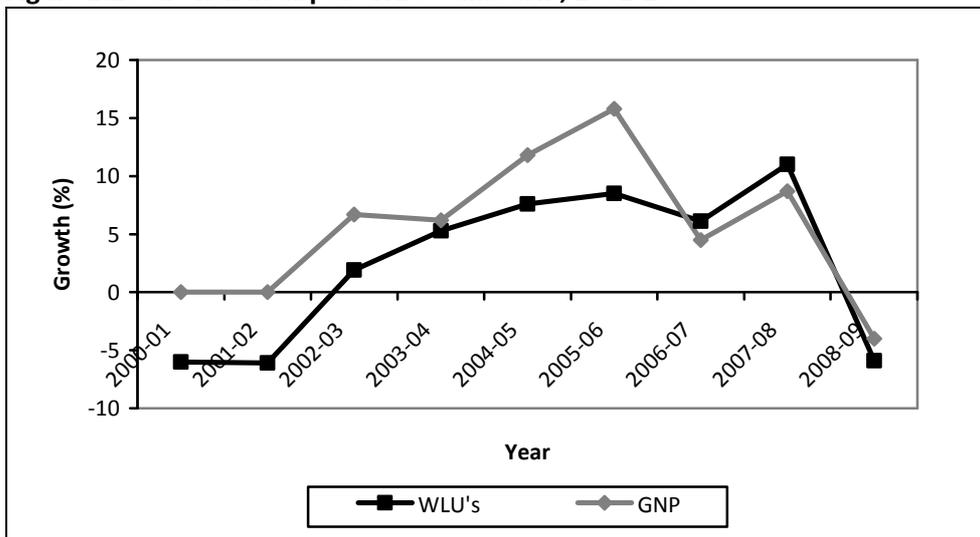


Each dot represents one municipality.
Correlation coefficient of -0,35 (p<0,000).

2.3 Regional economic competitiveness

“Airports facilitate growth at a regional and national level” (ACI-Europe, 2004; p12). This is illustrated at a national-level in Norway by figure 2.16. It shows similar rates of growth in airport workload units (WLU’s)¹⁰ and gross national product (GNP) between 2001 and 2009. Figure 2.16 does not illustrate causation. However; it does illustrate a relationship, suggesting that airports are an important part of the national economic infrastructure in Norway.

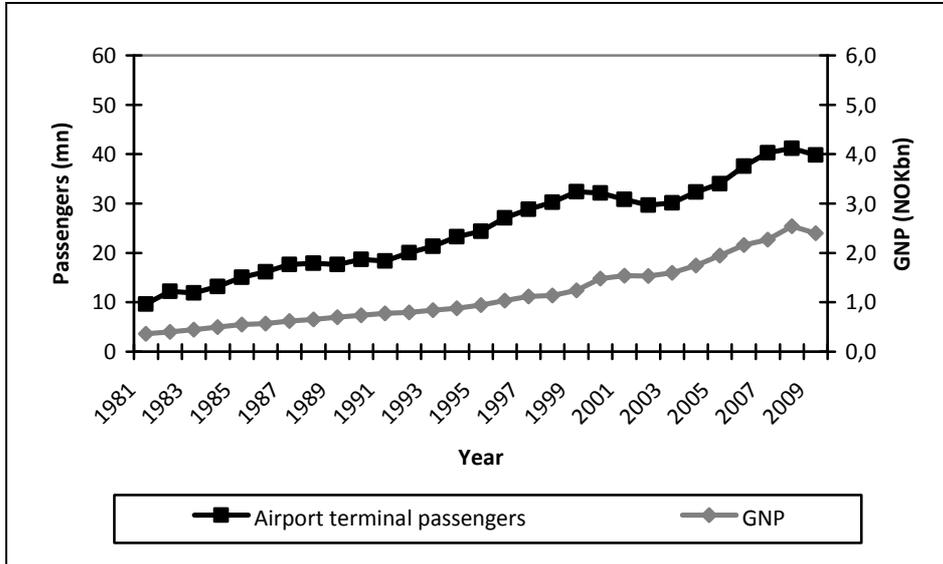
Figure 2.16 Growth in airport WLU’s and GNP, 2001-2009



¹⁰ 1 WLU equals 1 passenger or 100kg freight/mail.

Inconsistencies in the collection of data on freight and mail mean that WLU's can not be calculated prior to 2000 but airport passenger and GNP data is available from 1981 to 2009 (see figure 2.17). There is a strong and significant relationship between the two variables.

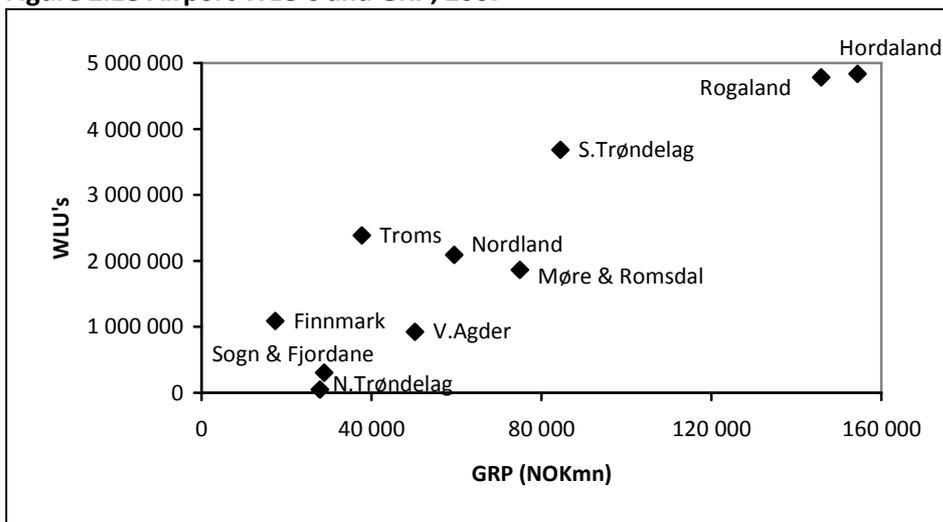
Figure 2.17 Airport terminal passengers and GNP, 1981-2009



Correlation coefficient of 0,96 ($p < 0,000$).

Data availability limits the extent to which the relationship between airports and the economy can be investigated at the regional level. However, figure 2.18 illustrates the relationship between airport WLU's and gross regional product (GRP) for ten regions in Norway. In general, there is a positive relationship where higher WLU's are experienced in regions that have higher GRP. Data is not provided for Aust-Agder or counties of Eastern Norway. WLU's for those counties are likely to be distributed across a range of regional and national airports (e.g. those serving the Oslo area) so WLU's for those counties may not provide an appropriate measure of demand for air travel.

Figure 2.18 Airport WLU's and GRP, 2007

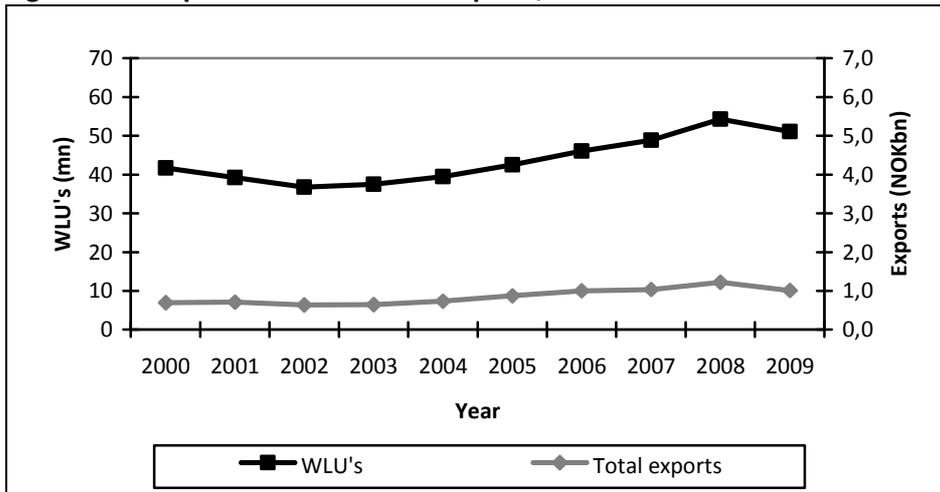


GRP per capita can be used in figure 2.18 to control for population size. When doing so, differences between regions on the GRP scale become fairly narrow. However, the overall pattern remains the same. Hordaland and Rogaland have the highest WLU's and GRP per capita. Finnmark and Nord-Trøndelag have the lowest WLU's and GRP per capita. There are two exceptions; Sogn and Fjordane and Møre and Romsdal. These regions have relatively low WLU's but high GRP per capita. This is likely to reflect industry structure in the respective regions. In deed, proportionate contributions to GRP in both regions are high from industries that are arguably less dependent on air transport; the power sector, especially hydroelectricity in Sogn and Fjordane and the maritime sector in Møre and Romsdal.

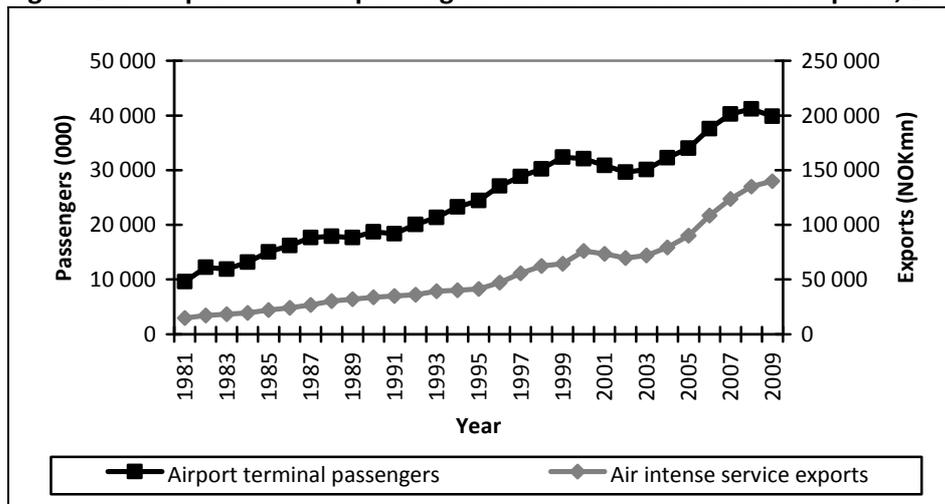
Facilitating economic growth is really a consequence of the influence that airports have on a wide range of economic activities such as the promotion of exports, enhancing business efficiency and productivity, attracting inward investment and influencing business location and retention. Airports can act as magnets for such activities, especially when businesses are particularly dependent on air services (often referred to as air-intensive sectors), allowing them to be more competitive and subsequently enhancing the competitiveness of the region.

Figure 2.19 illustrates the relationship between airport WLU's and total exports in Norway from 2000 to 2009, illustrating similar patterns of growth and decline.

Figure 2.19 Airport WLU's and total exports, 2000-2009

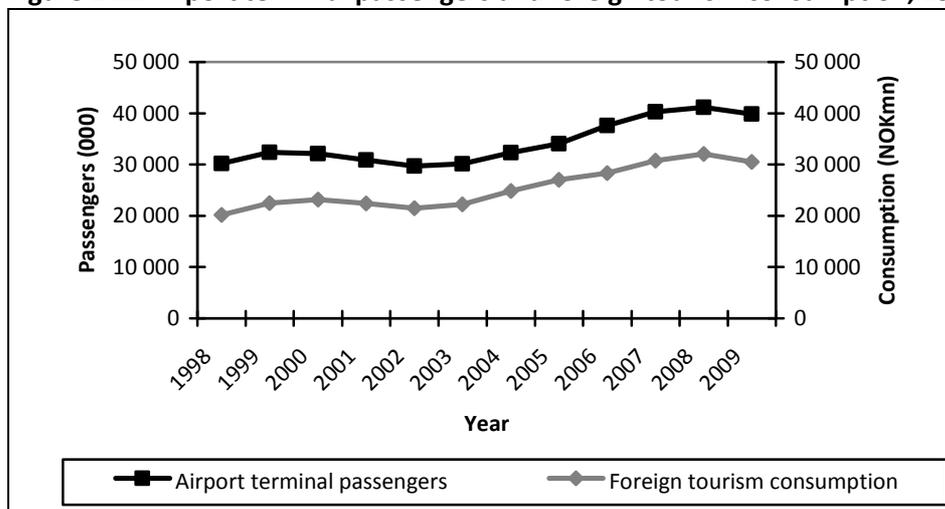


Of course, some businesses are more dependent on air transport than others. Air-intensive sectors in Norway typically include travel, transport, finance and business and other services. The relationship between airport terminal passengers and air-intensive service exports from 1981 to 2009 is illustrated in figure 2.20. There is a strong significant relationship between the two variables.

Figure 2.20 Airport terminal passengers and air-intensive service exports, 1981-2009

Correlation coefficient of 0,987 ($p < 0,000$).

Tourism is an important part of the Norwegian economy. In 2009, the travel and tourism industry contributed 3,3% of Norway's GDP with as much as 8,0% in Akershus and over 5,0% in Oppland, Oslo, Finnmark and Nordland. Inbound tourism can be considered as an export and in 2009, 30 514 million Norwegian kroner was generated in foreign tourism consumption (Innovation Norway, 2010). A strong and significant relationship between airport terminal passengers and foreign tourism consumption from 1998 to 2009 is shown in figure 2.21.

Figure 2.21 Airport terminal passengers and foreign tourism consumption, 1998-2009

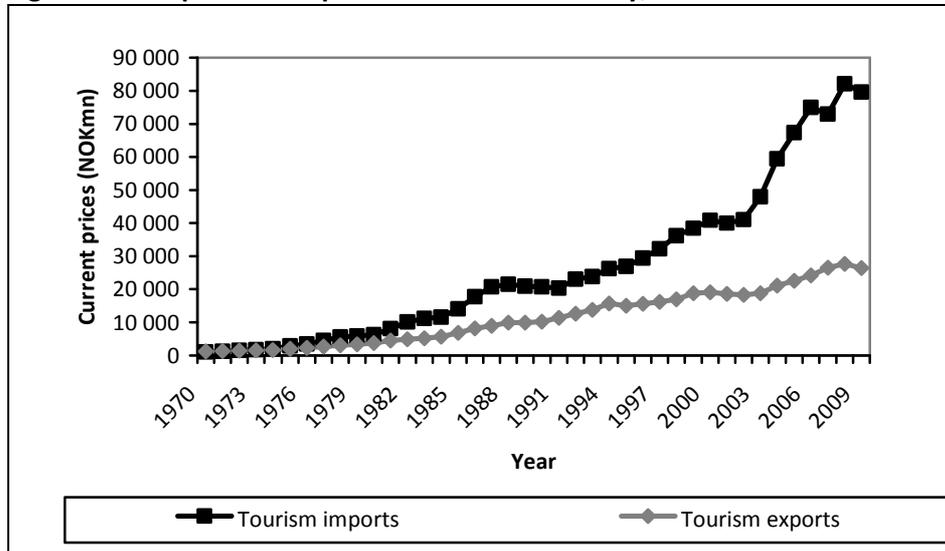
Correlation coefficient of 0,975 ($p < 0,000$).

Farstad and Rideng (2009) estimate that 4,3 million trips for tourism were made by foreigners to Norway in 2009¹¹; 3,2 million trips were for leisure purposes, 1,1 million for work. Air transport is the most important mode of transport for foreign tourism in Norway, providing 1,8 million trips in 2009 (41,7% of total trips). This is followed by road (38,4%), sea (17,4%) and train/coach (2,5%). In addition, the importance of air transport is growing relative to other transport modes, increasing to 41,7% in 2009 from 33,0% in 2001. 1,2 million additional trips

¹¹ This includes day trips and trips with at least one overnight stay for leisure or business purposes.

were made in 2009 compared to 2001 and 63,6% of those additional trips used air transport¹². It is however worth noting that tourism is a deficit trade activity in Norway (see figure 2.22).

Figure 2.22 Import and export of tourism in Norway, 1970-2009

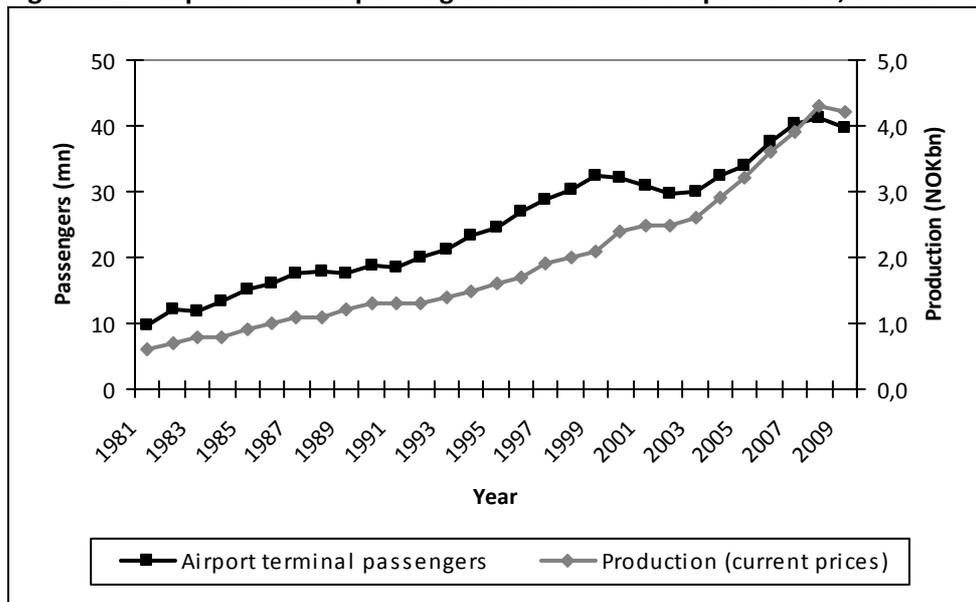


Tourism trade made a net benefit of 133 million Norwegian kroner in 1970 but has made a net deficit each year since 1972. The deficit has increased from 44 million Norwegian kroner in 1972 to 53 174 million Norwegian kroner in 2009. Data is not available to estimate the effect that air transport has on tourism trade in Norway. However, it is possible to estimate the balance of air transport-related tourism movements to and from Norway. 6,6 million trips abroad were taken by Norwegians in 2009 of which 4,3 million were by air (Statistics Norway, 2010b). 3,5 million trips were taken by foreigners to Norway in 2009 of which 1,4 million were by air (Farstad and Rideng, 2009). This means that 2,9 million more trips by air are taken by Norwegians abroad than are taken by foreigners to Norway¹³.

Cooper and Smith (2005) suggest that growth in air transport usage over the last decade in Europe has facilitated an increase in underlying productivity (the efficiency with which labour and capital are combined to produce output). This study does not provide analysis in support of a causal effect between air transport usage and underlying productivity in Norway. However; it does illustrate a strong and significant relationship between airport terminal passengers and the value of production in Norway from 1981 to 2009 (see figure 2.23). In this instance, the value of production is defined as the value of goods and services from domestic production activities (e.g. from market-orientated activities or production for own use, and not from market-orientated activities in the public or voluntary sector).

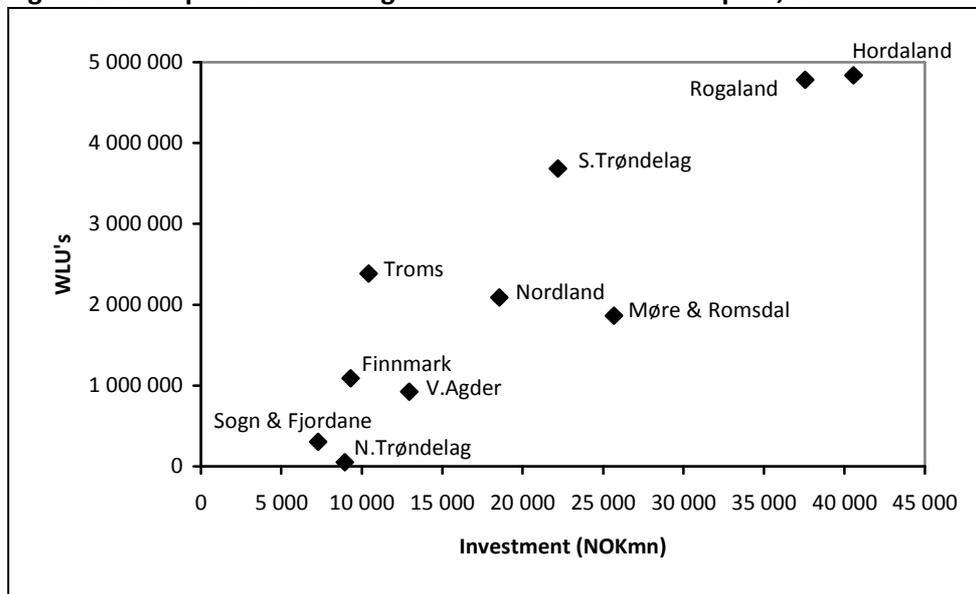
¹² 2001 data is taken from Rideng and Grue (2001).

¹³ Data in both instances includes trips with at least one overnight stay for leisure or business purposes but does not include day trips.

Figure 2.23 Airport terminal passengers and the value of production, 1981-2009

Correlation coefficient of 0,958 ($p < 0,000$).

Cooper and Smith (2005) also suggest that the relatively fast growth of air transport usage over the last decade in Europe has boosted business investment. This study does not provide analysis in support of a causal effect. However; it does illustrate a relationship between airport WLU's and gross investment in fixed capital in a number of regions in Norway (see figure 2.24).

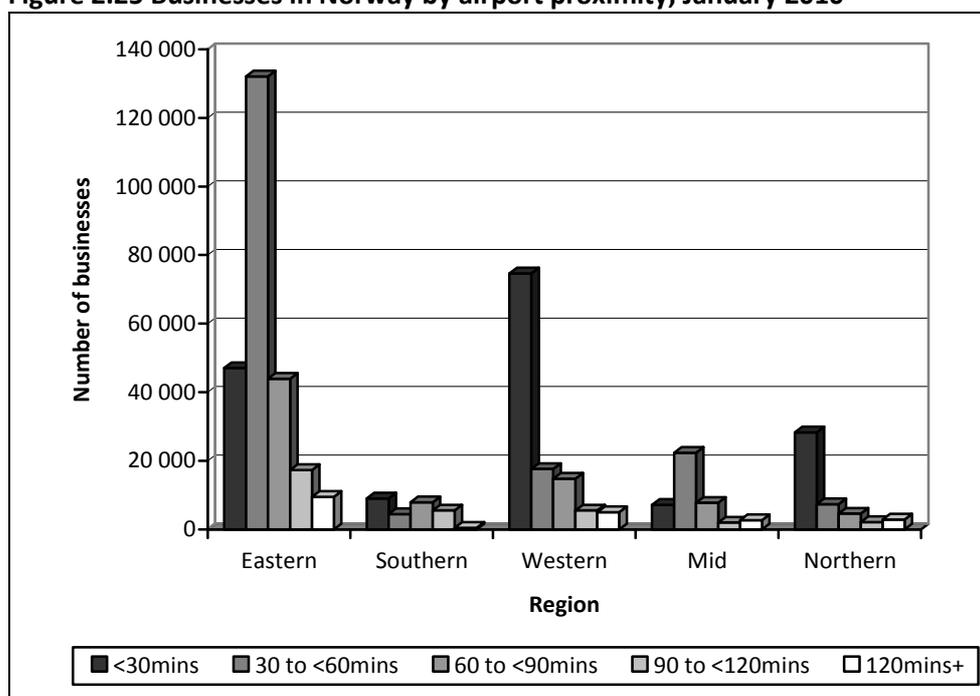
Figure 2.24 Airport WLU's and gross investment in fixed capital, 2007

There are 481 720 businesses in Norway that are on average 64 minutes travel time by road from their nearest airport. Most businesses are located in close proximity to an airport (see table 2.6); 34,5% of all businesses are less than 30 minutes travel time by road to the nearest airport. 72,7% are less than 60 minutes, 89,1% are less than 90 minutes, 95,8% are less than 120 minutes. Only 4,2% are 120 minutes or more from the nearest airport.

