JUNE 2006

CARPENTER:
OCCUPATIONAL SKILL SHORTAGE ASSESSMENT

2004 Situation: Genuine skill shortage

Current Situation: Genuine skill shortage

Short-term Outlook: Genuine skill shortage

1 Executive Summary

1.1 Results from the 2005 Survey of Employers who have Recently Advertised suggest employers have had considerable difficulty in filling carpenter positions in New Zealand. Only 34% of positions were filled within ten weeks of advertising and there was an average of only 8 suitable applicants for every 10 carpenter vacancies. This report considers these survey results in the context of trends in the demand for and supply of carpenters.

Table 1: Employer Survey Indicators, 2005

	Fill Rate	Average Number of Suitable Applicants
Carpenters	34%	0.8
All Trades Surveyed	37%	1.0

Source: Survey of Employers who have Recently Advertised, Department of Labour.

1.2 During the past four years, employment of carpenters has risen in response to the booming construction industry. However, employment growth was slower than the growth in construction activity because of constraints on the supply of carpenters. The current high level of demand for carpenters is expected to be maintained through 2006 on the back of sustained activity in the construction sector. Building Act requirements that come into force in November 2009 are likely to stimulate increased demand for the participation of fully qualified carpenters in all building projects.

1.3 The number of trainees enrolled for the carpentry national certificate level 4 qualification has increased significantly over the period 2001 to 2005. However, the number of trainees achieving this qualification is still low considering the rapid growth in demand for carpenters arising from the construction boom. This level of output from training is expected to increase sharply in a few years time as there has recently been a large increase in the number of enrolments.

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1.4 Due to the on-going disparity between the levels of supply and demand, the Department has assessed