Table 2.6 Businesses in Norway by proximity to an airport, January 2010

Travel time to nearest airport	Number of businesses	% total businesses
<30 minutes	166 087	34,5
30 to <60 minutes	183 872	38,2
60 to <90 minutes	78 894	16,4
90 < less than 120 minutes	32 423	6,7
120 minutes or more	20 444	4,2
Total	481 720	100,0

In general, the number of businesses in table 2.6 declines as distance from the nearest airport increases. The same can be observed at the regional-level (see figure 2.25). There is one exception; the 30 to <60 minutes category. This is because the administrative centres of two particularly large cities in Eastern Norway (Oslo) and Mid Norway (Trondheim) are between 30 to <60 minutes from their nearest airport. So as with population location (see figure 2.14), there does appear to be a relationship between business location and distance from the nearest airport. However, differences in industry structure and centrality may be the main causal factors of business location (as opposed to proximity to the nearest airport). Such factors have not been controlled for in this analysis.

Figure 2.25 Businesses in Norway by airport proximity, January 2010

The number of businesses in Norway has increased from 435 758 in 2002 to 481 720 in 2010, representing growth of 10,5%. Figure 2.26 shows growth in the number of businesses by region according to proximity to the nearest airport. In general, growth is strongest in municipalities that are closest to their nearest airport although the relationship is fairly weak (see figure 2.27). In deed, a number of exceptions exist such as for Mid Norway where growth has occurred in a small number of municipalities that are 120 minutes or more from their nearest airport such as Oppdal (home to the mountain resort of Oppdal).

Figure 2.26 Growth in the number of businesses by airport proximity, 2002-2010

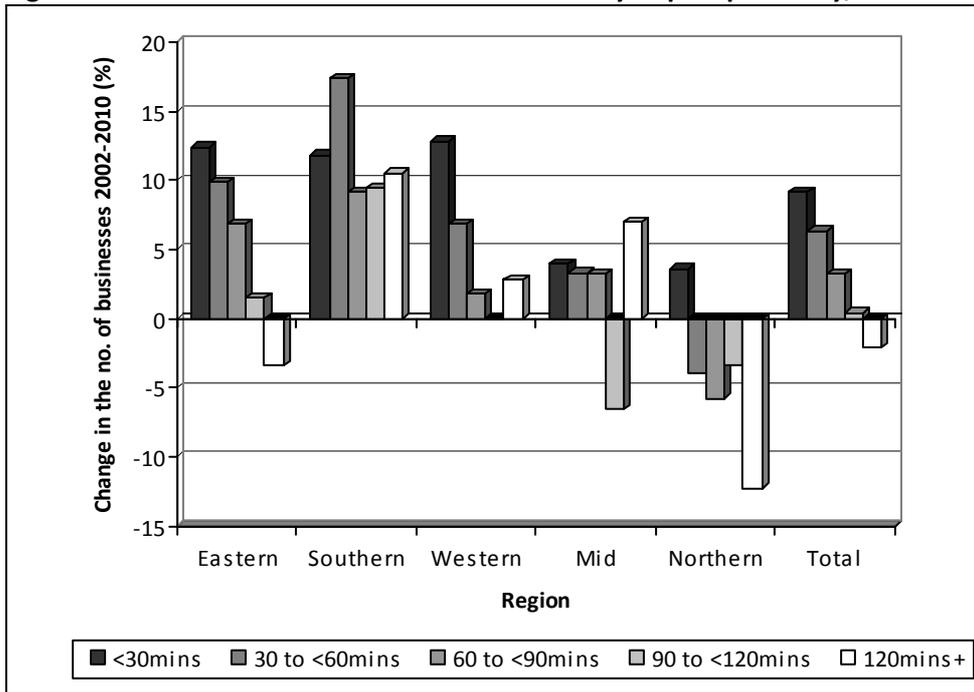
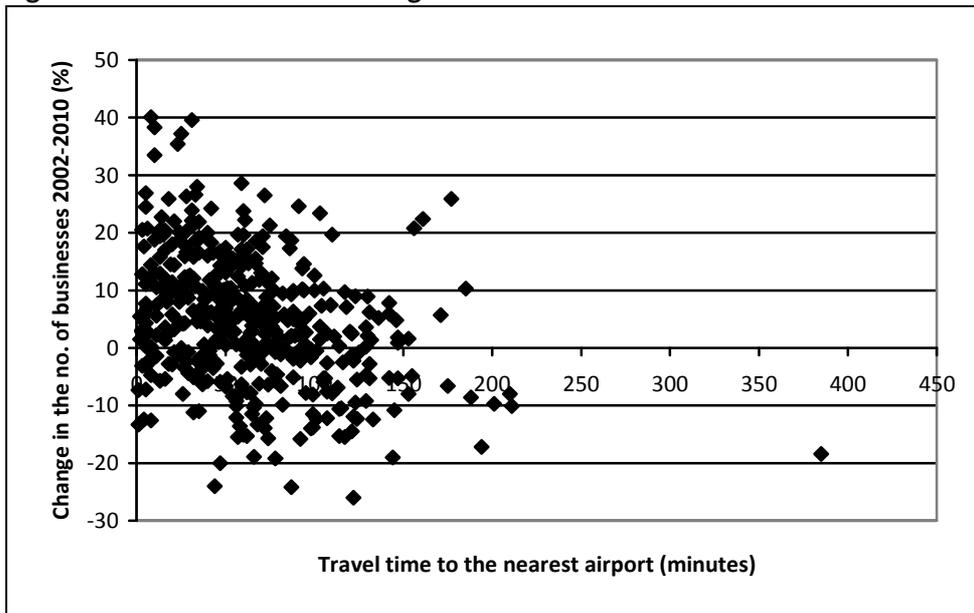


Figure 2.27 Correlation between growth in businesses and travel time to the nearest airport



Each dot represents one municipality.
 Correlation coefficient of -0,330 (p<0,000).

3 CASE STUDY

As mentioned in section 1.3, previous studies recommend using case studies when investigating the catalytic impact of airports. This study provides a comparative case study of the opinions of residents and businesses in two regions in Norway.

1. Sunnmøre: the southernmost district of the western county of Møre and Romsdal.
2. Sør-Helgeland: the southernmost district of the northern county of Nordland.

3.1 Airports and the regions

3.1.1 Sunnmøre

Ålesund Airport is located in the municipality of Ålesund. It serves the district of Sunnmøre (see figure 3.1)¹⁴. Sunnmøre has 133 332 residents and a surface area of 5 325 square kilometres; a density of 25 residents per square kilometre. This is above the national average of 16 inhabitants per square kilometre. The number of residents living in Sunnmøre has increased by 11,2% since 1986 (average annual growth of 0,5%). Growth has been stronger in recent years with average annual growth of 1,1% between 2007 and 2010. The main municipality of the region; Ålesund, has an urban population of 40 571 (Statistics Norway, 2010c).

Figure 3.1 Sunnmøre



Source: Norwegian Mapping Authority.

There were 12 409 registered businesses in Sunnmøre in January 2010 (Statistics Norway, 2010e). Almost a third of all businesses (32,2%) were located in the municipality of Ålesund.

¹⁴ Sunnmøre includes the following municipalities: Ålesund, Vanylven, Sande, Herøy, Ulstein, Hareid, Volda, Ørsta, Ørskog, Norddal, Stranda, Stordal, Sykkylven, Skodje, Sula, Giske, Haram.

The total number of businesses has grown by 4,4% since 2002 with particularly strong growth of 9,9% in the municipality of Ålesund. Most of the businesses are fairly small; 54,9% of all businesses do not employ any staff and a further 22,8% employ between one to four staff. In terms of number of businesses according to SIC 2007¹⁵, the main industries are: wholesale and retail trade, repair of motor vehicles and motorcycles (15,8% of all businesses); agriculture, forestry and fishing (13,9%); real estate activities (11,8%); human health and social work activities (9,9%); and, professional, scientific and technical activities (7,9%). Only 72 businesses (0,6% of all businesses) are large businesses, employing 100 or more staff. 13 businesses (0,1%) employ 250 or more staff; including five businesses in manufacturing, five in transportation and storage (all of them are in shipping), two in human health and social work activities, one in administrative and support service activities.

Ålesund is the largest town in Sunnmøre. It is a nine-hour drive from the capital city; Oslo and a two-hour drive from the county administration centre; Molde. There is a direct daily and overnight bus service between Ålesund and Oslo that takes about 10 hours. Åndalsnes is less than a two-hour drive from Ålesund and is where rail services are available to Oslo via Dombås in a journey time of less than six hours.

Ålesund Airport is defined by Avinor as a medium-sized airport. According to Avinor (2010a), the airport served 9 641 aircraft movements in 2009 with 774 195 passengers; 93,4% scheduled, 6,6% non-scheduled. The passenger mix was 85,8% domestic, 10,5% international, 3,7% transfer and transit. The airport served traffic from ambulance operations (1 342 movements), flying schools (341 movements) and General Aviation (701 movements). The airport served 1,4 million tones of freight and mail (47,5% mail, 52,5% freight). At the time of conducting the survey for this study, Ålesund Airport had direct scheduled services to large cities in Norway (Oslo, Trondheim and Stavanger). The airport had direct international charter services to Burgas, Crete, Antalya, Mallorca, Split and Monastir. The airport also had direct international scheduled services to Copenhagen and Riga.

3.1.2 Sør-Helgeland

Brønnøysund Airport is located in the municipality of Brønnøy (see figure 3.2). It serves the district of Sør-Helgeland¹⁶. Sør-Helgeland has 13 100 residents and a surface area of 3 202 square kilometres; a density of 4 residents per square kilometre. This is below the national average of 16 inhabitants per square kilometre. The number of residents living in Sør-Helgeland has decreased by 3,6% since 1986 (average annual decline of 0,2%). The decline has reversed in recent years but only by a small amount; average annual growth of 0,4% between 2008 and 2010. The main municipality of the region; Brønnøy, has an urban population of 7 660 (Statistics Norway, 2010c).

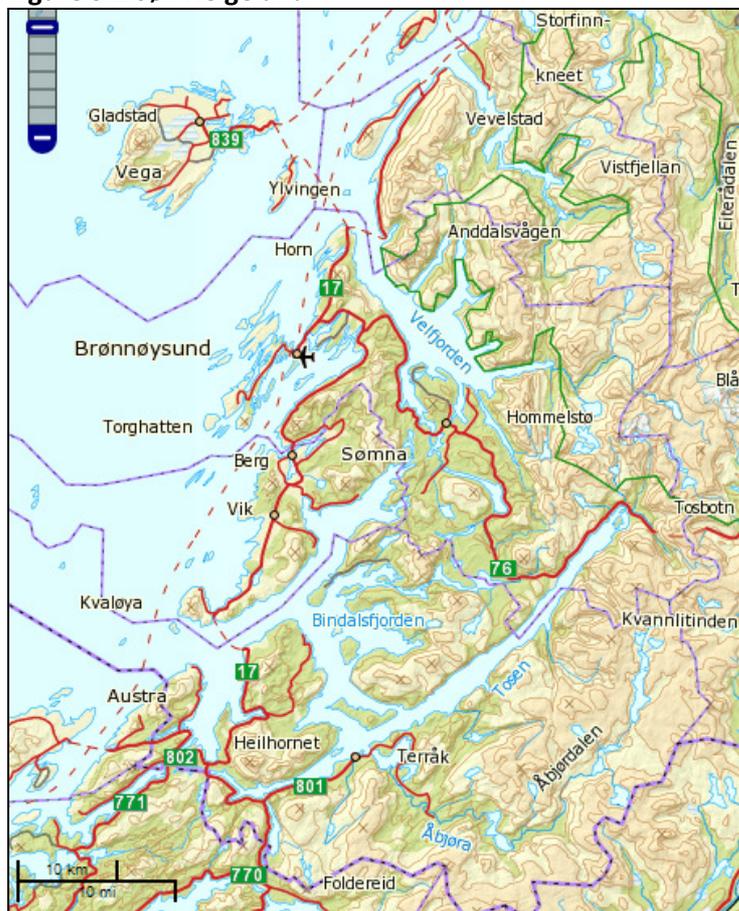
There were 1 553 registered businesses in Sør-Helgeland in January 2010 (Statistics Norway, 2010e). Almost half of all businesses (49,1%) were located in the municipality of Brønnøy. The total number of businesses has declined by 1,1% since 2002 although growth of 1,5% was experienced in the municipality of Brønnøy. Most of the businesses are fairly small; 68,6% of all businesses do not employ any staff and a further 17,3% employ between one to four staff. The main industries are: agriculture, forestry and fishing (37,6%); construction (9,5%);

¹⁵ SIC 2007 is a standard industrial classification of businesses used by Statistics Norway.

¹⁶ Sør-Helgeland includes the following municipalities: Bindal, Sømna, Brønnøy, Vega, Vevelstad.

wholesale and retail trade, repair of motor vehicles and motorcycles (9,0%); human health and social work activities (8,5%); and, real estate activities (6,7%). Only four businesses (0,3% of all businesses) are large businesses, employing 100 or more staff. Three of them employ between 100 to 249 staff including two in human health and social work activities, and one in education. One of them, in public administration, employs 250 or more staff.

Figure 3.2 Sør-Helgeland



Source: Norwegian Mapping Authority.

Brønnøysund is the largest town in Sør-Helgeland. It is a 14-hour drive from the capital city; Oslo and an eight-hour drive from the county administration centre; Bodø. There is no direct bus service between Brønnøysund and Oslo. Svenningdal is less than a two-hour drive from Brønnøysund and is where rail services are available to Oslo via Trondheim in a journey time of about 12 hours.

Brønnøysund Airport is defined by Avinor as a regional airport (regional airports are defined as small airports in figure 2.3). According to Avinor (2010a), the airport served 6 035 aircraft movements in 2009 with 99 727 passengers; 98,6% scheduled, 1,4% non-scheduled. The passenger mix was 73,8% domestic, 0,0% international, 26,2% transfer and transit. The airport served traffic from ambulance operations (1 418 movements), flying schools (326 movements), General Aviation (294 movements) and services to offshore oil installations (654 landings with 13 753 passenger movements). The airport served 0,25 million tones of freight and mail (87,9% mail, 12,1% freight). At the time of conducting the survey for this study, the airport had direct

scheduled services to other parts of Norway (Bodø, Mo i Rana, Namsos, Sandnessjøen and Trondheim). There was no direct scheduled service to Oslo¹⁷ or direct international services.

3.1.3 Key differences between regions

There are some clear differences in the size and scope of services available at the two airports and in the characteristics of the regions that they serve. Sunnmøre has a larger population and number of businesses, both of which are increasing. Sør-Helgeland has a smaller population and number of businesses, both of which are decreasing (although growth has been experienced in Brønnøy). Sunnmøre is better connected nationally and internationally by land and air compared to Sør-Helgeland. The longer travel times by land from Sør-Helgeland (e.g. to the main cities in Norway) mean that residents and businesses in that region may be more dependent on air travel as a viable means of transport and may therefore have a greater opinion about their airports contribution to regional accessibility, social development and economic competitiveness compared to residents and businesses in Sunnmøre. Subsequently, the presence of a local airport may also have a greater influence on the location decisions and retention of residents and businesses in Sør-Helgeland compared to Sunnmøre.

3.2 Research design

3.2.1 The surveys

Resident opinions were sought using a postal survey. The survey was designed to investigate airport use and the opinions that residents have about their local airport in terms of its contribution to regional accessibility and social development including location decisions and retention. Business opinions were sought using an online survey created using Questback¹⁸. The survey was designed to investigate airport use and the opinions that businesses have about their local airport in terms of its contribution to their business and the influence that the airport has on the location and investment decisions of their business.

The surveys were validated by 21 experts from academia and industry that have specific knowledge and expertise in the subject area. Experts included professors and researchers, senior airport authority officials, civil servants and leaders of industry associations (see table 3.1). The experts listed in table 3.1 provided comments on at least one of the two surveys. Many of the experts provided comments on both surveys. The resident survey was approved by, and met the standards of, the Norwegian Tax Office and the Norwegian Social Science and Data Services (NSD AS)¹⁹.

A participating pre-test of the surveys was carried out. Participants were told that it was a practice run and were asked, in an interview setting, to explain reactions to question form, wording and order. An undeclared pre-test was then carried out. On this occasion, the surveys were delivered using the same method as for the actual surveys. Participants were not told that it was a pre-test. This meant that the choice of analysis and standardisation of the surveys could be tested. A summary of the pre-tests is provided in table 3.2.

¹⁷ Widerøe started a direct route from Brønnøysund to Oslo from 10th May 2010.

¹⁸ Questback is an online survey service.

¹⁹ This was required to access personal data on residents such as their name and address, gender and date of birth.

Table 3.1 Experts that provided feedback on draft versions of the surveys

Name	Job title	Company
Adrian Cooper	Managing Director	Oxford Economics, UK
Andreas Neumann	Adviser in Air Transport	Ministry of Transport & Communications, Norway
Anna Patient	Head of Projects & Member Relations	Air Transport Action Group, Switzerland
Anne Graham	Senior Lecturer in Transport & Tourism	University of Westminster, UK
Anne-M. Halpern	Adviser in Statistics & Analysis	Møre & Romsdal County Council, Norway
Are Lien	Acting Manager for Regional Airports	Avinor, Norway
Arild Hervik	Professor in Industrial Economics	Molde University College, Norway
Berit Helgheim	Associate Professor in Logistics	Molde University College, Norway
Brian Graham	Emeritus Professor in Human Geography	University of Ulster, UK
Federico Bonaudi	Policy Manager for Facilitation, Intermodality, Parliamentary Affairs and the Small & Medium Size Airports Action Group	ACI-Europe, Belgium
Glenn-R. Johnsen	Manager for Brønnøysund Airport	Avinor, Norway
Harald M. Hjelle	Associate Professor in Economics	Molde University College, Norway
Jan Husdal	Researcher in Transport Economics	Møreforskning Molde, Norway
John Offenbergh	Manager for Molde Airport	Avinor, Norway
Jon Inge Lian	Chief Research Officer in Regional Analysis	Transport Economics Institute, Norway
Keith Blumire	Senior Lecturer in Aviation	London Metropolitan University, UK
Kenneth Button	Professor in Public Policy	George Mason School of Public Policy, USA
Knut Fuglum	Senior Adviser in Strategy	Avinor, Norway
Louise Congdon	Managing Partner	York Aviation, UK
Nick Coleman	Senior Lecturer in Aviation	London Metropolitan University, UK
Paul Hogan	Senior Lecturer in Aviation	London Metropolitan University, UK
Tor Hånde	Manager for Ålesund Airport	Avinor, Norway

Table 3.2 Survey pre-tests

Task	Method	Participants
Participating pre-test	Participants were told that it was a pre-test. The survey was conducted in an interview setting. Participants were asked to explain reactions to question form, wording and order.	25 residents (resident survey) 5 businesses (business survey)
Undeclared pre-test	Participants were not told that it was a pre-test. The survey was conducted in the same way as the actual survey. The pre-test checked the standardisation of the survey and the chosen method of delivery and analysis.	10 residents (resident survey) 5 businesses (business survey)

The resident survey, text used in the cover letter that accompanied the survey and text used in the cover letter for the repeat mailing can be seen in Appendix 7.1, 7.2 and 7.3. Questions used for the business survey, an on-screen example of how the survey looked on computer, the invitation e-mail and the text used in the invitation e-mail for repeat mailings can be seen in Appendix 7.4, 7.5, 7.6 and 7.7.

3.2.2 Sampling procedures

The resident survey was sent to a sample of 5 000 residents; 2 500 in Sunnmøre, 2 500 in Sør-Helgeland. Names and addresses of residents were extracted from the Brønnøysund Register²⁰ by the approved distributor; EDB Business Partner AS. A list of names and addresses was computer generated at random.

The list for Sør-Helgeland did not include residents of the municipality of Bindal on the basis that they are served by their own local airports; Rørvik Airport and Namsos Airport. Both

²⁰ The Brønnøysund Register is a government agency that is responsible for numerous public registers for Norway.

airports are a shorter travel time by car from the centre of the municipality of Bindal compared to Brønnøysund Airport. All three airports are defined as regional airports and at the time that the survey was conducted, had a similar range of routes. None of the airports had a direct connection to Oslo but all of them had regional connections (e.g. to Trondheim) so one would expect residents to use the airport that is closest to them²¹.

The list for Sunnmøre included residents from any of its 17 municipalities. Some of the municipalities are served by their own local airport; Ørsta-Volda Airport and whilst Ørsta-Volda Airport does have a direct connection to Oslo, the airport is much smaller than Ålesund Airport in terms of passenger throughput, and has a more limited range of available frequencies and destinations. At the time that the survey was conducted, there were no direct international connections to/from Ørsta-Volda Airport. It is therefore possible that residents living in municipalities such as Ørsta or Volda use Ålesund Airport more than Ørsta-Volda Airport and may subsequently consider Ålesund Airport to be their local airport.

The only other sampling criterion used when extracting the list of names and addresses from the Brønnøysund Register was that the list could only include adults born after 31.12.1991. The list was generated on 11.12.2009. The initial mailing of the survey took place on 08.01.2010 and one repeat mailing to non-respondents took place on 08.02.2010. The final cut-off point for accepting responses was 26.03.2010. A number of completed surveys were received after the final cut-off point but were not included in the analysis.

The invitation e-mail for the business survey was sent to 2 689 businesses; 2 157 in Sunnmøre, 532 in Sør-Helgeland. E-mail addresses and additional information available on the businesses was extracted from the Brønnøysund Register using the distributor; Soliditet Norge AS.

Unlike the list of residents for Sør-Helgeland, the list of businesses included businesses in the municipality of Bindal on the basis that the number of businesses in Sør-Helgeland was fairly small and there might have been some businesses in Bindal that consider Brønnøysund to be their local airport. The list for Sunnmøre included businesses from any of its 17 municipalities.

The initial mailing of the survey took place on 03.05.2010 and two repeat mailings to non-respondents took place on 10.05.2010 and 19.05.2010. The final cut-off point for accepting responses was 31.05.2010, at which point access to the online survey was closed.

A summary of the sampling procedure for each of the surveys is provided in figure 3.3.

²¹ Widerøe started a direct route from Brønnøysund to Oslo from 10th May 2010. This direct connection was not available at the time that the survey was conducted. If the survey was to be repeated, it would make sense to include Bindal on the basis that residents may choose to travel the extra distance to Brønnøysund Airport in order to access the direct connection to Oslo.

Figure 3.3 Summary of survey methodology

<u>Resident postal survey</u>	<u>Business online survey</u>
Sample size of 5 000 2 500 Sunnmøre, 2 500 Sør-Helgeland	Sample size of 2 689 2 157 Sunnmøre, 532 Sør-Helgeland
Sampling frame Brønnøysund Register	Sampling frame Brønnøysund Register
Sampling method Computer generated at random	Sampling method None, surveyed the population
Sampling criteria Born after 31.12.1991	Sampling criteria e-mail address available
Sampling source EDB Business Partner AS	Sampling source Soliditet Norge AS
Sampling date 11.12.2009	Sampling date 02.05.2010
Initial mailing of the survey 08.01.2010	Initial mailing of the survey 03.05.2010
Repeat mailing of the survey 08.02.2010	Repeat mailings of the survey 10.05.2010, 19.05.2010

3.2.3 Data entry and analysis

Responses to the resident survey were entered into SPSS²² by a trained research assistant and data entry was double-checked by the project leader for errors. Responses to the business survey were automatically entered into SPSS. Data was analysed using frequency analysis on responses from individual regions and for both regions combined. The Independent Samples t-test and Pearson's Chi-Square test were then used to compare the significance of any differences in average responses for the two regions. Appendix 7.8 provides examples of how to use and interpret the Independent Samples t-test and Pearson's Chi-Square test.

²² SPSS (originally, Statistical Package for the Social Sciences) is a computer programme used for statistical analysis.

4 FINDINGS: RESIDENT SURVEY

Appendix 7.9.1 provides a summary of the sample size. 2 125 residents responded to the survey; a gross sample response rate of 45,6% (49,0% in Sør-Helgeland, 42,0% in Sunnmøre). Sampling considerations are mentioned in Appendix 7.9.1 and it is important that readers refer to them when interpreting the findings of the resident survey.

The survey asks respondents if they consider Ålesund Airport or Brønnøysund Airport to be their local airport. The results are summarised in table 4.1. A large proportion of respondents in Sunnmøre (15,3%) do not consider Ålesund Airport to be their local airport. This figure is much lower in Sør-Helgeland (0,7%). The reason for this is that the sample for Sunnmøre included residents in municipalities such as Ørsta and Volda that may consider Ørsta-Volda Airport to be their local airport. Subsequent analysis refers only to respondents that consider Ålesund Airport or Brønnøysund Airport to be their local airport. This means that the number of observations in the analysis is generally smaller than the net sample. Also, some respondents failed to answer all of the questions in the survey, answered questions incorrectly, or used the not relevant option for some questions. These responses are treated as missing values and are omitted from the analysis. Subsequently, the number of observations varies throughout the analysis and is stated where appropriate, using the abbreviation n.

Table 4.1 Local airport

	Ålesund (Sunnmøre)		Brønnøysund (Sør-Helgeland)		Total	
	Number	Percent	Number	Percent	Number	Percent
n	937	100,0	1 175	100,0	2 112	100,0
Yes	794	84,7	1 167	99,3	1 961	92,9
No	143	15,3	8	0,7	151	7,1

4.1 Use of the local airport

89,6% of respondents from both regions combined have had friends or relatives travel by air via their local airport when visiting them. 98,1% have taken a trip by air from their local airport. The average number of visits from friends or relatives per person during the last 12 months for both regions combined is 5,1. The average number of trips taken per person during the last 12 months is 5,5. Table 4.2 compares differences for each region.

The difference for total visits and trips is not significant. However, average responses from residents in Sør-Helgeland are significantly higher for domestic visits and trips and lower for international visits and trips. Differences may reflect the availability of air services at the respective airports. Ålesund Airport has direct international services and Brønnøysund Airport does not so average international visits and trips are expected to be higher for residents in Sunnmøre. Residents in Sør-Helgeland have a higher average number of domestic visits and trips. This may be because residents in Sør-Helgeland have a greater dependence on their airport for domestic travel (e.g. see work and health in table 4.3). The figures for trips taken by region are similar to those cited in Denstadli and Rideng (2010): 3,3 for domestic and 1,0 for international for residents in Møre and Romsdal (which Sunnmøre is part of); and, 5,1 for domestic and 0,8 for international for residents in Nordland (which Sør-Helgeland is part of). Table 4.3 shows the difference in responses by region for trips taken by main purpose.

Table 4.2 Differences for visits and trips

Visits/trips	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev.	Std. error	t	df	Sig. (2-tailed)	Mean difference
Total visits	Sunnmøre	773	4,96	5,909	0,213	-1,028	1 913	0,304	-0,279
	S.Helgeland	1 142	5,24	5,764	0,171				
-From Norway	Sunnmøre	773	4,17	4,981	0,179	-2,332	1 913	0,020	-0,563
	S.Helgeland	1 142	4,73	5,310	0,157				
-From abroad	Sunnmøre	773	0,79	2,147	0,077	3,247	1 203	0,001	0,284
	S.Helgeland	1 142	0,51	1,385	0,041				
Total trips	Sunnmøre	789	5,21	6,955	0,248	-1,160	1 940	0,246	-0,535
	S.Helgeland	1 153	5,74	11,611	0,342				
-In Norway	Sunnmøre	789	3,92	5,724	0,204	-3,598	1 808	0,000	-1,402
	S.Helgeland	1 153	5,32	11,285	0,332				
-Abroad	Sunnmøre	789	1,29	2,376	0,085	9,723	968	0,000	0,868
	S.Helgeland	1 153	0,42	0,965	0,028				

The mean is the average number of visits or trips during the last 12 months.

Table 4.3 Differences for trips taken by main purpose

Purpose	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev.	Std. error	t	df	Sig. (2-tailed)	Mean difference
Work	Sunnmøre	779	2,07	4,856	0,174	-1,737	1 690	0,083	-0,631
	S.Helgeland	1 134	2,70	10,739	0,319				
Visit friends or relatives	Sunnmøre	776	1,16	2,056	0,074	0,236	1 899	0,813	0,021
	S.Helgeland	1 125	1,14	1,797	0,054				
Health	Sunnmøre	789	0,15	0,635	0,023	-12,224	1 585	0,000	-0,646
	S.Helgeland	1 135	0,79	1,608	0,048				
Independent holiday	Sunnmøre	779	0,56	1,124	0,040	6,958	1 154	0,000	0,312
	S.Helgeland	1 141	0,25	0,669	0,020				
Package holiday	Sunnmøre	784	0,46	1,057	0,038	7,201	1 034	0,000	0,293
	S.Helgeland	1 144	0,17	0,509	0,015				
Education	Sunnmøre	786	0,11	0,576	0,021	-1,951	1 926	0,051	-0,061
	S.Helgeland	1 147	0,17	0,797	0,024				
Shop/show	Sunnmøre	782	0,15	0,461	0,016	0,888	1 924	0,374	0,019
	S.Helgeland	1 144	0,13	0,443	0,013				
Sport	Sunnmøre	786	0,09	0,371	0,013	3,545	1 251	0,000	0,053
	S.Helgeland	1 151	0,04	0,246	0,007				
Other	Sunnmøre	784	0,17	0,745	0,027	-0,012	1 925	0,990	0,000
	S.Helgeland	1 143	0,17	0,732	0,022				

The mean is the average number of trips taken during the last 12 months.

The greatest difference in table 4.3 is for health. This is reflective of the health infrastructure in the respective regions. Sunnmøre has its own health authority; Helse Sunnmøre and has hospitals in the main towns; Ålesund and Volda. Helgeland has its own health authority; Helgeland Hospital Trust but the hospitals are located outside of Sør-Helgeland; Mo i Rana, Mosjøen and Sandnessjøen. This means that residents in Sør-Helgeland need to travel greater distances to access health services and may be inclined to use air transport when doing so. For instance, Mo i Rana is a four-hour journey by car from Brønnøysund but is a 30-minute journey by air. Residents of Sør-Helgeland might also need to access services provided by larger hospitals such as Nordlands Hospital in Bodø or Saint Olav's Hospital in Trondheim. Bodø is an eight-hour journey by car but only 75 minutes by air. Trondheim is a seven-hour journey by car but only 45 minutes by air. The travel policy of Helgeland Hospital Trust recognises the importance of air transport for accessing hospitals, especially from Brønnøy (see table 4.4). Air transport is recommended as the primary mode of transport for residents of Brønnøy needing to travel to Bodø, Tromsø, Trondheim, Mo i Rana or Velnesfjord.

Table 4.4 Travel policy of Helgeland Hospital Trust

Travel to	Brønnøy	From municipality		
		Sømna	Vega	Vevelstad
Bodø	Air	Own car or bus to B'sund + air	Own car, taxi or bus to Rørøy + hurtigbåt to B'sund + air	Bus to B'sund + air
Tromsø	Air	Own car or bus to B'sund + air	Own car, taxi or bus to Rørøy + hurtigbåt to B'sund + air	Bus or own car to B'sund + air
Trondheim	Air	Own car or bus to B'sund + hurtigrute	Own car, taxi or bus to Rørøy + hurtigbåt to B'sund + hurtigrute	Bus or own car to B'sund + hurtigrute
Sandnessjøen	Bus	Own car or bus to B'sund + hurtigbåt	Own car or taxi to Kirkøy + hurtigbåt to Sandnessjøen	Bus
Mosjøen	Bus	Own car	Own car, bus or taxi to Rørøy + hurtigbåt to B'sund + bus	Bus
Mo i Rana	Air	Own car or bus to B'sund + air	Own car, bus or taxi to Rørøy + hurtigbåt to B'sund + train to Mo	Own car
Namsos	Bus	Bus	Own car, bus or taxi to Rørøy + hurtigbåt to B'sund + bus to Namsos	Bus
Brønnøysund	Own car	Own car	Own car + ferry	No information
Hommelstø	Own car	Own car	Own car	Own car
Nordtun (REHAB)	Own car to B'sund + hurtigrute to Ørnes + taxi	Own car to B'sund + hurtigrute to Ørnes + taxi	Own car, bus or taxi to Rørøy + hurtigbåt to B'sund + hurtigrute to Ørnes + taxi	Bus or own car to B'sund + hurtigrute to Ørnes + taxi
Velnesfjord	Air to Bodø + bus + taxi	No information	No information	No information

Information source: Helgeland Hospital Trust (2008).

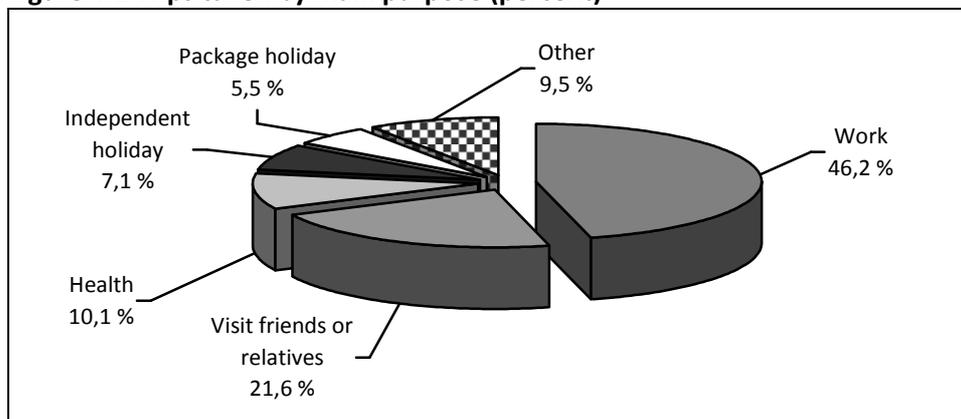
Differences in holiday travel (independent and package) are likely to be a consequence of the air services available at the respective airports. Brønnøysund Airport does not have direct international services so opportunities for holidays abroad by air are more limited. Residents in Sør-Helgeland wanting to take holidays abroad may be more inclined to travel by land to other airports where direct international services are available. In deed, 38,5% of respondents in Sør-Helgeland have used an alternative to Brønnøysund Airport during the last 12 months. 88,1% of those respondents had most recently used Trondheim Airport and from a list of seven reasons for choosing an alternative, the most important factor was the better choice of routes/packages available (see table 4.12).

The difference for sport is small but is significant. This may be due to differences in the infrastructure for sport in the two regions and the subsequent effect that this has on the level of attending or participating in sports activities. As a specific example, Sunnmøre has a football team that plays in Norway's elite division (Ålesund Football Club) and played in the cup final in Oslo during the year of this survey. This results in a fair amount of trips by air to attend matches. Sør-Helgeland does not have a football team in Norway's elite division.

Figure 4.1 shows that 46,2% of trips taken during the last 12 months by residents of both regions combined were for work and high averages for work can be seen in table 4.3. The mean difference for work is also high; 0,6 higher for Sør-Helgeland compared to Sunnmøre. However, the difference is only significant at the 90% level. This is because a very small

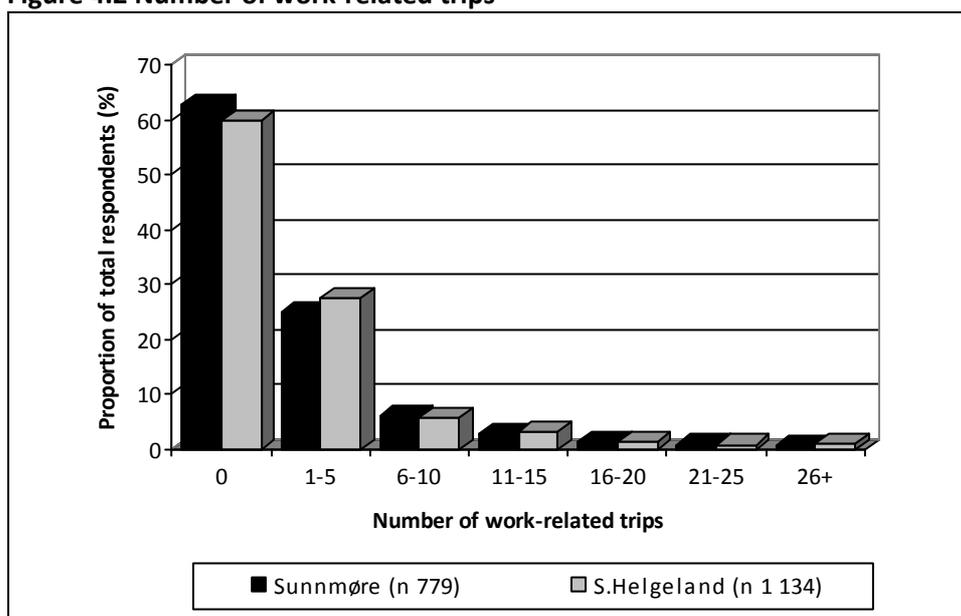
number of respondents, especially in Sør-Helgeland, took a very large number of work-related trips (see figure 4.2). In deed, one respondent in Sør-Helgeland took 100 trips and another took 300. Both respondents work in the oil or gas industry. This also contributed to the significantly higher number of trips taken in Norway by respondents from Sør-Helgeland compared to Sunnmøre (in table 4.2).

Figure 4.1 Trips taken by main purpose (percent)



n = 10 114.

Figure 4.2 Number of work-related trips



Data gathered from the survey and at the time of sampling includes information on a range of personal characteristics of respondents including highest level of education attained, employment status, employment sector, citizenship, whether or not the respondent has always lived in the region, household income, gender, age and municipality of residence. Each variable was dichotomised to provide two independent groups such as male or female for gender. The average number of trips taken according to each group for each variable could then be compared to see if there are any significant differences between groups. The results in table 4.5 are for respondents to both surveys combined.

Table 4.5 Differences for trips taken by personal characteristics

Characteristic	n	Group statistics			t-test for equality of means			
		Mean	Std. dev.	Std. error	t	df	Sig. (2-tailed)	Mean difference
Education								
University/College	960	7,47	13,071	0,422	8,579	1 210	0,000	3,852
School or less	973	3,62	4,798	0,154				
Employment								
Full-time	852	7,45	13,558	0,464	6,910	1 066	0,000	3,406
Less than full-time	1 075	4,04	5,407	0,165				
Employment sector								
Air-intensive ¹	293	9,84	11,430	0,668	5,338	477	0,000	4,055
Other	1 012	5,78	11,517	0,362				
Citizenship								
Not Norwegian	48	4,38	6,584	0,950	-0,816	1 934	0,415	-1,193
Norwegian	1 888	5,57	10,070	0,232				
Lived in the region								
Always	998	4,94	6,992	0,221	-2,609	1 472	0,009	-1,198
Not always	944	6,14	12,363	0,402				
Household income								
Kr.450 000 or more	981	6,36	7,390	0,236	11,469	1 561	0,000	3,154
Less than kr.450 000	798	3,21	3,988	0,141				
Gender								
Male	960	6,38	8,208	0,265	3,761	1 784	0,000	1,693
Female	982	4,69	11,403	0,364				
Age								
Less than 67 years	1 606	6,00	10,586	0,264	6,634	861	0,000	2,757
67 years or more	336	3,24	5,881	0,321				
Main municipality								
Yes ²	1 057	6,57	12,224	0,376	5,335	1 612	0,000	2,288
No	885	4,28	6,132	0,206				

The mean is on the number of trips taken during the last 12 months.

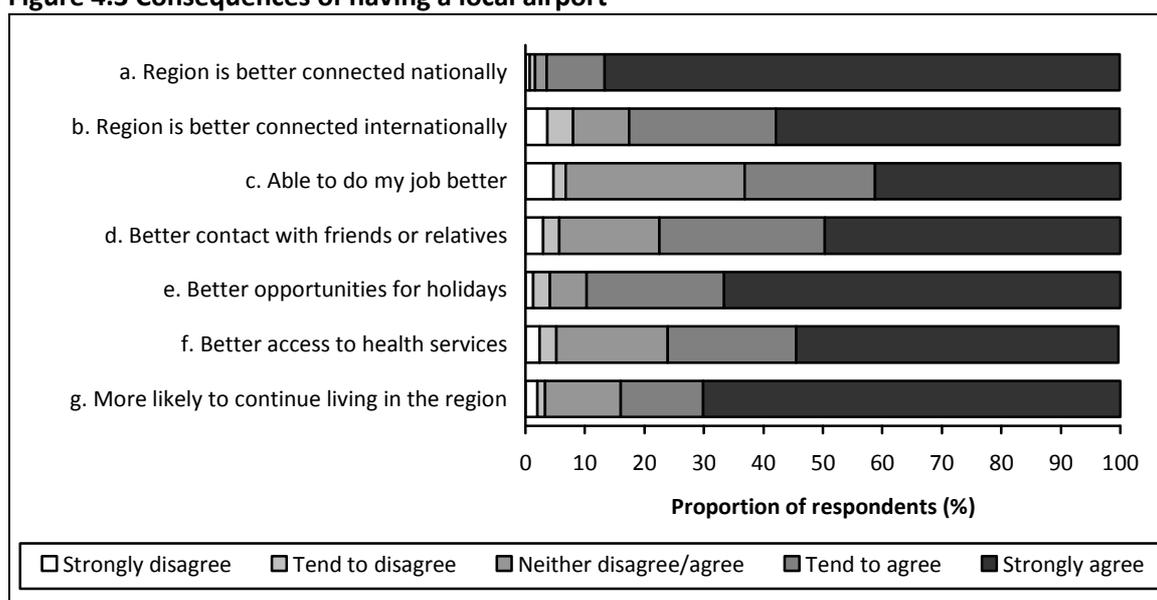
¹ Includes oil/gas, commercial services, transport/warehousing, information/communication, finance/insurance.

² Includes residents that live in Ålesund (municipality number 1504) or Brønnøy (municipality number 1813).

Citizenship is the only non-significant variable in table 4.5. Differences for each of the remaining variables are significant. The greatest difference is for average trips taken by employment sector; average of 9,84 trips for those that work in what have been defined as air-intensive employment sectors versus 5,78 for those that work in other sectors. Fairly large differences are also experienced according to education, employment and household income with higher average trips taken by those with university/college education, full-time employment or an annual household income of kr.450 000 or more. It is also interesting to note that the average number of trips taken is higher for those aged less than 67 years, live in the main municipality of the region, have not always lived in the region or are male.

4.2 Contribution to regional accessibility and social development

The survey asked respondents to what extent they agree or disagree with statements on accessibility and social development, including the extent to which they are likely to continue living in the region as a result of having a local airport (see figure 4.3 for combined responses for both regions).

Figure 4.3 Consequences of having a local airport

In terms of accessibility; 86,6% strongly agree that their region is better connected nationally and 57,8% internationally. The lower figure for international connectivity is likely to be a consequence of the range of air services that are provided at the airports, which are largely national versus international, especially at Brønnøysund Airport. In terms of social development; 66,6% of respondents strongly agree that they have better opportunities for holidays, 54,2% that they have better access to health services, 49,7% that they have better contact with friends or relatives and 41,2% that they are able to do their job better. Differences in average responses vary by region (see table 4.6). The greatest significant difference is with access to health services. There are also significant differences for being better connected internationally and having better opportunities for holidays. Rationale for these differences was provided in section 4.1.1.

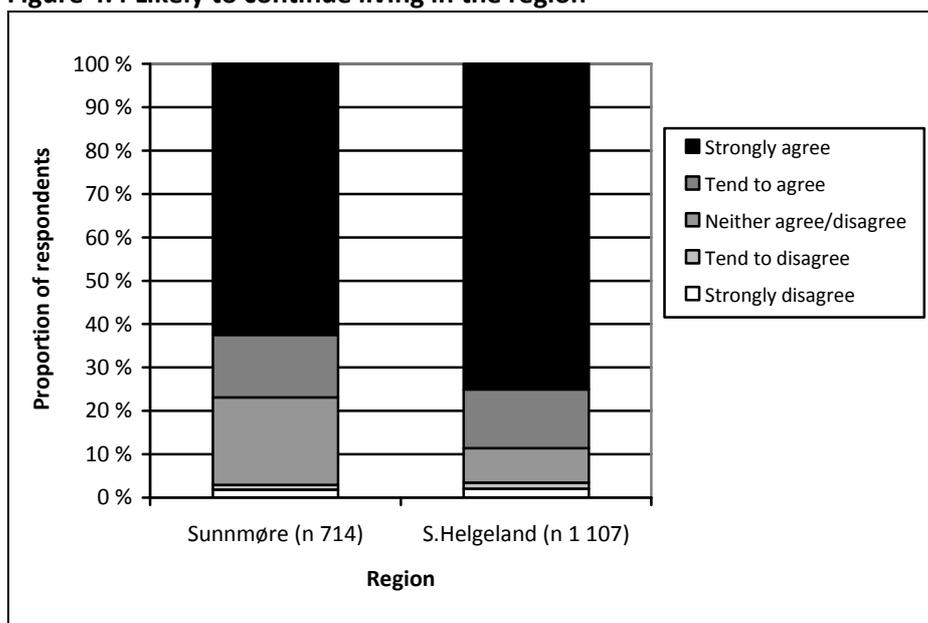
Table 4.6 Differences for consequences of having a local airport

Consequence	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev	Std. error	t	df	Sig. (2-tailed)	Mean difference
a.	Sunnmøre	784	4,78	0,582	0,021	-1,857	1 660	0,064	-0,050
	S.Helgeland	1 155	4,83	0,571	0,017				
b.	Sunnmøre	781	4,57	0,772	0,028	10,911	1 892	0,000	0,485
	S.Helgeland	1 118	4,09	1,165	0,035				
c.	Sunnmøre	455	3,84	1,058	0,050	-2,277	1 250	0,023	-0,147
	S.Helgeland	797	3,98	1,124	0,040				
d.	Sunnmøre	706	4,08	0,978	0,037	-3,523	1 785	0,000	-0,171
	S.Helgeland	1 081	4,25	1,018	0,031				
e.	Sunnmøre	771	4,66	0,643	0,023	6,828	1 881	0,000	0,248
	S.Helgeland	1 112	4,41	0,934	0,028				
f.	Sunnmøre	651	3,80	1,090	0,043	-13,159	1 150	0,000	-0,662
	S.Helgeland	1 122	4,46	0,889	0,027				
g.	Sunnmøre	714	4,35	0,957	0,036	-5,345	1 399	0,000	-0,236
	S.Helgeland	1 107	4,58	0,856	0,026				

The mean is on a scale of 1 to 5 with 1 being strongly disagree and 5 being strongly agree.

Figure 4.3 shows that 70,1% of respondents strongly agree that they are more likely to continue living in the region as a result of having a local airport. This varies from 75,1% for residents in Sør-Helgeland to 62,5% for Sunnmøre (see figure 4.4). Differences in average response are shown in table 4.6 and the mean difference is significant. This suggests that while local airports are important for the retention of residents in both regions, the level of importance is significantly greater for residents in Sør-Helgeland. This may be due to a number of factors such as those that were discussed in section 3.1.3.

Figure 4.4 Likely to continue living in the region



51,4% of respondents in both regions combined have always lived in their respective region; 60,1% in Sunnmøre, 45,5% in Sør-Helgeland. In addition, the average number of years that residents have lived in their respective region is 39,5 years; 41,8 years in Sunnmøre, 37,9 years in Sør-Helgeland (see table 4.7). Retention therefore appears to be higher in Sunnmøre.

Table 4.7 Differences for the number of years lived in the region

Factor	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev.	Std. error	t	df	Sig. (2-tailed)	Mean difference
Years lived in the region	Sunnmøre	793	41,84	20,588	0,731	4,181	1 948	0,000	3,992
	S.Helgeland	1 157	37,85	20,799	0,611				

Residents that have not always lived in their respective region were asked to rate the importance that 10 factors had when they chose to move to the region. Responses for both regions combined are shown in figure 4.5 while the proportion of very important responses and the rank for each factor is shown in table 4.8.

From table 4.8, it seems that many residents that have not always lived in their region might actually be from the region initially and/or have friends or relatives living in the region. 46,2% of respondents rated this factor as very important and it is the highest ranked factor in each region. Nature/leisure opportunities and opportunities for work/study are either ranked

number two or three. The importance of having access to a local airport is ranked number four with 29,3%, almost a third of all respondents. The figure increases to 55,5% when respondents that rated the factor as important or very important are combined meaning that almost six out of 10 respondents rate access to a local airport as important when deciding to locate in either of the two regions. Access to a local airport is ranked above low level of crime, easy commute to/from work, availability/cost of housing and good standard of public services. It is also ranked above other modes of transport including access to public transport and a well-developed road network. Access to public transport and a well-developed road network may be taken for granted when residents decide to locate in a particular region while access to a local airport may be more highly valued as a key location factor.

Figure 4.5 Importance of factors when deciding to move to the region

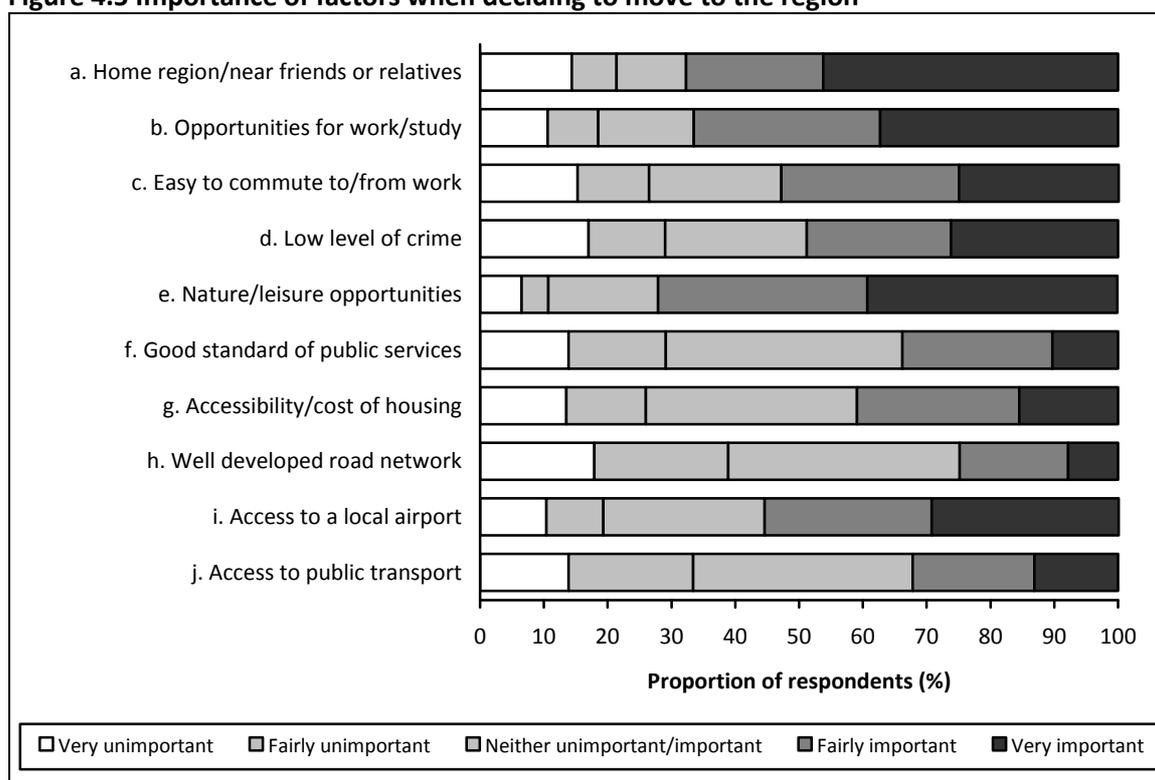


Table 4.8 Key location factors

Factor	Sunnmøre		Sør-Helgeland		Total	
	Rank	V.Important	Rank	V.Important	Rank	V.Important
a. Home region/near friends or relatives	1	44,7%	1	46,9%	1	46,2%
b. Opportunities for work/study	2	38,9%	3	36,4%	3	37,3%
c. Easy commute to/from work	4	19,6%	6	27,7%	6	25,0%
d. Low level of crime	6	12,7%	5	32,9%	5	26,2%
e. Nature/leisure opportunities	3	29,9%	2	43,9%	2	39,2%
f. Good standard of public services	9	8,0%	9	11,5%	9	10,3%
g. Accessibility/cost of housing	7	12,5%	7	17,1%	7	15,5%
h. Well-developed road network	10	5,9%	10	8,8%	10	7,8%
i. Access to a local airport	5	19,0%	4	34,4%	4	29,3%
j. Access to public transport	8	9,6%	8	14,9%	8	13,1%

n for Sunnmøre = 295 (a), 293 (b), 291 (c), 284 (d), 291 (e), 288 (f), 288 (g), 289 (h), 294 (i), 291 (j).

n for Sør-Helgeland = 599 (a), 571 (b), 566 (c), 575 (d), 583 (e), 567 (f), 574 (g), 568 (h), 584 (i), 572 (j).

Table 4.9 investigates differences between mean responses to the factors listed in table 4.8. Access to a local airport is significantly more important to those moving to Sør-Helgeland compared to Sunnmøre suggesting that access to a local airport plays a much greater role in people's decision to move to Sør-Helgeland than it does for Sunnmøre.

Table 4.9 Differences for key location factors

Factor	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev	Std. error	t	df	Sig. (2-tailed)	Mean difference
a.	Sunnmøre	295	3,73	1,478	0,086	-0,735	892	0,463	-0,076
	S.Helgeland	599	3,80	1,438	0,059				
b.	Sunnmøre	293	3,83	1,274	0,074	1,289	862	0,198	0,122
	S.Helgeland	571	3,70	1,337	0,056				
c.	Sunnmøre	291	3,23	1,335	0,078	-2,055	855	0,040	-0,203
	S.Helgeland	566	3,43	1,382	0,058				
d.	Sunnmøre	284	2,92	1,294	0,077	-5,751	617	0,000	-0,559
	S.Helgeland	575	3,47	1,431	0,060				
e.	Sunnmøre	291	3,72	1,213	0,071	-3,886	532	0,000	-0,328
	S.Helgeland	583	4,05	1,099	0,046				
f.	Sunnmøre	288	2,90	1,162	0,068	-1,931	853	0,054	-0,162
	S.Helgeland	567	3,07	1,164	0,049				
g.	Sunnmøre	288	3,05	1,230	0,072	-2,125	860	0,034	-0,188
	S.Helgeland	574	3,23	1,226	0,051				
h.	Sunnmøre	289	2,71	1,124	0,066	-0,965	855	0,335	-0,081
	S.Helgeland	568	2,79	1,181	0,050				
i.	Sunnmøre	294	3,27	1,274	0,074	-4,760	876	0,000	-0,430
	S.Helgeland	584	3,70	1,257	0,052				
j.	Sunnmøre	291	2,83	1,174	0,069	-2,641	861	0,008	-0,230
	S.Helgeland	572	3,06	1,224	0,051				

The mean is on a scale of 1 to 5 with 1 being very unimportant and 5 being very important.

4.3 Airport competition

The substitution of air travel with alternative modes of transport is mentioned in section 2.1 and the survey investigates different aspects of airport competition including competition between airports, factors that influence airport choice, and how improved offers for different modes of transport would be used by residents.

The survey asks to what extent a number of factors influenced the resident's decision to fly from their local airport instead of an alternative airport. Table 4.10 shows the proportion of respondents that replied to a great extent to each factor.

Table 4.10 Reasons for using the local airport

Factor	Sunnmøre		Sør-Helgeland	
	Rank	To a great extent (n)	Rank	To a great extent (n)
a. Proximity to home/work	1	69,7% (757)	1	81,1% (1 114)
b. Cheaper	4	19,1% (734)	4	15,7% (1 040)
c. Public transport access	2	23,9% (740)	5	9,8% (1 043)
d. Routes/packages available	3	22,9% (733)	6	7,8% (1 030)
e. Timing of flights	5	18,5% (724)	2	20,8% (1 057)
f. Frequency of flights	6	18,1% (725)	3	18,8% (1 043)
g. Aircraft size/type	7	9,0% (726)	7	7,3% (1 033)

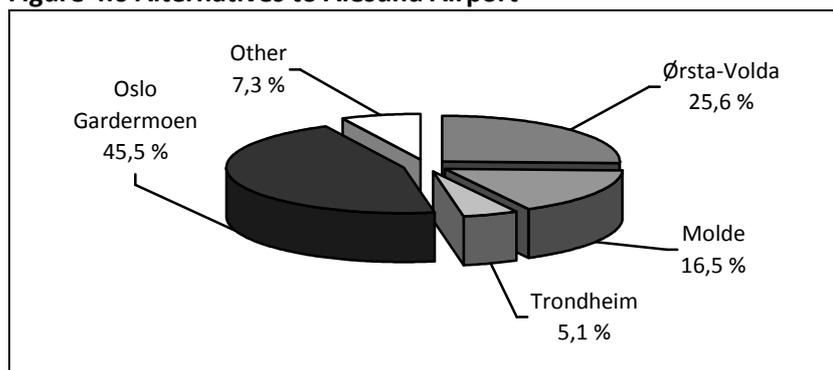
Proximity to home/work is the most highly rated factor with 69,7% of respondents in Sunnmøre and 81,1% in Sør-Helgeland. Proportions for other factors are relatively small in

comparison, emphasising the importance of proximity to home/work. The main difference between Sunnmøre and Sør-Helgeland is in the role that public transport access plays. This factor is ranked in 2nd place by residents in Sunnmøre with 23,9% and in 5th place by residents in Sør-Helgeland with just 9,8%. The main reason for this is likely to be that Ålesund Airport is served by the Airport Express Coach service; Flybuss while Brønnøysund Airport is not.

Another difference is that residents in Sør-Helgeland place a much greater emphasis on timing and frequency of flights whilst in Sunnmøre the emphasis is more on routes/packages available. Ålesund Airport has more choice in terms of routes/packages available, especially direct scheduled services, compared to neighbouring airports such as Ørsta-Volda and Molde. Both are within a three-hour journey by road from Ålesund so routes/packages available are important in influencing the choice of residents in that region. There are three airports within a three-hour journey by road from Brønnøysund; Sandnessjøen, Mosjøen and Rørvik. The three airports offer fairly similar routes/packages to Brønnøysund so timing and frequency of flights is more important than the routes/packages available.

34,8% of respondents in Sunnmøre have used an alternative airport during the last 12 months. Proportions for alternative airports are provided in figure 4.6. Oslo Gardermoen is the most widely used alternative (45,5%). Ørsta-Volda (25,6%) and Molde (16,5%) are also widely used.

Figure 4.6 Alternatives to Ålesund Airport



n = 273. The other category includes: Oslo Torp, Oslo Rygge, Bergen, Kristiansund, Stavanger and Sandane.

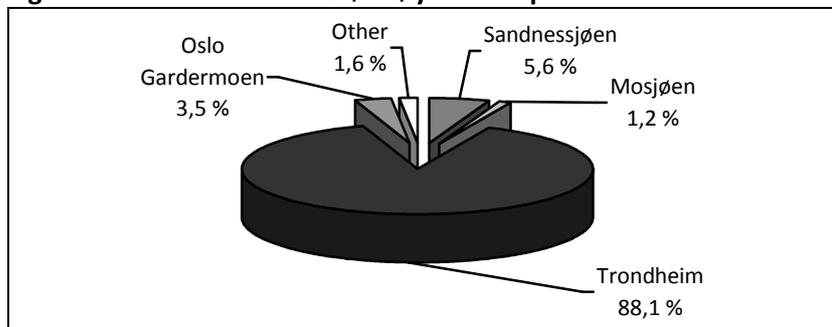
Reasons for choosing the three main alternatives are listed in table 4.11. The most important reasons for choosing Oslo Gardermoen are flights/packages available (50,4%), frequency of flights (33,9%) and cheaper (33,8%). For Ørsta-Volda, it is proximity to home/work (63,8%), timing of flights (15,1%) and public transport access (11,9%). For Molde, it is timing of flights (16,7%), proximity to home/work (15,0%) and cheaper (15,0%).

Table 4.11 Reasons for choosing an alternative to Ålesund Airport

Factor	Oslo Gardermoen	Ørsta-Volda	Molde
	To a great extent (n)	To a great extent (n)	To a great extent (n)
a. Proximity to home/work	7,3% (8)	63,8% (69)	15,0% (6)
b. Cheaper	33,9% (49)	10,8% (7)	15,0% (6)
c. Public transport access	12,3% (14)	11,9% (8)	7,5% (3)
d. Routes/packages available	50,4% (61)	2,9% (2)	9,8% (4)
e. Timing of flights	22,6% (26)	15,1% (10)	16,7% (7)
f. Frequency of flights	33,9% (39)	3,0% (2)	2,4% (1)
g. Aircraft size/type	9,6% (11)	1,5% (1)	0,0% (0)

38,5% of respondents in Sør-Helgeland have used an alternative airport during the last 12 months. Proportions for alternative airports are provided in figure 4.7. Trondheim is the most widely used alternative (88,1%). Sandnessjøen is the next most used alternative (5,6%).

Figure 4.7 Alternatives to Brønnøysund Airport



n = 429. The other category includes: Rørvik, Bodø, Umeå City, Hemavan, Åre Östersund.

Reasons for choosing the two main alternatives are listed in table 4.12. The most important reasons for choosing Trondheim are flights/packages available (59,0%), cheaper (57,5%) and frequency of flights (23,1%). For Sandnessjøen, it is near to home/work (28,6%), timing of flights (28,6%) and public transport access (13,6%).

Table 4.12 Reasons for choosing an alternative to Brønnøysund Airport

Factor	Trondheim	Sandnessjøen
	To a great extent (n)	To a great extent (n)
a. Proximity to home/work	8,4% (29)	28,6% (6)
b. Cheaper	57,5% (208)	5,0% (1)
c. Public transport access	11,9% (41)	13,6% (3)
d. Routes/packages available	59,0% (216)	5,0% (1)
e. Timing of flights	14,3% (50)	28,6% (6)
f. Frequency of flights	23,2% (82)	5,0% (1)
g. Aircraft size/type	15,6% (55)	5,0% (1)

The survey asks respondents to rate how often they would use a range of improvements in transport services in their region. The different improvements were selected on the basis of what already exists in the region and what options might be possible for the near future. Improvements were also selected on the basis that they are air-transport related or offer a realistic alternative to air transport. The list of improvements and responses for both regions combined is provided in figure 4.8.

Responses are generally in favour of improvements in air transport compared to other modes of transport, especially direct scheduled air services to more large towns in Norway. 47,0% of respondents believe that they would use this type of improvement often or very often. Often or very often proportions are 31,6% for direct scheduled air services to more destinations abroad, 32,6% for charter air services to more holiday destinations, 9,2% for scheduled coach services to the larger towns in Norway, 3,9% for coach tours to more holiday destinations and 5,2% for international passenger ferry services.

Readers should be cautious about interpreting the findings in figure 4.8. The survey question is purely hypothetical and general options such as often and very often have been used instead of specific values. In addition, the survey is focused on air transport so it is possible that responses are biased in favour of that mode of transport. Finally, it is mentioned in appendix

7.9.1 that the net sample may be over-represented by airport users. This may also bias responses in favour of air transport.

Figure 4.8 Use of transport improvements in the region

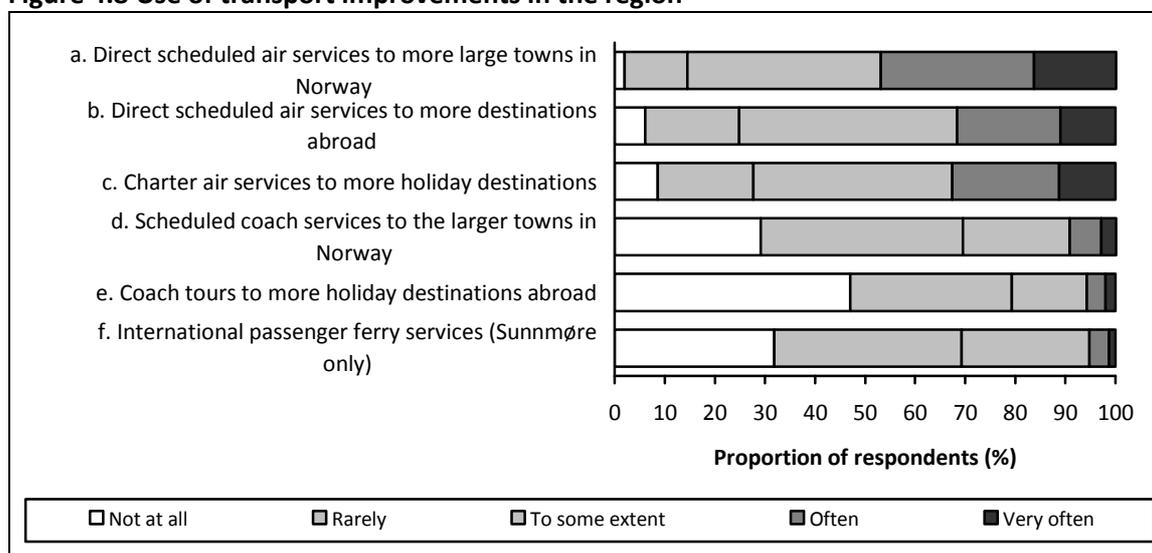


Table 4.13 summarises the significance of differences in average use of improvements in transport services. International passenger ferry services is not included in table 4.13 because that improvement was only included in the Sunnmøre survey. The greatest significant difference is for direct scheduled air services to more large towns in Norway (0,435 higher in Sør-Helgeland compared to Sunnmøre). This is likely to be a consequence of the fact that Ålesund Airport has direct scheduled air service connections to the capital city; Oslo and Brønnøysund Airport does not. There is also a significantly stronger interest for coach tours to more holiday destinations from respondents in Sør-Helgeland although it is worth noting that the average for both regions is two if rounded up to no decimal places meaning that, on average, respondents would rarely use the improvement. The potential use of air services to more destinations abroad (by scheduled and charter air services) is significantly higher for respondents in Sunnmøre. This may reflect the higher propensity to go on trips abroad by air by residents in Sunnmøre compared to Sør-Helgeland, which is shown in table 4.2.

Table 4.13 Differences for improvements in transport services

Improvement	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev.	Std. error	t	df	Sig. (2-tailed)	Mean difference
a.	Sunnmøre	778	3,21	0,942	0,034	-9,907	1 681	0,000	-0,435
	S.Helgeland	1 153	3,64	0,953	0,028				
b.	Sunnmøre	778	3,26	0,979	0,035	4,948	1 915	0,000	0,236
	S.Helgeland	1 139	3,02	1,056	0,031				
c.	Sunnmøre	776	3,18	1,076	0,039	3,461	1 916	0,001	0,175
	S.Helgeland	1 142	3,00	1,096	0,032				
d.	Sunnmøre	774	2,18	0,983	0,035	1,714	1 910	0,087	0,080
	S.Helgeland	1 138	2,10	1,011	0,030				
e.	Sunnmøre	773	1,69	0,889	0,032	-4,538	1 912	0,000	-0,201
	S.Helgeland	1 141	1,90	0,991	0,029				

The mean is on a scale of 1 to 5 with 1 being not at all and 5 being very often.

5 FINDINGS: BUSINESS SURVEY

Appendix 7.9.2 provides a summary of the sample. 356 businesses responded to the survey; a gross sample response rate of 18,3% (25,1% in Sør-Helgeland, 16,6% in Sunnmøre). Sampling considerations are mentioned in Appendix 7.9.2 and it is important that readers refer to them when interpreting the findings of the business survey.

The survey asks respondents if they consider Ålesund Airport or Brønnøysund Airport to be their local airport. The results are summarised in table 5.1. A large proportion of respondents in Sunnmøre (22,9%) do not consider Ålesund Airport to be their local airport. This figure is lower in Sør-Helgeland (7,1%). The reason for this is that the sample for Sunnmøre included businesses in municipalities such as Ørsta and Volda that consider Ørsta-Volda Airport to be their local airport. Subsequent analysis refers only to respondents that consider Ålesund Airport or Brønnøysund Airport to be their local airport. This means that the number of observations in the analysis is generally smaller than the net sample. Also, some respondents failed to answer all of the questions in the survey, answered questions incorrectly, or used the not relevant option for some questions. These responses are treated as missing values and are omitted from the analysis. Subsequently, the number of observations varies throughout the analysis and is stated where appropriate, using the abbreviation n.

Table 5.1 Local airport

	Ålesund (Sunnmøre)		Brønnøysund (Sør-Helgeland)		Total	
	Number	Percent	Number	Percent	Number	Percent
n	258	100,0	98	100,0	356	100,0
Yes	199	77,1	91	92,9	290	81,5
No	59	22,9	7	7,1	66	18,5

5.1 Use of the local airport for business travel

Table 5.2 shows the number and proportion of respondents that used their local airport for business travel in 2009. 77,4% of respondents from both regions combined used their local airport for business travel in 2009; 79,2% from Sunnmøre, 73,3% from Sør-Helgeland. There is no significant difference in use of airport between regions.

Table 5.2 Used the local airport for business travel in 2009

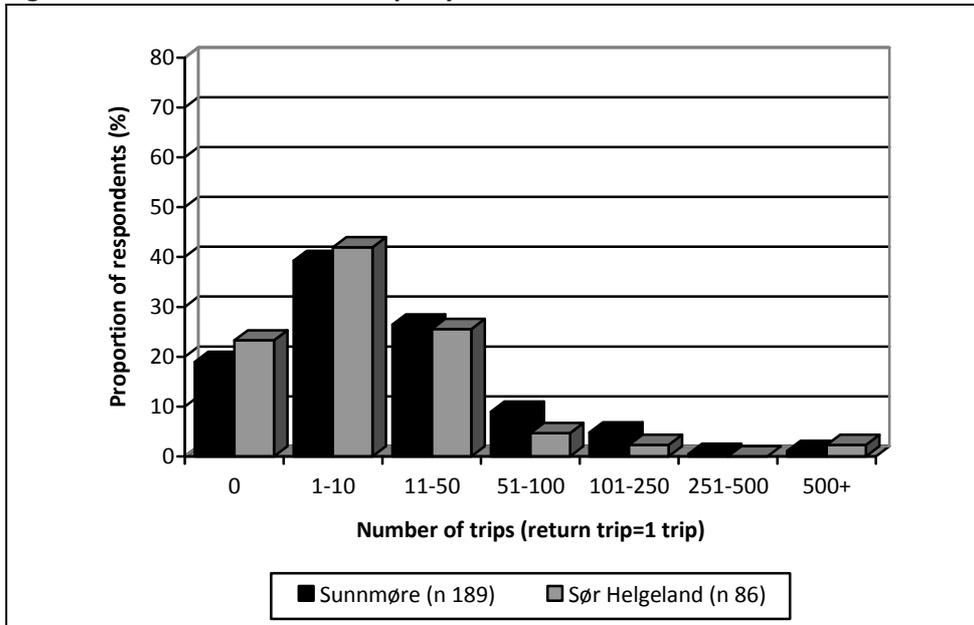
	Sunnmøre		Sør-Helgeland		Total	
	Number	Percent	Number	Percent	Number	Percent
n	197	100,0	90	100,0	287	100,0
Yes	156	79,2	66	73,3	222	77,4
No	34	17,3	20	22,2	54	18,8
Don't know	7	3,6	4	4,4	11	3,8

Pearson's Chi-Square (based on response categories by region): $X^2=1,211$, $df=2$, $p=0,546$.

Figures 5.1 and 5.2 show the number of trips taken by air by staff or visitors in 2009. Businesses in both regions are more dependent on their local airport for domestic versus international trips. For both regions combined, 79,6% of respondents used their local airport for domestic business trips compared to 47,1% for international business trips. The largest proportion of respondents in both regions and for both domestic and international business trips is the 1-10 category. For both regions combined, 40,0% of respondents ticked 1-10 for domestic business trips and 32,2% ticked 1-10 for international business trips. In general, the proportion of respondents decreases as the number of trips increases. There is no significant

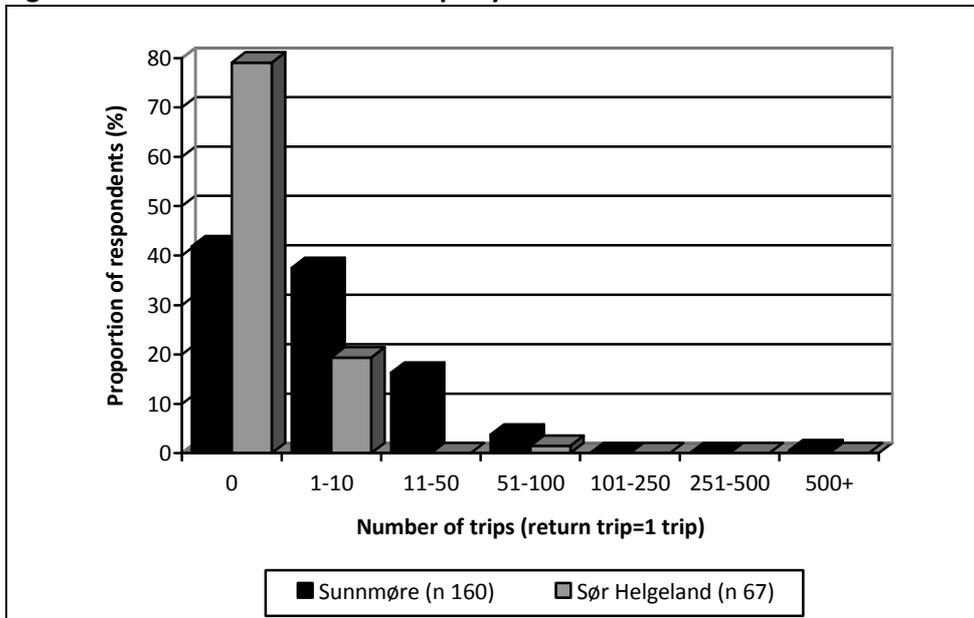
difference between regions for the number of respondents in each category for domestic business trips. However, there is a significant difference for international business trips with greater use in Sunnmøre compared to Sør-Helgeland. This reflects the nature of air services available at the respective airports and may subsequently affect business location decisions as businesses that use their local airport a lot for international business trips are more likely to locate near an airport that has international air service connections.

Figure 5.1 Domestic business trips by air of staff or visitors in 2009



Pearson's Chi-Square (based on response categories 0, 1-10, 11-50, 51+ by region): $X^2=2,243$, $df=3$, $p=0,524$.

Figure 5.2 International business trips by air of staff or visitors in 2009



Pearson's Chi-Square (based on response categories 0, 1-10, 11+ by region): $X^2=28,733$, $df=2$, $p=0,000$.

Air travel was used for over 60% of total business travel trips in 2009 by 43,4% of respondents in both regions combined, emphasising the dependence of businesses on air travel (see table

5.3). Business trips by air as a proportion of total business trips is significantly higher in Sunnmøre compared to Sør-Helgeland. For instance, 50,8% of respondents in Sunnmøre state that air travel supports over 60% of all business trips compared to just 27,0% in Sør-Helgeland.

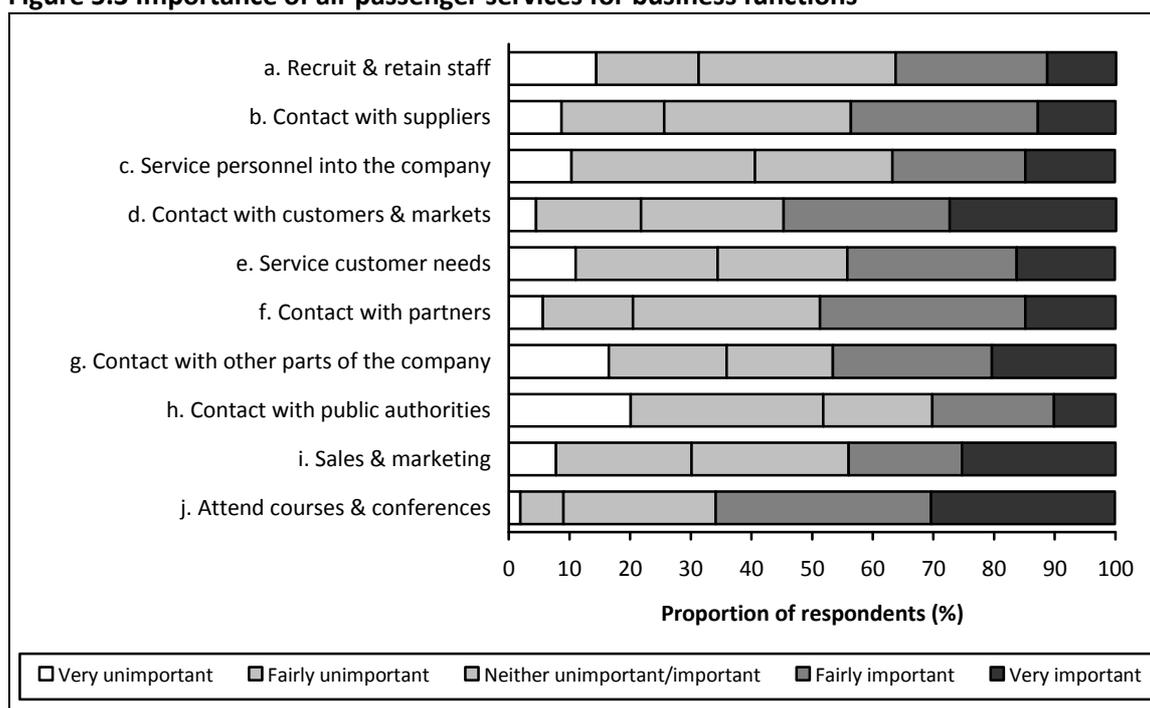
Table 5.3 Proportion of business trips by air of staff and visitors in 2009

Proportion of business trips by air	Sunnmøre		Sør-Helgeland		Total	
	Number	Percent	Number	Percent	Number	Percent
n	187	100,0	85	100,0	272	100,0
None by air	34	18,2	20	23,5	54	19,9
1-20%	39	20,9	24	28,2	63	23,2
21-40%	9	4,8	9	10,6	18	6,6
41-60%	10	5,3	9	10,6	19	7,0
61-80%	27	14,4	3	3,5	30	11,0
81-100%	68	36,4	20	23,5	88	32,4

Pearson's Chi-Square (based on response categories by region): $X^2=16,740$, $df=5$, $p=0,005$.

According to responses for both regions combined, passenger air services are particularly important for businesses as they allow staff to attend courses and conferences (30,3% rated air passenger services as very important for this business function), allow businesses to maintain contact with customers and markets (27,4%) and support sales and marketing (25,3%) (see figure 5.3).

Figure 5.3 Importance of air passenger services for business functions



Significant differences exist between regions for three of the business functions listed in figure 5.3 (see table 5.4); contact with public authorities, service personnel into the company and attending courses and conferences. Average responses for each of the business functions are significantly higher for Sør-Helgeland compared to Sunnmøre. The difference for contact with public authorities may reflect the biased nature of the net sample in Sør-Helgeland that is biased towards public administration (see table 7.5 in Appendix 7.9.2). It may also be because there is a greater dependence on air travel for contact with public administration in the region.

For instance, the county administration centre is Bodø, which is an eight-hour drive from Sør-Helgeland but only 75 minutes by air. The net sample for Sunnmøre is less biased towards public administration and besides, the county administration centre is Molde, which is a two-hour drive from Sunnmøre. The higher responses for the two other business functions represent a greater dependence on air travel in Sør-Helgeland compared to Sunnmøre for accessing expertise (e.g. in terms of access to service personnel and courses and conferences).

Table 5.4 Differences for the importance of air passenger services

Factor	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev	Std. error	t	df	Sig. (2-tailed)	Mean difference
a.	Sunnmøre	106	2,94	1,178	0,114	-1,109	158	0,269	-0,223
	S.Helgeland	54	3,17	1,255	0,171				
b.	Sunnmøre	119	3,18	1,104	0,101	-0,621	170	0,535	-0,117
	S.Helgeland	53	3,30	1,218	0,167				
c.	Sunnmøre	102	2,85	1,285	0,127	-2,163	153	0,032	-0,449
	S.Helgeland	53	3,30	1,102	0,151				
d.	Sunnmøre	123	3,64	1,153	0,104	1,397	177	0,164	0,267
	S.Helgeland	56	3,38	1,259	0,168				
e.	Sunnmøre	106	3,19	1,281	0,124	0,574	152	0,567	0,126
	S.Helgeland	48	3,06	1,227	0,177				
f.	Sunnmøre	133	3,29	1,139	0,099	-1,681	193	0,094	-0,279
	S.Helgeland	62	3,56	0,934	0,119				
g.	Sunnmøre	67	3,12	1,409	0,172	-0,260	101	0,795	-0,075
	S.Helgeland	36	3,19	1,369	0,228				
h.	Sunnmøre	89	2,43	1,186	0,126	-3,260	137	0,001	-0,713
	S.Helgeland	50	3,14	1,325	0,187				
i.	Sunnmøre	120	3,32	1,296	0,118	0,055	164	0,956	0,012
	S.Helgeland	46	3,30	1,263	0,186				
j.	Sunnmøre	147	3,76	1,004	0,083	-2,184	209	0,030	-0,323
	S.Helgeland	64	4,08	0,948	0,118				

The mean is on a scale of 1 to 5 with 1 being very unimportant and 5 being very important.

5.2 Use of the local airport for freight/express delivery

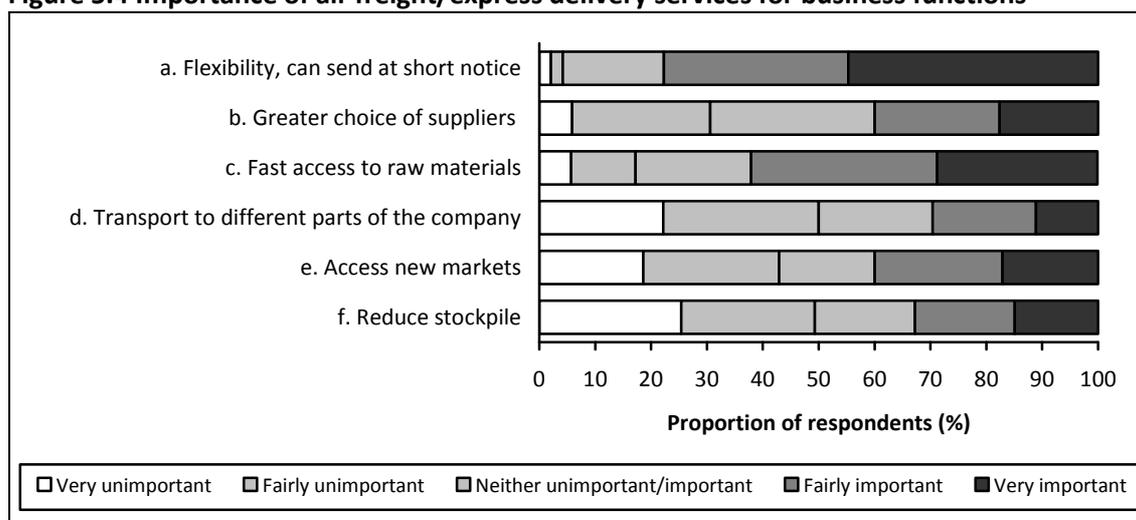
34,5% of respondents for both regions combined used their local airport for freight/express delivery in 2009 (see table 5.5). This is much lower than the 77,4% that used their local airport for business travel in 2009 and emphasises the greater use of passenger air travel versus air freight/express delivery in the regions. The use varies by region; 30,7% in Sunnmøre, 42,9% in Sør-Helgeland. However, the difference in use by region is not significant.

Table 5.5 Used the local airport for freight/express delivery in 2009

	Sunnmøre		Sør-Helgeland		Total	
	Number	Percent	Number	Percent	Number	Percent
n	199	100,0	91	100,0	290	100,0
Yes	61	30,7	39	42,9	100	34,5
No	126	63,3	49	53,8	175	60,3
Don't know	12	6,0	3	3,3	15	5,2

Pearson's Chi-Square (based on response categories by region): $X^2=4,527$, $df=2$, $p=0,104$.

According to responses for both regions combined, air freight/express delivery services are particularly important for businesses because of the flexibility that it provides, allowing businesses to send at short notice (44,7% rated air freight/express delivery as very important for this business function) but it is also important as a means of securing fast access to raw materials (28,7%) (see figure 5.4).

Figure 5.4 Importance of air freight/express delivery services for business functions

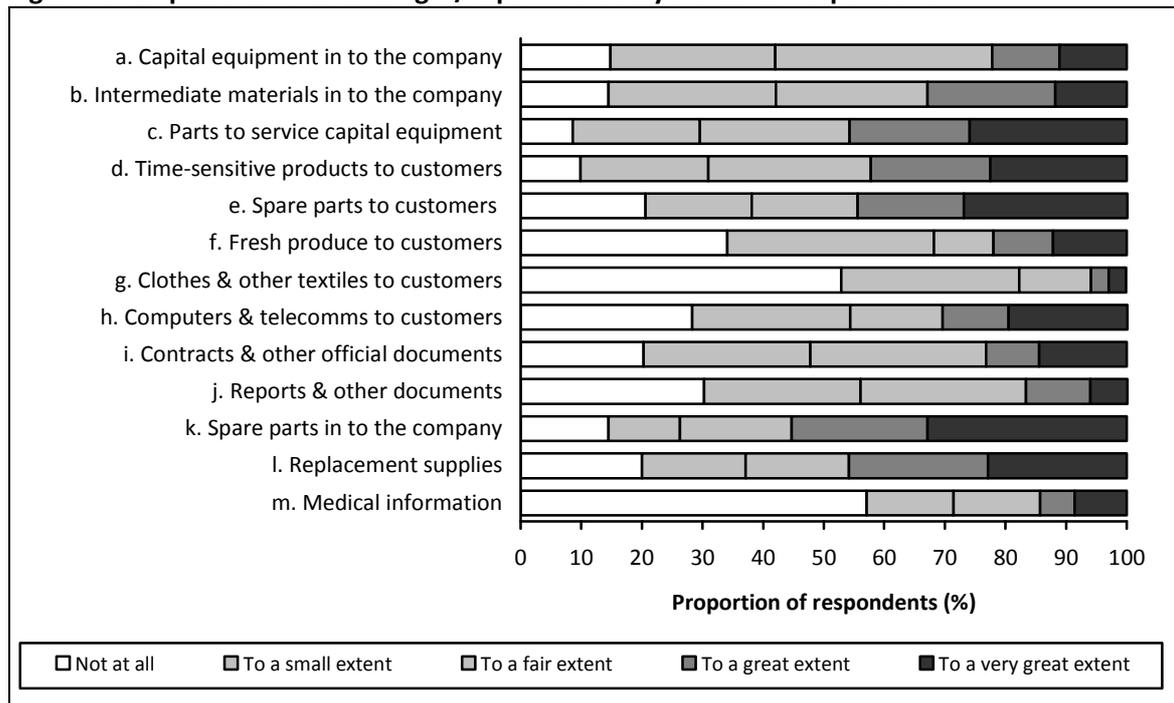
Significant differences exist between regions for one of the business functions listed in figure 5.4; fast access to raw materials (see table 5.6). The average response is significantly higher for Sør-Helgeland emphasising the greater dependence on air transport for accessing raw materials in Sør-Helgeland compared to Sunnmøre.

Table 5.6 Differences for the importance of air freight/express delivery services

Factor	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. Dev	Std. error	t	df	Sig. (2-tailed)	Mean Difference
a.	Sunnmøre	59	4,08	1,039	0,135	-0,999	92	0,320	-0,201
	S.Helgeland	35	4,29	0,750	0,127				
b.	Sunnmøre	51	3,02	1,225	0,171	-1,872	83	0,065	-0,480
	S.Helgeland	34	3,50	1,052	0,180				
c.	Sunnmøre	54	3,48	1,285	0,175	-2,207	83	0,030	-0,519
	S.Helgeland	33	4,00	0,901	0,157				
d.	Sunnmøre	32	2,69	1,447	0,256	0,015	52	0,988	0,006
	S.Helgeland	22	2,68	1,129	0,241				
e.	Sunnmøre	44	2,84	1,397	0,211	-0,911	68	0,366	-0,313
	S.Helgeland	26	3,15	1,377	0,270				
f.	Sunnmøre	41	2,68	1,491	0,233	-0,351	65	0,727	-0,125
	S.Helgeland	26	2,81	1,297	0,254				

The mean is on a scale of 1 to 5 with 1 being very unimportant and 5 being very important.

The greater dependence on air transport for accessing raw materials in Sør-Helgeland is further underlined in table 5.7 as mean responses for capital equipment into the company and intermediate materials into the company are significantly higher for Sør-Helgeland compared to Sunnmøre. There is also a significantly greater dependence on air transport in Sør-Helgeland for the transport of medical information reflecting the difference in health infrastructure in the respective regions (this has already been discussed in section 4.1.1). Figure 5.5 shows that for both regions combined, dependence on air freight/express delivery is greatest for the delivery of spare parts; into the company (32,9% rated this to a very great extent) and out to customers (27,9%).

Figure 5.5 Dependence on air freight/express delivery for different products**Table 5.7 Differences for the dependence on air freight/express delivery**

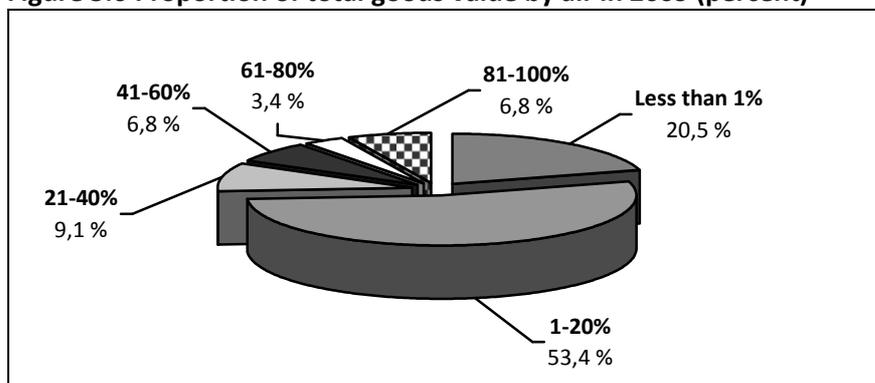
Factor	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev	Std. error	t	df	Sig. (2-tailed)	Mean difference
a.	Sunnmøre	48	2,56	1,319	0,190	-2,053	79	0,043	-0,498
	S.Helgeland	33	3,06	0,864	0,150				
b.	Sunnmøre	44	2,55	1,247	0,188	-2,897	74	0,005	-0,798
	S.Helgeland	32	3,34	1,096	0,194				
c.	Sunnmøre	48	3,10	1,372	0,198	-1,940	79	0,056	-0,563
	S.Helgeland	33	3,67	1,137	0,198				
d.	Sunnmøre	45	3,33	1,331	0,198	0,803	69	0,425	0,256
	S.Helgeland	26	3,08	1,230	0,241				
e.	Sunnmøre	39	3,18	1,571	0,252	0,350	61	0,728	0,138
	S.Helgeland	24	3,04	1,429	0,292				
f.	Sunnmøre	22	2,09	1,269	0,271	-1,143	39	0,260	-0,488
	S.Helgeland	19	2,58	1,465	0,336				
g.	Sunnmøre	17	1,47	0,717	0,174	-1,588	32	0,122	-0,529
	S.Helgeland	17	2,00	1,173	0,284				
h.	Sunnmøre	25	2,52	1,531	0,306	-0,760	44	0,451	-0,337
	S.Helgeland	21	2,86	1,459	0,318				
i.	Sunnmøre	41	2,59	1,414	0,221	-0,852	67	0,397	-0,272
	S.Helgeland	28	2,86	1,113	0,210				
j.	Sunnmøre	38	2,32	1,297	0,210	-0,376	64	0,709	-0,113
	S.Helgeland	28	2,43	1,069	0,202				
k.	Sunnmøre	47	3,38	1,468	0,214	-0,703	74	0,485	-0,238
	S.Helgeland	29	3,62	1,374	0,255				
l.	Sunnmøre	41	3,02	1,508	0,236	-0,610	68	0,544	-0,217
	S.Helgeland	29	3,24	1,405	0,261				
m.	Sunnmøre	18	1,28	0,669	0,158	-3,458	22	0,002	-1,369
	S.Helgeland	17	2,65	1,498	0,363				

The mean is on a scale of 1 to 5 with 1 being not at all and 5 being to a very great extent.

47,0% of respondents for both regions combined that used air freight/express delivery in 2009 stated the value of goods transported by air in 2009. Values ranged from 700 to 40 million Norwegian kroner. The average is 1,6 million Norwegian kroner; 2,3 million in Sunnmøre, 57 000 in Sør-Helgeland. So while a higher proportion of businesses in Sør-Helgeland use their local airport for air freight/express delivery (42,9% compared to 30,7% in Sunnmøre), it seems that air freight/express delivery is more important for businesses in Sunnmøre in terms of value. This might be because there are a greater number of large businesses in Sunnmøre compared to Sør-Helgeland (see section 3.1). However, there are too few observations in the net samples to justify conducting any statistical analysis and differences may therefore be the result of chance.

88,0% of respondents for both regions combined stated what proportion of total goods value was sent by air versus other modes of transport in 2009 (see figure 5.6). 73,9% stated up to 20% suggesting a relatively low dependence on air versus other modes of transport (20,5% stated less than 1%). 10,2% of respondents stated 61-100% so although businesses generally have a low dependence, some are very dependent.

Figure 5.6 Proportion of total goods value by air in 2009 (percent)



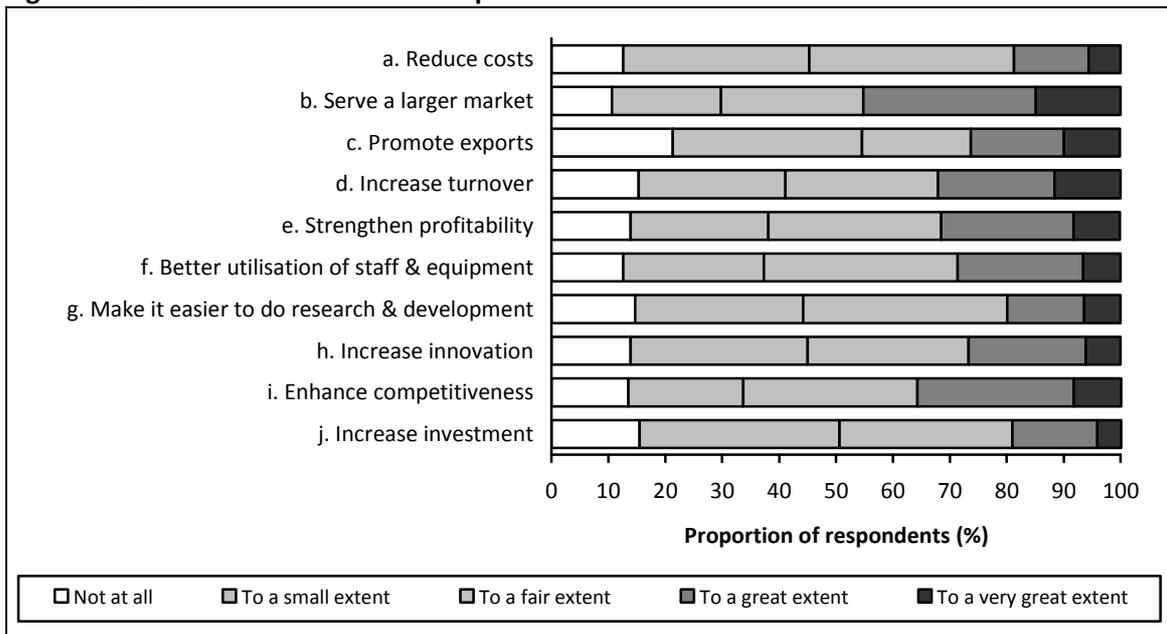
n = 88.

5.3 Importance of the local airport

Section 2.1 emphasises the importance of airports in securing access for businesses (e.g. to markets). Section 2.3 then emphasises the importance of airports for promoting exports and enhancing business and regional competitiveness. The importance of airports for such factors is emphasised in figure 5.7. The main impacts that a local airport has on businesses are that it enables them to serve a larger market (14,9% of respondents rated this factor to a very great extent), promote exports (9,9%) and enhance competitiveness (8,3%). However, a local airport is also rated highly as having a subsequent impact on the economic performance of businesses; increasing turnover (11,6%) and strengthen profitability (8,2%). There were no significant differences in average response by region.

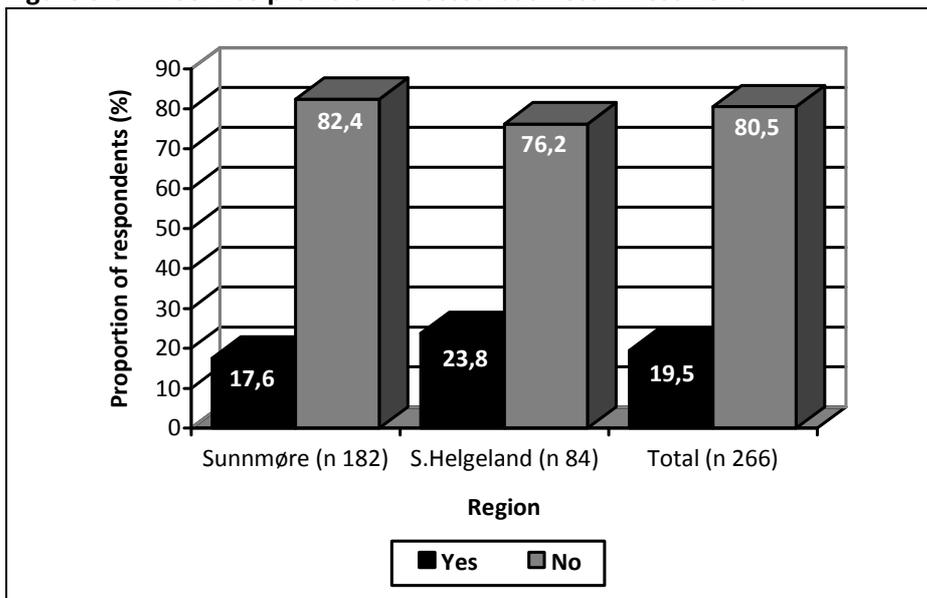
The impact that a local airport has on increased investment is fairly low according to figure 5.7. However, 266 businesses responded to the question: has air service provision at your local airport ever influenced investment decisions of your business? Almost one fifth of respondents from both regions combined (19,5%) answered yes; 17,6% from Sunnmøre, 23,8% from Sør-Helgeland (see figure 5.8).

Figure 5.7 Extent to which the local airport affects the business



n = 214 (a), 208 (b), 141 (c), 190 (d), 194 (e), 182 (f), 156 (g), 180 (h), 193 (i), 168 (j).

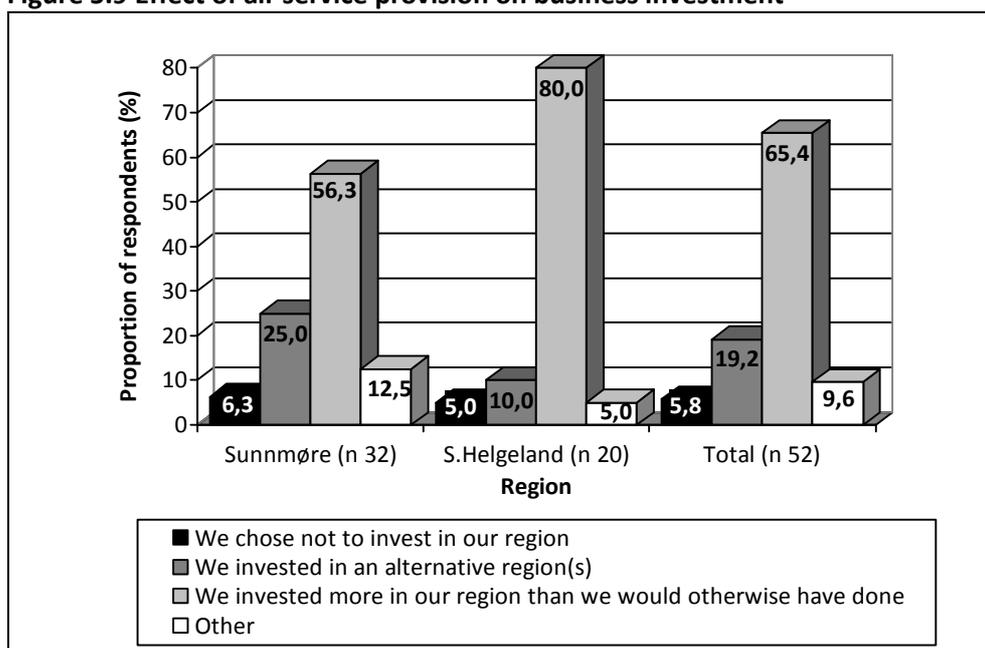
Figure 5.8 Air service provision affected business investment



Pearson's Chi-Square (based on response categories by region): $X^2=1,432$, $df=2$, $p=0,489$.

The influence of the local airport on investment decisions is generally positive; influencing inward investment (see figure 5.9). 65,4% of respondents in both regions combined stated that they invested more in their region than they would otherwise have done; 56,3% in Sunnmøre, 80,0% in Sør-Helgeland. There are no significant differences between regions.

Figure 5.9 Effect of air service provision on business investment



Pearson’s Chi-Square (based on response categories by region): $X^2=3,067$, $df=1$, $p=0,080$.

Of course, a local airport will not benefit its region or businesses unless it has an appropriate provision of air services. Respondents from both regions combined generally feel that their local airport meets their business needs (see figure 5.10). The only areas where respondents feel their local airports could do better is with destinations abroad (13,7% stated that their airport did not at all meet their needs with this factor) and pricing (9,2%). This is especially the case for respondents from Sør-Helgeland where average responses for destinations abroad, pricing and aircraft type are significantly lower than for respondents from Sunnmøre (see table 5.8). This is to be expected considering that the airport serving respondents from Sør-Helgeland does not have international air services, has limited competition between airlines on existing routes and has a higher proportion of smaller aircraft serving the airport compared to the airport serving respondents from Sunnmøre.

Figure 5.10 Extent to which air service provision meets business needs

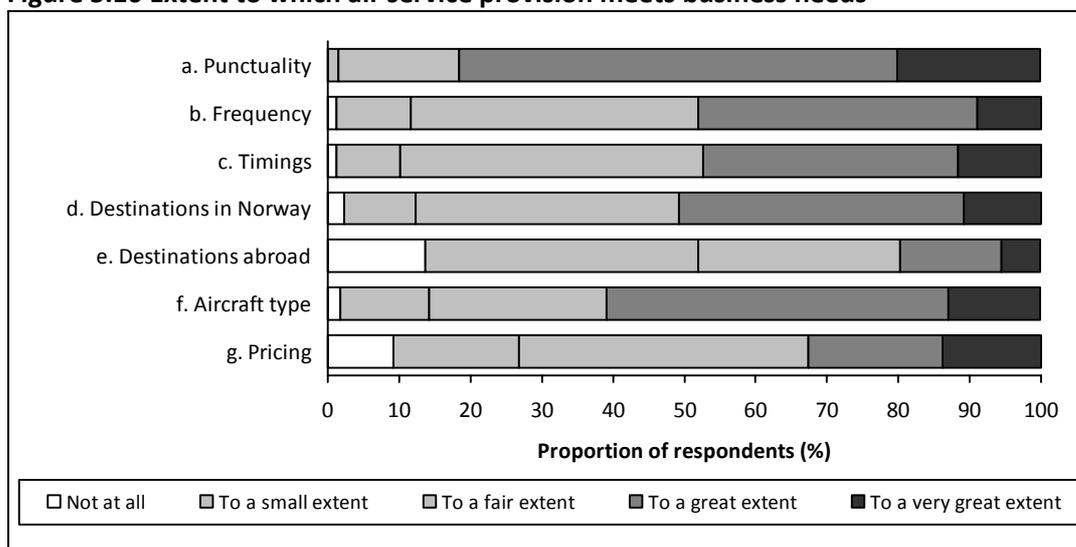


Table 5.8 Differences for the extent to which air service provision meets business needs

Factor	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev	Std. error	t	df	Sig. (2-tailed)	Mean difference
a.	Sunnmøre	178	3,97	0,646	0,048	-1,219	258	0,224	-0,107
	S.Helgeland	82	4,07	0,681	0,075				
b.	Sunnmøre	178	3,43	0,836	0,063	-0,264	256	0,792	-0,030
	S.Helgeland	80	3,46	0,856	0,096				
c.	Sunnmøre	177	3,42	0,843	0,063	-1,632	256	0,104	-0,187
	S.Helgeland	81	3,60	0,876	0,097				
d.	Sunnmøre	178	3,51	0,865	0,065	1,112	258	0,267	0,133
	S.Helgeland	82	3,38	0,964	0,106				
e.	Sunnmøre	149	2,76	1,011	0,083	3,773	202	0,000	0,613
	S.Helgeland	55	2,15	1,079	0,145				
f.	Sunnmøre	149	3,73	0,859	0,070	3,753	215	0,000	0,496
	S.Helgeland	68	3,24	0,994	0,121				
g.	Sunnmøre	179	3,30	0,905	0,068	3,687	112	0,000	0,631
	S.Helgeland	82	2,67	1,423	0,157				

The mean is on a scale of 1 to 5 with 1 being not at all and 5 being to a very great extent.

Similar findings to figure 5.10 and table 5.8 can be seen in figure 5.11 and table 5.9 which is based on respondent's opinions about airport developments for the future. The most important developments for respondents from both regions combined are direct services to more towns in Norway (29,0% stated that this development is very important for the future), increased competition on existing routes (24,1%) and direct services to destinations abroad (24,0%). Average responses are significantly higher for respondents from Sør-Helgeland compared to Sunnmøre for each of these factors. The need for increased capacity on air freight/express is relatively low; only 3,3% of respondents from both regions combined consider this as being a very important development for the future. However, the average response for this factor is significantly higher for respondents from Sør-Helgeland, reflecting the more limited provision of air freight/express at the local airport of that region.

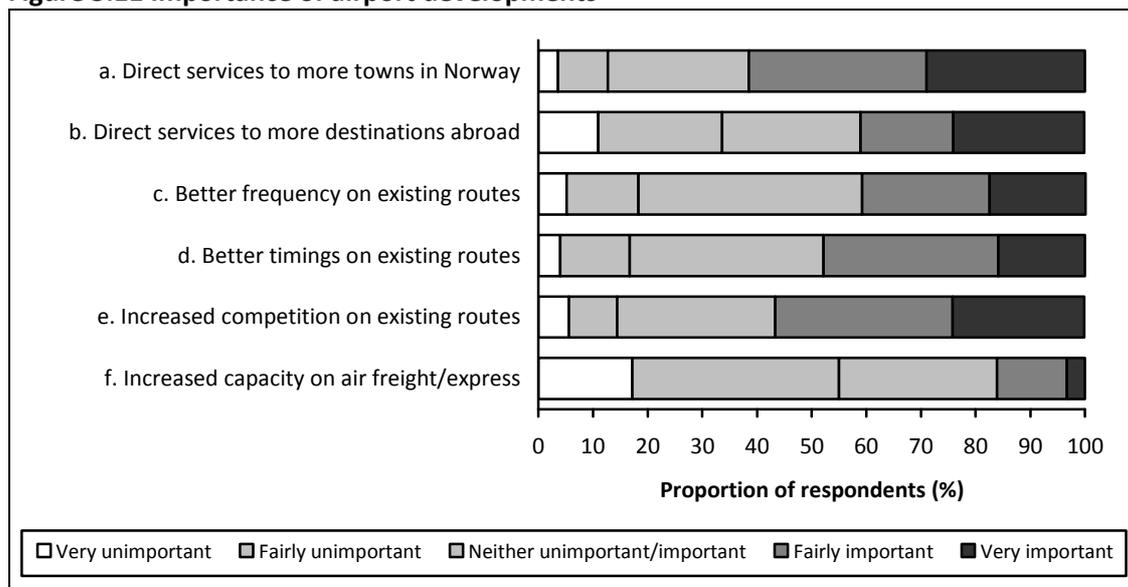
Figure 5.11 Importance of airport developments

Table 5.9 Differences for the importance of airport developments

Factor	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev	Std. error	t	df	Sig. (2-tailed)	Mean difference
a.	Sunnmøre	169	3,49	1,108	0,085	-6,321	213	0,000	-0,780
	S.Helgeland	83	4,29	0,813	0,089				
b.	Sunnmøre	156	3,46	1,282	0,103	4,446	227	0,000	0,804
	S.Helgeland	73	2,66	1,261	0,148				
c.	Sunnmøre	169	3,32	1,109	0,085	-0,625	250	0,532	-0,090
	S.Helgeland	83	3,41	1,000	0,110				
d.	Sunnmøre	168	3,39	1,049	0,081	-0,948	249	0,344	-0,131
	S.Helgeland	83	3,52	0,992	0,109				
e.	Sunnmøre	169	3,47	1,124	0,086	-2,778	247	0,006	-0,414
	S.Helgeland	80	3,89	1,043	0,117				
f.	Sunnmøre	113	2,32	0,975	0,092	-2,650	178	0,009	-0,413
	S.Helgeland	67	2,73	1,067	0,130				

The mean is on a scale of 1 to 5 with 1 being very unimportant and 5 being very important.

It is difficult to quantify the importance of local airports to businesses. The survey in this study asked respondents to estimate what proportion of their turnover is dependent on air services at their local airport (see table 5.10). The largest proportion of respondents (38,9%) from both regions combined selected 0% as their response. However, 61,1% of respondents estimate that at least 1% of their turnover is dependent on air services at their local airport. Almost a quarter of respondents (23,0%) estimate at least 21%, 12,8% estimate at least 41%, 4,4% estimate at least 61%, 2,9% estimate at least 81%.

Table 5.10 Proportion of turnover dependent on air services at the local airport in 2009

Proportion	Sunnmøre		Sør-Helgeland		Total	
	Number	Percent	Number	Percent	Number	Percent
n	191	100,0	84	100,0	275	100,0
0%	75	39,3	32	38,1	107	38,9
1-20%	66	34,6	39	46,4	105	38,2
21-40%	21	11,0	7	8,3	28	10,2
41-60%	19	9,9	4	4,8	23	8,4
61-80%	2	1,0	2	2,4	4	1,5
81-100%	8	4,2	0	0,0	8	2,9

Pearson's Chi-Square (based on response categories 0%, 1-20%, 21-40%, 41-100% by region): $X^2=5,544$, $df=3$, $p=0,136$.

5.4 Impact of the local airport on business location and retention

Respondents were asked to rate the importance of a number of key location factors for their business. Responses for both regions combined are shown in figure 5.12. Contact with customers is ranked first according to the proportion of respondents that consider the factor to be very important (43,5%). Proximity of an airport and general quality of life are ranked joint second (35,6%). This means that over a third of the respondents consider proximity of an airport to be a very important key location factor for their business. Proximity of an airport is rated more highly than other transport-related factors; 20,2% rated quality of the road system as very important, 18,1% proximity to a harbour and 1,9% access to rail. Responses may of course be in favour of airports as a result of survey bias (discussed in appendix 7.9.2). Table 5.11 shows that proximity to an airport is significantly more important to respondents from Sør-Helgeland compared to Sunnmøre. The only other significant difference is for proximity to a harbour, which is also significantly more important to respondents in Sør-Helgeland compared to Sunnmøre.

Figure 5.12 Importance of key location factors

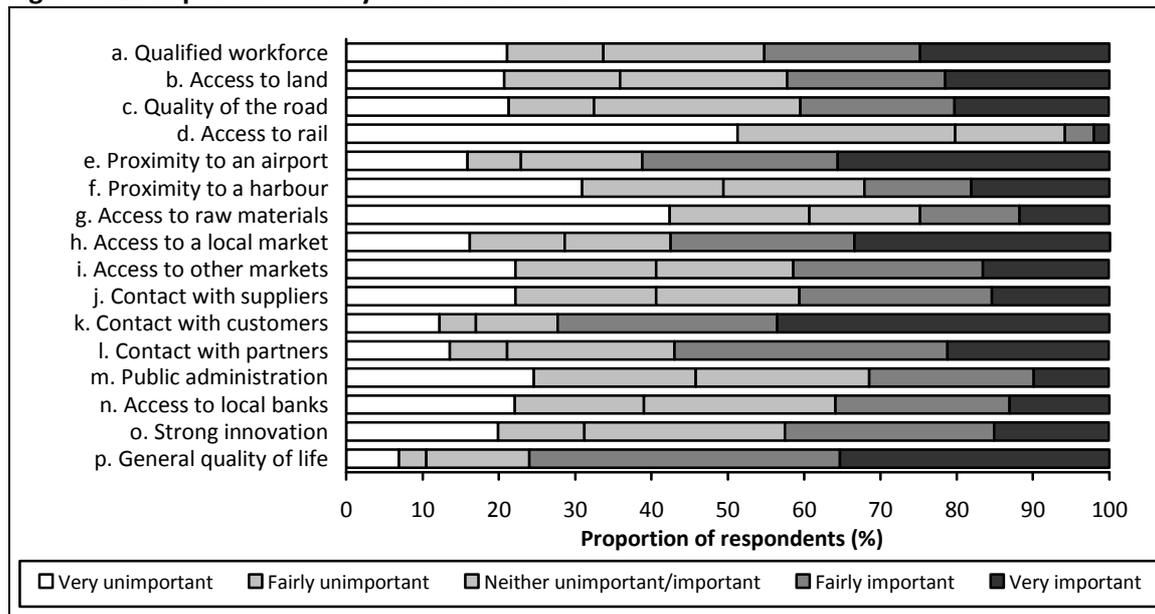


Table 5.11 Differences for the importance of key location factors

Factor	Region	n	Group statistics			t-test for equality of means			
			Mean	Std. dev	Std. error	t	df	Sig. (2-tailed)	Mean difference
a.	Sunnmøre	187	3,07	1,470	0,108	-1,387	268	0,167	0,268
	S.Helgeland	83	3,34	1,451	0,159				
b.	Sunnmøre	185	2,99	1,414	0,104	-1,376	268	0,170	0,258
	S.Helgeland	85	3,25	1,463	0,159				
c.	Sunnmøre	186	3,06	1,450	0,106	-0,051	265	0,959	0,010
	S.Helgeland	81	3,07	1,311	0,146				
d.	Sunnmøre	183	1,79	1,011	0,075	0,714	261	0,476	0,092
	S.Helgeland	80	1,70	0,848	0,095				
e.	Sunnmøre	187	3,44	1,452	0,106	-2,415	268	0,016	0,453
	S.Helgeland	83	3,89	1,353	0,148				
f.	Sunnmøre	183	2,52	1,452	0,107	-2,975	263	0,003	0,578
	S.Helgeland	82	3,10	1,487	0,164				
g.	Sunnmøre	180	2,23	1,395	0,104	-1,725	260	0,086	0,328
	S.Helgeland	82	2,56	1,492	0,165				
h.	Sunnmøre	183	3,46	1,470	0,109	0,034	264	0,973	0,007
	S.Helgeland	83	3,46	1,459	0,160				
i.	Sunnmøre	184	2,96	1,433	0,106	0,093	264	0,926	0,017
	S.Helgeland	82	2,94	1,364	0,151				
j.	Sunnmøre	182	2,85	1,412	0,105	-1,392	264	0,165	0,255
	S.Helgeland	84	3,11	1,344	0,147				
k.	Sunnmøre	187	3,83	1,384	0,101	-0,696	269	0,487	0,124
	S.Helgeland	84	3,95	1,270	0,139				
l.	Sunnmøre	182	3,38	1,289	0,096	-1,032	263	0,303	0,175
	S.Helgeland	83	3,55	1,262	0,138				
m.	Sunnmøre	183	2,50	1,262	0,093	-3,923	262	0,000	0,670
	S.Helgeland	81	3,17	1,321	0,147				
n.	Sunnmøre	185	2,80	1,326	0,098	-1,470	265	0,143	0,261
	S.Helgeland	82	3,06	1,364	0,151				
o.	Sunnmøre	183	3,02	1,338	0,099	-0,761	264	0,447	0,135
	S.Helgeland	83	3,16	1,339	0,147				
p.	Sunnmøre	189	3,83	1,188	0,086	-2,751	273	0,013	0,361
	S.Helgeland	86	4,19	0,914	0,099				

The mean is on a scale of 1 to 5 with 1 being very unimportant and 5 being very important.

The importance of proximity to an airport may vary according to the sector that the business is mainly involved in (see table 5.12) or the geographical structure of the business (see table 5.13). Proximity to an airport is most important to businesses in hospitality and services, finance and insurance, energy, real estate and business and transport and warehousing. These sectors are commonly referred to as air-intensive sectors (e.g. see York Aviation, 2004). Information and communication is typically included as an air-intensive sector in literature but the importance of proximity to an airport for business in that sector is relatively low compared to other sectors.

Table 5.12 Importance of proximity to an airport by sector

Sector	n	Mean	Std. dev
Hospitality, services	7	4,29	1,496
Finance, insurance	8	4,13	0,835
Energy, water supply	3*	4,00	1,000
Real estate, business	71	3,80	1,327
Transport, warehousing	13	3,77	1,166
Domestic trade, reparation	25	3,72	1,487
Public administration	6	3,67	1,633
Education	10	3,60	1,713
Manufacturing, construction	41	3,59	1,284
Information, communication	17	3,47	1,505
Farming, forestry, fishing	16	3,19	1,601
Health, social, public services	49	3,16	1,612
Mining, quarrying, oil or gas	2	2,50	2,121
Total	268	3,59	1,431

The mean is on a scale of 1 to 5 with 1 being very unimportant and 5 being very important.

* All three businesses are in the energy sector.

The normal assumption is that businesses with offices, departments or sister companies in other regions or abroad are likely to be more dependent on air travel compared to businesses that are located within one particular region. This is because resources such as staff or equipment might need to travel long distances in order to serve the needs of the business. This is found to be the case in this study (see table 5.13). Mean responses for businesses with offices, departments or sister companies in other regions or abroad are higher than for businesses that have offices, departments or sister companies in the same region.

Table 5.13 Importance of proximity to an airport by geographical structure

Geographical structure	n	Mean	Std. dev
Main office in the same region	245	3,59	1,419
Main office in another part of Norway	12	3,83	1,337
Main office abroad	5	4,80	0,447
Department or sister company in the same region	16	3,31	1,621
Department or sister company in another part of Norway	8	4,63	0,744
Department or sister company abroad	6	4,17	0,983
None of the above	5	2,40	1,949
Total	270	3,58	1,435

The mean is on a scale of 1 to 5 with 1 being very unimportant and 5 being very important.

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7 APPENDICES

7.1 Sunnmøre resident survey

BETYDNINGEN AV ÅLESUND LUFTHAVN, VIGRA

1. Betrakter du Ålesund lufthavn som din lokale flyplass? Sett ett kryss

 Ja Nei

2. I hvilken grad er du enig eller uenig i følgende utsagn? Sett ett kryss for hvert utsagn

Som et resultat av at Ålesund lufthavn finnes:	Helt enig	Delvis enig	Verken e-/uenig	Delvis uenig	Helt uenig	Ikke rel.
a. Er regionen bedre tilknyttet andre deler av landet.....	<input type="radio"/>					
b. Er regionen bedre tilknyttet utlandet.....	<input type="radio"/>					
c. Er jeg i stand til å utføre jobben min bedre.....	<input type="radio"/>					
d. Har jeg bedre kontakt med venner/familie.....	<input type="radio"/>					
e. Har jeg bedre muligheter for å reise på ferieturer.....	<input type="radio"/>					
f. Har jeg bedre tilgang til helsetjenester.....	<input type="radio"/>					
g. Ønsker jeg fortsatt å bo i regionen.....	<input type="radio"/>					

3. Hvor ofte ville du brukt følgende forbedringer i transporttilbudet for Sunnmøre? Sett ett kryss for hver linje

	Svært ofte	I noen Ofte	Ikke i det grad	Sjelden	hele tatt
a. Direkte rutefly til flere større byer i Norge.....	<input type="radio"/>				
b. Direkte rutefly til flere steder i utlandet.....	<input type="radio"/>				
c. Charterfly til flere feriesteder.....	<input type="radio"/>				
d. Rutebuss til de største byene i Norge.....	<input type="radio"/>				
e. Pakketur med buss til flere feriesteder.....	<input type="radio"/>				
f. Passasjerbåt til utlandet.....	<input type="radio"/>				

4. Har venner/familie noen gang reist via Ålesund lufthavn når de har kommet på besøk til deg? Sett ett kryss

 Ja Nei (gå til spørsmål 6)

5. Hvor mange besøk har du hatt av venner/familie hvor de har reist via Ålesund lufthavn for å besøke deg i løpet av de siste 12 månedene? Oppgi ca. antall besøk fra steder i Norge og fra utlandet (hver person skal telles som 1 besøk. Flere besøk av samme person skal også telles med)

a. besøk fra andre steder i Norge

b. besøk fra utlandet

BRUK AV ÅLESUND LUFTHAVN, VIGRA

6. Har du noen gang reist med fly fra Ålesund lufthavn? Sett ett kryss

 Ja

 Nei (gå til spørsmål 10)

7. Hvor mange ganger har du reist fra Ålesund lufthavn i løpet av de siste 12 månedene? Oppgi ca. antall reiser

a. reiser til andre steder i Norge

b. reiser til utlandet

8. De reisene som du oppga i spørsmål 7, hvilket formål har de hatt? Oppgi ca. antall reiser for hvert formål. Velg hovedformålet med reisen dersom den hadde flere formål

a. reiser i forbindelse med arbeid (inkl. kurs, konferanse, møte eller messe)

b. reiser for å besøke slekt/venner

c. reiser på charterferie med en turoperatør

d. reiser på en individuell ferie (som ikke var en charterferie med en turoperatør)

e. reiser i forbindelse med skole/utdanning

f. reiser for å benytte helsetjenester

g. reiser i forbindelse med en sportsbegivenhet eller idrettsaktivitet

h. reiser for å handle eller dra på konsert, show, teater e.l.

i. reiser for annet formål

9. I hvilken grad påvirker følgende forhold din beslutning om å fly fra Ålesund lufthavn, i forhold til å bruke alternative flyplasser? Sett ett kryss for hver grunn

	I svært stor grad	I stor grad	I noen grad	I liten grad	Ikke i det hele tatt
a. Nær hjemsted/arbeidssted	<input type="radio"/>				
b. Billigere å reise derfra	<input type="radio"/>				
c. Tilgangen på offentlig transport til/fra flyplassen	<input type="radio"/>				
d. Tilgangen på ruter og pakketurer	<input type="radio"/>				
e. Når tid på dagen flyene går	<input type="radio"/>				
f. Hvor ofte flyene går	<input type="radio"/>				
g. Foretrekker flytyper/flystørrelse	<input type="radio"/>				

10. Har du valgt å bruke en annen flyplass som alternativ til Ålesund lufthavn i løpet av de siste 12 månedene?

Sett ett kryss

- Ja Nei (gå til spørsmål 13)

11. Hvilken flyplass valgte du sist som et alternativ til Ålesund lufthavn? Sett ett kryss

- Ørsta-Volda Hovden Molde Årø Bergen Flesland
 Trondheim Værnes Oslo Gardermoen Annen (skriv inn): _____

12. I hvilken grad påvirker følgende forhold din beslutning om å fly fra flyplassen du oppga i spørsmål 11? Sett ett kryss for hver grunn

	I svært stor grad	I stor grad	I noen grad	I liten grad	Ikke i det hele tatt
a. Nærmere hjemsted/arbeidssted.....	<input type="radio"/>				
b. Billigere å reise derfra	<input type="radio"/>				
c. Bedre tilgang til offentlig transport til/fra flyplassen.....	<input type="radio"/>				
d. Bedre tilgang til ruter og pakketurer.....	<input type="radio"/>				
e. Avgangstidene passer bedre.....	<input type="radio"/>				
f. Flyene går oftere.....	<input type="radio"/>				
g. Foretrekker flytyper/flystørrelse på rutene derfra.....	<input type="radio"/>				

13. Hvordan har din bruk av Ålesund lufthavn endret seg i de siste 5 årene? Sett ett kryss

- Økt mye Økt litt Ingen endring Avtatt litt Avtatt mye Ikke relevant

14. Hvordan tror du din bruk av Ålesund lufthavn vil endre seg de neste 5 årene? Sett ett kryss

- Øke mye Øke litt Ingen endring Avta litt Avta mye Ikke relevant

OM DEG**15. Hva er din høyeste fullførte utdanning? Sett ett kryss**

- Grunnskole
 Videregående skole
 Universitet/høgskole (t.o.m 4 år)
 Universitet/høgskole (mer enn 4 år)
 Ingen fullført utdanning

16. Hvilken av de følgende kategorier beskriver deg best? Sett ett kryss

- Arbeider deltid
 Arbeider heltid
 Arbeidsledig (gå til spørsmål 18)
 Student (gå til spørsmål 18)
 Pensjonist (gå til spørsmål 18)
 Hjemmeværende, langtidssykmeldt eller uføretrygdet (gå til spørsmål 18)

17. Hvilken næring arbeider du i? Sett ett kryss

- | | |
|---|---|
| <input type="radio"/> Olje- og gassvirksomhet | <input type="radio"/> Finansiering og forsikringsvirksomhet |
| <input type="radio"/> Bergverksdrift og utvinning | <input type="radio"/> Jordbruk, skogbruk og fiske |
| <input type="radio"/> Industri, bygge- og anleggsvirksomhet | <input type="radio"/> Varehandel, motorvognreparasjoner |
| <input type="radio"/> Forretningsmessig tjenesteyting | <input type="radio"/> Teknisk tjenesteyting, eiendomsdrift |
| <input type="radio"/> Overnattings- og serveringsvirksomhet | <input type="radio"/> Offentlig administrasjon, forsvar, sosialforsikring |
| <input type="radio"/> Elektrisitet, vann og renovasjon | <input type="radio"/> Undervisning |
| <input type="radio"/> Transport og lagring | <input type="radio"/> Helse, sosial og personlig tjenesteyting |
| <input type="radio"/> Informasjon og kommunikasjon | Annet (skriv inn): _____ |

18. Er du norsk statsborger? Sett ett kryss

- Ja Nei

19. Hvor mange år har du bodd på Sunnmøre? Oppgi ca. antall år, sett ett kryss hvis "alltid"

- år Alltid (gå til spørsmål 21)

20. Hvor viktige var følgende faktorer da du bestemte deg for å flytte til Sunnmøre? Sett ett kryss for hver faktor

	Svært viktig	Meget viktig	Middels viktig	Lite viktig	Uviktig
a. Hjemstedsregion eller nærhet til slekt/venner	<input type="radio"/>				
b. Muligheter for arbeid eller utdanning.....	<input type="radio"/>				
c. Lett å komme seg til/fra jobb.....	<input type="radio"/>				
d. Lav kriminalitet	<input type="radio"/>				
e. Naturopplevelser/fritidsmuligheter.....	<input type="radio"/>				
f. God standard på offentlige tjenester.....	<input type="radio"/>				
g. Tilgjengelighet og pris på boliger	<input type="radio"/>				
h. Godt utbygd veinett.....	<input type="radio"/>				
i. Tilgang til lokal flyplass.....	<input type="radio"/>				
j. Tilgang til offentlig transport.....	<input type="radio"/>				

21. Hva var husholdningens totale inntekt før skatt fra alle inntektskilder i 2008? Sett ett kryss

- | | | |
|--|--|--|
| <input type="radio"/> Under 150 000 kr | <input type="radio"/> 150 000-249 999 kr | <input type="radio"/> 250 000-349 999 kr |
| <input type="radio"/> 350 000-449 999 kr | <input type="radio"/> 450 000-549 999 kr | <input type="radio"/> 550 000-749 999 kr |
| <input type="radio"/> 750 000-999 999 | <input type="radio"/> 1 000 000 kr og over | |

TUSEN TAKK FOR AT DU TOK DEG TID TIL Å SVARE
Returner skjemaet i den vedlagte frankerte konvolutten

Møreforsking prosjekt 2229-«Survey»

7.2 Sunnmøre resident survey cover letter (first mailing)

Molde, 04.01.2009

Spørreundersøkelse om Ålesund Lufthavn, Vigra

Kjære [name]

Denne undersøkelsen gjennomføres av Møreforskning Molde AS på oppdrag fra Samferdselsdepartementet. Hensikten er å finne ut hvilken betydning Ålesund Lufthavn, Vigra har.

Spørreskjemaet er sendt til 2 500 husstander på Sunnmøre. Vi har trukket deg tilfeldig fra 100 000 personer bosatt på Sunnmøre. Vi vil være takknemlige om du kan fylle ut skjemaet **før 22. januar** og returnere det i den vedlagte konvolutten. Returkonvolutten er ferdig adressert og vi betaler porto.

Det er frivillig å delta og du kan la være å svare på enkelte spørsmål. Alle svar vil bli behandlet strengt fortrolig, slik at opplysninger ikke kan føres tilbake til enkeltpersoner. Prosjektet er meldt til Personvernombudet for forskning (NSD AS). Prosjektrapporten fra undersøkelsen vil bli gjort tilgjengelig for alle interesserte.

Som en takk for at du tar deg tid til å svare tilbyr vi deg sjansen til å vinne fem Flaxlodd. 15 heldige vinnere vil bli trukket ut i mars 2010 og vil motta 5 Flaxlodd hver. Om du vil delta i trekningen, legg ved dette brevet som inneholder ditt navn og adresse når du returnerer spørreskjemaet. Opplysningene vil ikke bli brukt til andre formål enn å kontakte deg dersom du har vunnet.

Hvis du har spørsmål om utfylling av spørreskjemaet, eller om du har andre spørsmål i tilknytning til undersøkelsen, ta kontakt med Jan Husdal (telefon: 71 21 42 89).

Det er viktig at den som mottar skjemaet, fyller det ut.

Med vennlig hilsen



Nigel Halpern
Førstemanuensis
Høgskolen i Molde



Svein Bråthen
Forskningsleder
Møreforskning Molde



Jan Husdal
Forsker
Møreforskning Molde

7.3 Sunnmøre resident survey cover letter (repeat mailing)

Molde, 08.02.2010

Påminnelse: spørreundersøkelse om Ålesund Lufthavn, Vigra

Kjære [name]

Det vedlagte spørreskjemaet ble sendt til deg for et par uker siden. Undersøkelsen gjennomføres av Møreforskning Molde AS på oppdrag fra Samferdselsdepartementet. Hensikten er å finne ut hvilken betydning Ålesund Lufthavn har. Spørreskjemaet var sendt til 2 500 husstander på Sunnmøre. Du ble trukket ut tilfeldig fra 100 000 personer bosatt på Sunnmøre.

Hvis du allerede har fylt ut og returnert spørreskjemaet beklager vi denne henvendelsen og takker for din deltakelse. Hvis ikke, vil vi minne deg om at det fortsatt ikke er for sent å returnere skjemaet. Dine svar er viktige for undersøkelsen og vi ber om at du svarer så raskt som mulig, og senest innen 05.mars. Returkonvolutter er ferdig adressert og vi betaler porto.

Det er frivillig å delta og du kan trekke deg fra undersøkelsen så lenge studien pågår uten å oppgi grunn. Alle svar vil bli behandlet strengt fortrolig, slik at opplysninger ikke kan føres tilbake til enkeltpersoner. Navnelister slettes og det øvrige datamaterialet anonymiseres senest ved prosjektslutt.

Prosjektet er meldt til Personvernombudet for forskning (NSD AS). Prosjektrapporten fra undersøkelsen vil bli gjort tilgjengelig for alle interesserte.

Som en takk for at du tar deg tid til å svare tilbyr vi deg sjansen til å vinne fem Flaxlodd. 15 heldige vinnere vil bli trukket ut ved prosjektslutt og vil motta 5 Flaxlodd hver.

Hvis du har spørsmål om utfylling av spørreskjemaet, eller om du har andre spørsmål i tilknytning til undersøkelsen, ta kontakt med Jan Husdal (telefon: 71 21 42 89).

Det er viktig at den som mottar skjemaet, fyller det ut.

Med vennlig hilsen



Nigel Halpern
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Høgskolen i Molde



Svein Bråthen
Forskningsleder
Møreforskning Molde



Jan Husdal
Forsker
Møreforskning Molde

7.4 Brønnøysund business survey

1) Hvordan er bedriften lokalisert? Velg ett eller flere alternativ

- Hovedkontor i Nordland
- Hovedkontor i en annen del av landet
- Hovedkontor i utlandet
- Avdeling og/eller datterselskap i Nordland
- Avdeling og/eller datterselskap ellers i landet
- Avdeling og/eller datterselskap i utlandet
- Ingen av disse

2) Hvor viktige er følgende faktorer for at bedriften er lokalisert på Sør-Helgeland? Velg ett alternativ for hver faktor. Svært viktig / Meget viktig / Middels viktig / Lite viktig / Uviktig

- a. Tilgang på kvalifisert arbeidskraft
- b. Tilgang på egnet areal
- c. Kvalitet på veisystemet
- p. Generell livskvalitet i området
- e. Nærhet til flyplass
- f. Nærhet til havn
- g. Tilgang på råvarer
- h. Tilgang til et lokalt marked for produktene
- i. Tilgang til andre (ikke lokale) markeder for produktene
- j. Kontakt med leverandører
- k. Kontakt med kunder
- l. Kontakt med samarbeidspartnere
- m. Det offentlige virkemiddelapparatet
- n. Tilgang på lokale banker
- o. En sterk innovasjonskultur
- d. Tilgang til jernbane

3) Hvilken flyplass regner bedriften på Sør-Helgeland som sin lokale flyplass? Velg ett alternativ

- Brønnøysund (Brønnøy)
- Sandnessjøen (Stokka)
- Rørvik (Ryum)
- Mosjøen (Kjærstad)
- Annen, skriv inn

4) I hvilken grad møter flytilbudet ved Brønnøysund Lufthavn bedriftens behov? Velg ett alternativ for hver faktor

I svært stor grad / I stor grad / I noen grad / I liten grad / Ikke i det hele tatt / Ikke relevant

- a. Punktlighet
- b. Mange nok avganger
- g. Rimelige billettpriser
- d. Destinasjoner i Norge
- e. Destinasjoner i utlandet
- f. Egnede flytyper
- c. Egnede avgangstidspunkter

5) På hvilken måte bidrar flytilbudet ved Brønnøysund Lufthavn i forhold til din bedrift? Velg ett alternativ for hver faktor I svært stor grad / I stor grad / I noen grad / I liten grad / Ikke i det hele tatt / Ikke relevant

- a. Reduserer kostnader
- b. Når et større marked
- c. Fremmer eksport
- d. Øker omsetningen
- e. Styrker lønnsomheten
- f. Utnytter arbeidskraft og utstyr bedre
- g. Gjør det lettere å drive FoU
- h. Øker innovasjonsgraden
- i. Styrker konkurransekraften
- j. Øker investeringstakten

6) Har flytilbudet ved Brønnøysund Lufthavn påvirket bedriftens investeringsbeslutninger? Velg ett alternativ

- Ja
- Nei
- Vet ikke

7) På hvilken måte har flytilbudet ved Brønnøysund Lufthavn påvirket bedriftens investeringsbeslutninger? Velg ett alternativ

- Vi har avstått fra å investere i Sør-Helgelandsregionen
- Vi har investert andre steder
- Vi har investert mer i Sør-Helgelandsregionen enn det vi ellers ville ha gjort
- Annet, skriv inn

8) Benyttet selskapet passasjerflytilbud til/fra Brønnøysund Lufthavn for flyreiser for ansatte eller besøkende hos bedriften i 2009? Velg ett alternativ

- Ja
- Nei
- Vet ikke

9) Hvor mange flyreiser til/fra Brønnøysund Lufthavn (tur/retur=1 reise) tok ansatte og besøkende hos bedriften på Sør-Helgeland i 2009? Velg ett alternativ for hver type reise 0 / 1-10 / 11-50 / 51-100 / 101-250 / 251-500 / 501+

- a. Innenlandsreiser
- b. Utenlandsreiser

10) Hvor stor andel av forretningsreisene for ansatte og besøkende hos bedriften i 2009 ble foretatt til Brønnøysund Lufthavn? Velg ett alternativ

- 1-20%
- 21-40%
- 41-60%
- 61-80%
- 81-100%

11) Hvor viktig er passasjerflytilbudet ved Brønnøysund Lufthavn for følgende funksjoner hos din bedrift? Velg ett alternativ for hver funksjon Svært viktig / Meget viktig / Middels viktig / Lite viktig / Uviktig / Ikke relevant

- a. Rekruttere og beholde arbeidstakere
- b. Kontakt med leverandører
- c. Servicepersonell inn til bedriften
- d. Kontakt med kunder, markedskontakt
- e. Gjøre serviceoppdrag hos kunder
- f. Kontakt med samarbeidspartnere
- g. Kontakt med deler av bedriften som ligger andre steder
- h. Kontakt med myndigheter
- i. Salg og markedsføring
- j. Delta på kurs og konferanser

12) Benyttet selskapet flyfrakt og/eller flyekspres via Brønnøysund Lufthavn i 2009? Velg ett alternativ

- Ja
- Nei
- Vet ikke

13) Hvor viktig er flyfrakt-og/eller flyekspresstilbudet via Brønnøysund Lufthavn for bedriften i forhold til følgende faktorer? Velg ett alternativ for hver faktor Svært viktig / Meget viktig / Middels viktig / Lite viktig / Uviktig / Ikke relevant

- a. Fleksibilitet, kunne sende på kort varsel
- b. Kunne stå friere i valg av leverandører
- c. For å få rask tilgang til innsatsvarer
- d. Transport mellom ulike deler av bedriften
- e. Nå nye markeder
- f. Redusere lagervolumet

14) I hvilken grad er dere avhengig av flyfrakt og/eller flyekspress for følgende typer produkt? Velg ett alternativ for hver type produkt I svært stor grad / I stor grad / I noen grad / I liten grad / Ikke i det hele tatt / Ikke relevant

- a. Produksjonsutstyr inn til bedriften
- b. Innsatsvarer inn til bedriften, til produksjon
- c. Deler til serviceoppdrag på bedriftens produksjonsutstyr
- d. Tidskritiske leveranser av ferdigvarer til kunder
- e. Reservedeler ut til kunder
- f. Ferskvarer til kunder
- g. Klær og andre tekstiler til kunder
- h. Data- og telekommunikasjonsutstyr til kunder
- i. Kontrakter og avtaler
- j. Rapporter og andre dokumenter
- k. Reservedeler
- l. Supplerende leveranser
- m. Medisinsk informasjon

15) Hvor stor godsverdi til og fra bedriften gikk med flyfrakt og/eller flyekspress via Brønnøysund Lufthavn i 2009? Oppgi ca. godsverdi

NOK:

16) Hvor stor andel av samlet godsverdi er dette? Velg ett alternativ

0%

1-20%

21-40%

41-60%

61-80%

81-100%

17) Hvor viktig er det for bedriften at Brønnøysund Lufthavn kan utvikle følgende tilbud? Velg ett alternativ for hver type tilbud Svært viktig / Meget viktig / Middels viktig / Lite viktig / Uviktig / Ikke relevant

- a. Direkteflygninger til flere norske byer
- b. Direkteflygninger til destinasjoner utenlands
- c. Flere avganger på de eksisterende rutene
- d. Bedre tilpassede avgangstidspunkter på de eksisterende rutene
- e. Økt konkurranse på de eksisterende rutene
- f. Økt kapasitet på flyfrakt/flyekspress

18) Hvor mange ansatte hadde bedriften ved utgangen av 2009? Oppgi ca. antall ansatte

19) Hvor stor var bedriftens samlede omsetning i 2009? Oppgi ca. antall omsetning

NOK:

20) Hvor stor andel av omsetningen er etter bedriftens vurdering avhengig av dagens flytilbud ved Brønnøysund Lufthavn? Velg ett alternativ

0%

1-20%

21-40%

41-60%

61-80%

81-100%

21) Navn på bedriften. Navnet vil ikke bli brukt til andre formål enn å ekskludere bedriften fra fremtidige utsendelser av spørreundersøkelsen. Alle svar vil bli behandlet strengt fortrolig

7.5 Brønnøysund business survey (on-screen example)



MØREFORSKING
MOLDE

Spørreundersøkelse om Brønnøysund Lufthavn

1) Hvordan er bedriften lokalisert? Velg ett eller flere alternativ

- Hovedkontor i Nordland
- Hovedkontor i en annen del av landet
- Hovedkontor i utlandet
- Avdeling og/eller datterselskap i Nordland
- Avdeling og/eller datterselskap ellers i landet
- Avdeling og/eller datterselskap i utlandet
- Ingen av disse

5 % completed

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7.6 Brønnøysund business survey invitation e-mail (first mailing)

INVITATION E-MAIL PREVIEW	
TO:	<Recipient>
FROM:	nigel.halpern@himolde.no
SUBJECT:	Spørreundersøkelse om Brønnøysund Lufthavn
BODY:	<p>Kjære daglig leder</p> <p>Denne undersøkelsen gjennomføres av Møreforskning Molde AS i et forskningsprosjekt finansiert av Samferdselsdepartementet. Hensikten er å finne ut hvilken betydning Brønnøysund Lufthavn har for bedrifter i Sør-Helgelandsregionen.</p> <p>Spørreskjemaet er sendt til 500 bedrifter på Sør-Helgeland. Vi vil være takknemlige om du eller en i ditt sted kan fylle ut skjemaet på vegne av bedriften. Spørreskjemaet kan fylles ut online ved å klikke på linken nederst på denne e-posten. Alle svar vil bli behandlet strengt fortrolig, slik at opplysninger ikke kan føres tilbake til enkeltbedrifter.</p> <p>Merk at vi ønsker svar fra alle bedrifter - også de som ikke benytter flyreiser.</p> <p>Prosjektrapporten fra undersøkelsen vil bli gjort tilgjengelig for alle interesserte.</p> <p>Hvis du har spørsmål om utfylling av spørreskjemaet, eller om du har andre spørsmål i tilknytning til undersøkelsen, ta kontakt med Nigel Halpern (e-post: nigel.halpern@himolde.no, telefon: 71 21 42 26).</p> <p>Med vennlig hilsen Nigel Halpern Førsteamanuensis, Høgskolen i Molde</p>

7.7 Brønnøysund business survey invitation e-mail (repeat mailing)

REMINDER E-MAIL PREVIEW	
TO:	<Recipient>
FROM:	nigel.halpern@himolde.no
SUBJECT:	Påminnelse: spørreundersøkelse om Brønnøysund Lufthavn
BODY:	<p>Kjære daglig leder</p> <p>Denne undersøkelsen gjennomføres av Møreforskning Molde AS i et forskningsprosjekt finansiert av Samferdselsdepartementet. Hensikten er å finne ut hvilken betydning Brønnøysund Lufthavn har for bedrifter i Sør-Helgelandsregionen.</p> <p>Spørreskjemaet er sendt til 500 bedrifter på Sør-Helgeland. Dette er en påminnelse om at det fortsatt er mulig å delta i undersøkelsen og vi vil være takknemlige om du eller en i ditt sted kan fylle ut skjemaet på vegne av bedriften. Spørreskjemaet kan fylles ut online ved å klikke på linken nederst på denne e-posten. Alle svar vil bli behandlet strengt fortrolig, slik at opplysninger ikke kan føres tilbake til enkeltbedrifter.</p> <p>Merk at vi ønsker svar fra alle bedrifter - også de som ikke benytter flyreiser.</p> <p>Prosjektrapporten fra undersøkelsen vil bli gjort tilgjengelig for alle interesserte.</p> <p>Hvis du har spørsmål om utfylling av spørreskjemaet, eller om du har andre spørsmål i tilknytning til undersøkelsen, ta kontakt med Nigel Halpern (e-post: nigel.halpern@himolde.no, telefon: 71 21 42 26).</p> <p>Med vennlig hilsen Nigel Halpern Førsteamanuensis, Høgskolen i Molde</p>

7.8 Examples of how to use and interpret statistical tests

7.8.1 Independent Samples t-test

The Independent Samples t-test calculates the difference in average response from two samples, minus the difference in what the average of the two populations would be if the null hypothesis was true (i.e. that there is no significant difference between the two regions), divided by the estimated standard error of the mean. The test demonstrates how many estimated standard errors of the mean separate average responses from the two samples.

As an example, the resident survey asked residents how many trips they have taken by air from their local airport during the last 12 months (this was calculated by adding responses to part a and b in question seven, see Appendix 7.1). The study investigates if the average number of trips taken is significantly different for respondents from the two regions. The null hypothesis would be that there is no significant difference. The alternative hypothesis would be that there is a significant difference. The SPSS output from the Independent Samples t-test is shown in figure 7.1.

Figure 7.1 SPSS output for the Independent Samples t-test

Group Statistics

	Survey	n	Mean	Std. Deviation	Std. Error Mean
Trips taken	Sunnmøre	789	5,21	6,955	,248
	Sør-Helgeland	1 153	5,74	11,611	,342

Independent Samples Test

	Levene's Test For Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	T	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
Equal variances assumed	,854	,356	-1,160	1 940	,246	-,535	,461	-1,440	,370
Equal variances not assumed			-1,267	1 909	,205	-,535	,422	-1,363	,293

Figure 7.1 consists of two tables; Group Statistics and the Independent Samples Test. Group Statistics provide descriptive statistics (number of observations—n, means, standard deviations and standard errors of means). Independent Samples Test provides results of two tests; Levene's Test for Equality of Variances and t-test for Equality of Means. It also provides two sets of analysis; one assumes equal variances, the other does not. The Levene's Test shows which analysis to consider²³. A value of significance (sig.) of less than 0,05²⁴ indicates that the analysis associated with equal variances not assumed should be used. If sig. is 0,05 or more, the analysis associated with equal variances are assumed should be used.

Sig. is 0,356 in figure 7.1 so the analysis for equal variances are assumed is used. The t-test result shows a t statistic of -1,160 with 1 940 degrees of freedom (df). The corresponding two-tailed p-value (sig. 2-tailed) is 0,246, which is higher than 0,05 and is therefore not significant. This means that the null hypothesis should be accepted (i.e. that there is no significant difference in the average number of trips taken during the last 12 months by region).

The Independent Samples Test also provides the mean difference, the standard error of the difference and the 95% confidence interval. The mean difference is a useful indicator of the difference between the mean responses for the two regions (i.e. residents from Sunnmøre took, on average, 0,535 trips less than residents from Sør-Helgeland). However, the other two values (standard error of the difference and 95% confidence interval) are not of much importance for practical purposes and will therefore not be shown in the findings of this report.

²³ Levene's Test is an inferential statistic used to assess whether variances of the populations from which different samples are drawn are equal. It assesses this assumption by testing the null hypothesis that the population variances are equal. If the p-value of Levene's Test is significant (i.e. sig. is less than 0,05), the differences in sample variances are unlikely to have occurred as a result of chance. Therefore, the null hypothesis is rejected and it is concluded that there is a difference between the variances in the population (Howard, 1960).

²⁴ The level of significance indicates the extent to which the finding is likely to be the result of chance. A value of less than 0,05, in percentage terms, means that there is less than a 5% probability that the finding is the result of chance. A value of less than 0,05 is generally considered by researchers to be an acceptable level.

7.8.2 Pearson's Chi-Square test

Many of the questions in the business survey yield categorical data. For instance, question nine (see Appendix 7.4) asks how many trips by air to/from the local airport were taken by staff and visitors to the company in 2009. Respondents were able to select one of six options (1-10, 11-50, 51-100, 101-250, 251-500 or 501+). One way of comparing responses for categorical variables is to use the Pearson's Chi-Square test. This is a statistical test that is commonly used to investigate whether distributions of categorical variables differ significantly from one another and it does so by comparing differences between observed and expected values, and the extent to which those differences are the result of chance. It tests the null hypothesis (i.e. that there is no significant difference between the expected and observed result).

As an example, responses to part a of question nine in the business survey can be seen in figure 5.1. The Pearson's Chi-Square test can be used to investigate the significance of differences in the number of domestic trips taken by respondents from Sunnmøre versus Sør-Helgeland. The null hypothesis would be that there is no significant difference while the alternative hypothesis would be that there is a significant difference. The SPSS output from the Pearson's Chi-Square test is shown in figure 7.2.

Figure 7.2 SPSS output for the Pearson's Chi-Square test

Case Processing Summary

	Valid		Cases Missing		Total	
	n	%	n	%	n	%
Region * How many trips: a. Domestic	275	94,8%	15	5,2%	290	100,0%

Cross-tabulation for Region * How many trips: a. Domestic

Region	Count	How many trips: a. Domestic							Total
		0	1-10	11-50	51-100	101-250	251-500	501+	
Sunnmøre	Count	36	74	50	17	9	1	2	189
	Expected Count	38,5	75,6	49,5	14,4	7,6	,7	2,7	189,0
Sør-Helgeland	Count	20	36	22	4	2	0	2	86
	Expected Count	17,5	34,4	22,5	6,6	3,4	,3	1,3	86,0
Total	Count	56	110	72	21	11	1	4	275
	Expected Count	56,0	110,0	72,0	21,0	11,0	1,0	4,0	275,0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2,243	3	,524
Likelihood Ratio	2,343	3	,504
Linear-by-Linear Association	1,935	1	,164
n of Valid Cases	275		

a 0 cells (,0%) have expected count less than 5. The minimum expected count is 11,57.

Three tables are provided in figure 7.2; Case Processing Summary, Cross-tabulation and Chi-Square Tests. Case Processing Summary details the number and proportion of cases (i.e. observations) for the two variables (i.e. domestic trips taken according to region). Cross-tabulation provides descriptive statistics for the analysis. Count provides the actual frequency (i.e. number of respondents) falling into a particular cell (i.e. number of domestic trips taken). Expected Count shows what the frequency should be if there is no association. The Chi-Square test is not suitable if there are less than five cases in the cells so the last four categories (51-100, 101-250, 251-500 and 501+ were combined to create one cell; 51+). Chi-Square Tests provides the result of the Pearson's Chi-Square test for the revised model; domestic trips taken (0, 1-10, 11-50, 51+) versus region (Sunnmøre, Sør-Helgeland).

Several statistics are provided in Chi-Square Tests. The most important for this study is the Pearson Chi-Square statistic. The value is 2,243 with a df of 3. The two-tailed p-value (Asymp. Sig. (2-sided)) is 0,524, which is higher than 0,05 and is therefore not significant. This means that the null hypothesis should be accepted (i.e. that there is no significant difference in the number of domestic trips taken by region). Full outputs such as those in the example will not be provided where the Pearson's Chi-Square test has been used in this study. Only the test result of the Pearson's Chi-Square test will be provided and will be written as Pearson's Chi-Square: $\chi^2=2,243$, $df=3$, $p=0,524$.

7.9 Survey sampling considerations

7.9.1 Resident survey

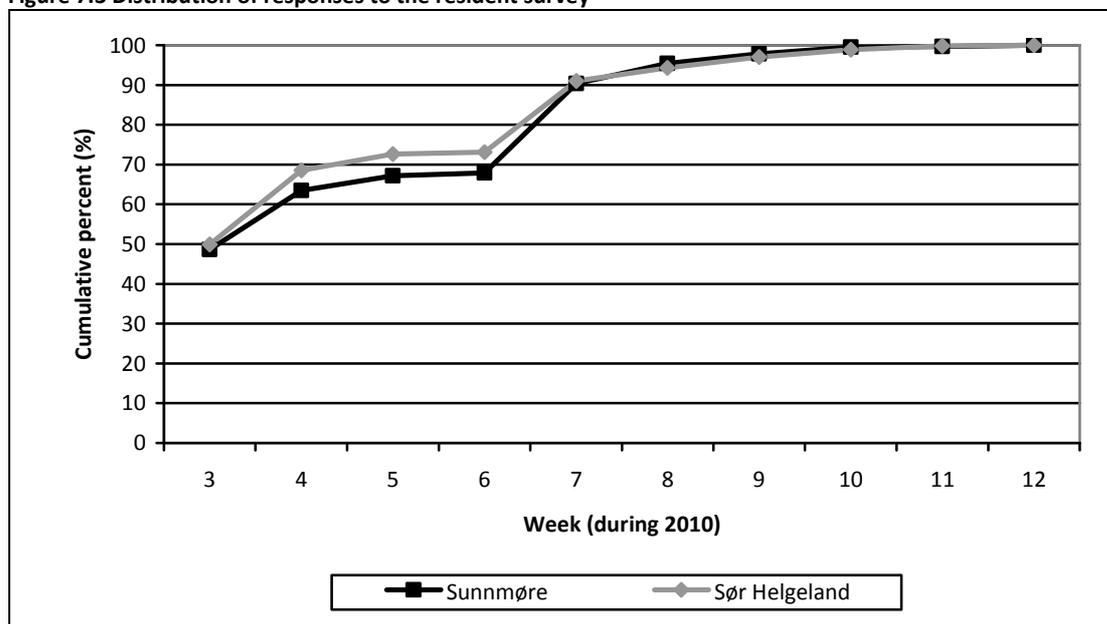
Table 7.1 provides a summary of the sample size. From a sample of 5 000 residents, 344 were withdrawn. This provided a gross sample of 4 656. 2 125 residents responded to the survey, 2 531 residents did not respond. This resulted in a gross sample response rate of 45,6%. The response rate was higher from residents in Sør-Helgeland (49,0%) compared to Sunnmøre (42,0%).

Table 7.1 Resident survey sample size

	Sunnmøre		Sør-Helgeland		Total	
	Number	Percent	Number	Percent	Number	Percent
A1. Selected number of residents	2 500	100,0	2 500	100,0	5 000	100,0
A2. Withdrawn, of which:	258	10,3	86	3,5	344	6,9
• Resident in an institution	16	0,6	17	0,7	33	0,7
• Deceased or too ill to participate	9	0,4	9	0,4	18	0,4
• Moved home	36	1,4	43	1,7	79	1,6
• Unknown address	197	7,9	17	0,7	214	4,3
A3. Gross sample (A1-A2)	2 242	89,7	2 414	96,6	4 656	93,1
B1. Gross sample	2 242	100,0	2 414	100,0	4 656	100,0
B2. Non-respondents, of which:	1 300	58,0	1 231	51,0	2 531	54,4
• Formally declined to participate	9	0,7	13	1,1	22	0,5
B3. Net sample (respondents)	942	42,0	1 183	49,0	2 125	45,6

Figure 7.3 illustrates the distribution of responses over time. 1 504 residents (70,8% of the net sample) responded to the initial mailing of the survey during weeks three to six. 621 residents (29,2% of the net sample) responded to the repeat mailing during weeks seven to 12.

Figure 7.3 Distribution of responses to the resident survey



The resident survey draws its conclusions from a randomly selected sample of the population²⁵. The extent to which the sample represents the population is based on two important statistics; the margin of error and the level of confidence. In general, the accepted level of confidence in survey work is 95%. This means that if the survey was conducted 100 times, the result would be the same 95 times out of 100. Table 7.2 provides the margins of error for different proportions according to the number of observations (n). The table is based on a 95% level of confidence.

As an example, the Sunnmøre survey asks residents if they consider Ålesund Airport to be their local airport. Approximately 1 000 residents responded; roughly 15% no and 85% yes. Margins of error for 1 000 observations are highlighted in table 7.2. A proportionate response of 15/85 results in a 1,7% margin of error. This means that 85% plus or minus 1,7% (between 83,3% and 86,7%) of the population considers Ålesund Airport to be their local airport. If the survey was conducted 100 times, responses should fall within the same range at least 95% of the time. Readers should consider the margins of error when interpreting the results of the survey, noting that the margin of error changes for each proportion according to n.

Table 7.2 Margins of error

Margins of error for different proportions at the 95% level of confidence									
n	5/95	10/90	15/85	20/80	25/75	30/70	35/65	40/60	50/50
25	6,7	9,2	10,9	12,2	13,3	14,0	14,6	15,0	15,3
50	4,7	6,4	7,7	8,6	9,3	9,8	10,2	10,5	10,7
100	3,3	4,5	5,4	6,0	6,5	6,9	7,2	7,4	7,5
200	2,3	3,2	3,8	4,3	4,6	4,9	5,1	5,2	5,3
300	1,9	2,6	3,1	3,5	3,8	4,0	4,1	4,2	4,3
500	1,5	2,0	2,4	2,7	2,9	3,1	3,2	3,3	3,4
700	1,2	1,7	2,0	2,3	2,5	2,6	2,7	2,2	2,8
1 000	1,0	1,4	1,7	1,9	2,1	2,2	2,3	2,3	2,4
1 500	0,8	1,2	1,4	1,5	1,7	1,8	1,8	1,9	1,9
2 000	0,7	1,0	1,2	1,3	1,5	1,5	1,6	1,6	1,7
2 500	0,7	0,9	1,1	1,2	1,3	1,4	1,4	1,5	1,5

Sampling error makes the sample statistic less variable but does not affect survey bias which might also affect the extent to which the sample represents the population. There are a number of sources of survey bias such as under-coverage (when some members of the population are inadequately represented in the sample) or voluntary response bias (when members of the sample are self-selected volunteers and may therefore consist largely of individuals with strong views on a particular subject). This survey is based on a random sample and this method of sampling helps eliminate under-coverage or voluntary response bias. However, results are vulnerable to non-response bias, where individuals chosen for the sample are unwilling or unable to participate.

98,1% of respondents to both surveys combined answered yes to the question that asks if they have ever travelled by air from their local airport. A large proportion of non-respondents might have chosen not to take part in the survey because they have never travelled by air from their local airport and therefore, did not consider the survey to be relevant to them. Readers should therefore note that the results of the survey might be biased towards users of the respective airports. This is not so important given that the main focus of the study is to compare resident opinions in different regions (because it can be assumed that responses for the respective regions are equally biased). However, it should be taken into consideration when considering results for both regions combined.

The gross sample provides data on a number of personal characteristics including gender, age and municipality of residence so it is possible to investigate non-response bias according to those characteristics by comparing the proportionate difference between gross and net samples (see table 7.3).

The net sample for Sunnmøre is under-represented with males by 3,5% while the opposite is the case for Sør-Helgeland; females are under-represented by 1,5%. None of the municipalities are particularly under-represented. Younger members of the sample, especially those aged between 20-39 years are under-represented; 6,1% for Sunnmøre and 4,4% for Sør-Helgeland. The elderly are also under-represented but only by small margins. None of the differences provide any cause for concern. However, it is important that readers keep any differences in mind when interpreting the results of the survey.

²⁵ In this instance, the population comprised of adults (born after 31.12.1991) that were resident in selected municipalities in Sunnmøre and Sør-Helgeland, and were listed on the Brønnøysund Register in December 2009.

Table 7.3 Gross versus net sample for the resident survey (percent)

Sunnmøre				Sør-Helgeland			
Characteristic	Gross	Net	Difference	Characteristic	Gross	Net	Difference
Gender	100,0	100,0	0,0	Gender	100,0	100,0	0,0
Female	49,9	53,4	3,5	Female	50,0	48,5	-1,5
Male	50,1	46,6	-3,5	Male	50,0	51,5	1,5
Age	100,0	100,0	0,0	Age	100,0	100,0	0,0
18-19	3,3	3,0	-0,3	18-19	3,9	2,7	-1,2
20-39	31,7	25,6	-6,1	20-39	27,4	23,0	-4,4
40-54	26,1	27,7	1,6	40-54	29,5	34,2	4,7
55-66	21,1	27,2	6,1	55-66	18,9	21,9	3,0
67-79	11,0	12,6	1,6	67-79	13,9	14,3	0,4
80-89	5,7	3,5	-2,2	80-89	5,1	3,6	-1,5
90 or more	1,0	0,4	-0,6	90 or more	1,3	0,3	-1,0
Municipality	100,0	100,0	0,0	Municipality	100,0	100,0	0,0
Ålesund	31,0	30,6	-0,4	Sømna	17,9	17,2	-0,7
Vanylven	2,9	2,7	-0,2	Brønnøy	64,6	65,9	1,3
Sande	2,1	2,5	0,4	Vega	12,3	11,8	-0,5
Herøy	6,8	7,7	0,9	Vevelstad	5,3	5,1	-0,2
Ulstein	5,7	5,8	0,1				
Hareid	4,1	3,8	-0,3				
Volda	4,4	3,1	-1,3				
Ørsta	7,9	8,0	0,1				
Ørskog	1,7	1,5	-0,2				
Norddal	1,5	1,7	0,2				
Stranda	3,7	3,4	-0,3				
Stordal	0,9	1,1	0,2				
Sykkylven	5,4	5,8	0,4				
Skodje	2,9	2,9	0,0				
Sula	5,9	7,5	1,6				
Giske	5,7	4,8	-0,9				
Haram	7,2	7,0	-2,0				

7.9.2 Business survey

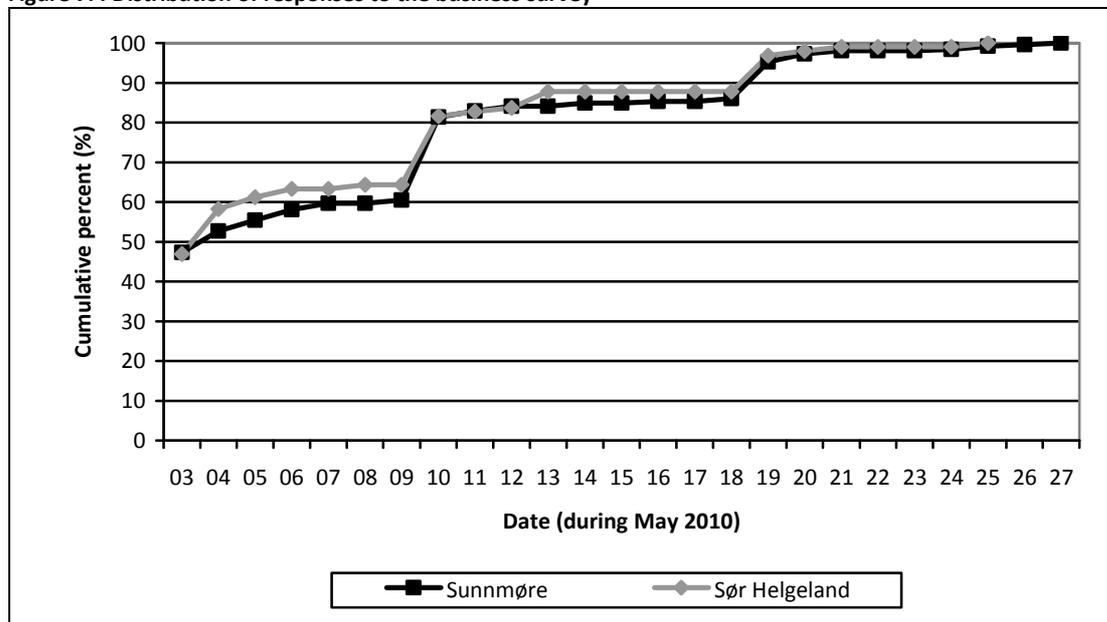
Table 7.4 provides a summary of the sample size. From a sample of 2 689 businesses, 745 were withdrawn. This provided a gross sample of 1 944. 356 businesses responded to the survey, 1 588 businesses did not respond. This resulted in a gross sample response rate of 18,3%. The response rate was higher from businesses in Sør-Helgeland (25,1%) compared to Sunnmøre (16,6%).

Table 7.4 Business survey sample size

	Sunnmøre		Sør-Helgeland		Total	
	Number	Percent	Number	Percent	Number	Percent
A1. Selected number of residents	2 157	100,0	532	100,0	2 689	100,0
A2. Withdrawn, of which:	604	28,0	141	26,5	745	27,7
• E-mail not delivered	584	27,1	133	25,0	717	26,7
• Unable to respond (e.g. due to technical constraints)	3	0,1	1	0,2	4	0,1
• Not relevant (business no longer exists, has moved, or contact person not relevant)	17	0,8	7	1,3	24	0,9
A3. Gross sample (A1-A2)	1 553	72,0	391	73,5	1 944	72,3
B1. Gross sample	1 553	100,0	391	100,0	1 944	100,0
B2. Non-respondents, of which:	1 295	83,4	293	74,9	1 588	81,7
• Formally declined to participate	116	7,5	31	7,9	147	7,6
B3. Net sample (respondents)	258	16,6	98	25,1	356	18,3

Figure 7.4 illustrates the distribution of responses over time. 219 businesses (61,5% of the net sample) responded to the initial mailing of the survey between 3-9 May. 89 businesses (25,0% of the net sample) responded to the first repeat mailing between 10-18 May. 48 businesses (13,5% of the net sample) responded to the second repeat mailing between 19-27 May.

Figure 7.4 Distribution of responses to the business survey



Margins of error were mentioned in section 7.9.1 and readers should consider the margins of error when interpreting the results of the survey. As was the case with the resident survey, results for the business survey are vulnerable to non-response bias, where businesses chosen for the sample might have been unwilling or unable to participate. Also, the sample only included businesses with an e-mail address (29,9% of businesses in Sunnmøre and 22,6% of businesses in Sør-Helgeland).

80,0% of respondents to both surveys combined answered yes to using their local airport for passenger and/or freight or express services in 2009. A large proportion of non-respondents might have chosen not to take part in the survey because they do not use their local airport and therefore, did not consider the survey to be relevant to them. Readers should therefore note that the results of the survey might be biased towards users of the respective airports. This is not so important given that the main focus of the study is to compare opinions of businesses in different regions (because it can be assumed that responses for the respective regions are equally biased). However, it should be taken into consideration when considering results for both regions combined.

The gross sample provides data on a number of characteristics for each business including sector, company type and municipality that the business is registered in so it is possible to investigate non-response bias according to those characteristics by comparing the proportionate difference between gross and net samples (see table 7.5).

The net sample for Sunnmøre is over-represented with businesses from the real estate, businesses sector by 6,2% and under-represented with businesses from the health, social, public services sector by 5,4%. The net sample for Sør-Helgeland is over-represented with businesses from the public administration sector by 3,1% and under-represented with businesses from the farming, forestry, fishing sector by 4,8%. Limited businesses are over-represented for both regions; 13,4% for Sunnmøre, 8,5% for Sør-Helgeland. Sole proprietorships are under-represented for both regions; 12,2% for Sunnmøre, 19,0% for Sør-Helgeland. Representation by municipality is fairly even for Sunnmøre although Ålesund is slightly over-represented (by 3,1%). For Sør-Helgeland, Vevelstad and Brønnøy are over-represented by 7,4% and 5,0% respectively. Sømna and Bindal are under-represented by 9,2% and 4,1% respectively. Readers should consider any differences when interpreting the results of the survey.

Table 7.5 Gross versus net sample for the business survey (percent)

Characteristic	Sunnmøre			Sør-Helgeland		
	Gross	Net	Difference	Gross	Net	Difference
Sector	100,0	100,0	0,0	100,0	100,0	0,0
Farming, forestry, fishing	5,0	5,0	0,0	16,0	11,2	-4,8
Mining, quarrying, oil or gas	0,3	0,4	0,1	1,3	1,0	-0,3
Manufacturing, construction	14,6	16,7	2,1	12,7	14,3	1,6
Energy, water supply	0,5	0,8	0,3	0,5	1,0	0,5
Domestic trade, repairation	13,3	10,9	-2,4	7,9	5,1	-2,8
Hospitality, services	2,6	1,6	-1,0	3,8	4,1	0,3
Transport, warehousing	3,4	2,7	-0,7	5,1	7,1	2,1
Information, communication	6,0	5,8	-0,2	5,9	5,1	-0,8
Finance, insurance	2,2	3,1	0,9	0,3	1,0	0,8
Real estate, business	24,0	30,2	6,2	17,3	16,3	-1,0
Public administration	0,3	1,2	0,9	2,0	5,1	3,1
Education	3,9	3,5	-0,4	3,3	4,1	0,8
Health, social, public services	22,5	17,1	-5,4	23,2	22,4	-0,7
Not specified	1,5	1,2	-0,3	0,8	2,0	1,3
Company type	100,0	100,0	0,0	100,0	100,0	0,0
Limited company	29,2	42,6	13,4	17,0	25,5	8,5
Company with liabilities	1,4	1,6	0,2	0,3	0,0	-0,3
Other corporate body	0,5	1,2	0,7	0,3	1,0	0,8
Company with limited liabilities	0,6	1,2	0,6	2,0	2,0	0,0
Housing association	0,1	0,0	-0,1	0,3	1,0	0,8
Company with partial liabilities	1,9	1,9	0,0	4,6	6,1	1,5
Sole proprietorship	54,1	41,9	-12,2	58,8	39,8	-19,0
Club, team, organisation	9,4	8,5	-0,9	11,7	14,3	2,6
Bankrupt	0,7	0,0	-0,7	1,0	2,0	1,0
Church	0,3	0,0	-0,3	0,8	1,0	0,3
Municipal enterprise	0,2	1,2	1,0	1,5	3,1	1,5
Association	0,1	0,0	-0,1	0,8	2,0	1,3
Other	1,6	0,0	-1,6	1,0	2,0	1,0

Table 7.5 Gross versus net sample for the business survey (percent) continued

Sunnmøre				Sør-Helgeland			
Characteristic	Gross	Net	Difference	Characteristic	Gross	Net	Difference
Municipality	100,0	100,0	0,0	Municipality	100,0	100,0	0,0
Ålesund	40,3	43,4	3,1	Sømna	15,3	6,1	-9,2
Vanylven	1,9	1,2	-0,7	Brønnøy	58,3	63,3	5,0
Sande	1,4	0,0	-1,4	Vega	12,4	13,3	0,9
Herøy	7,7	10,1	2,4	Vevelstad	3,8	11,2	7,4
Ulstein	5,6	4,7	-0,9	Bindal	10,2	6,1	-4,1
Hareid	3,2	3,1	-0,1				
Volda	6,5	3,9	-2,6				
Ørsta	6,7	6,6	-0,1				
Ørskog	1,3	1,9	0,6				
Norddal	1,7	1,9	0,2				
Stranda	3,3	4,3	1,0				
Stordal	0,5	0,0	-0,5				
Sykkylven	5,7	5,8	0,1				
Skodje	1,7	1,9	0,2				
Sula	3,7	1,6	-2,1				
Giske	4,7	6,2	1,5				
Haram	4,2	3,5	-0,7				

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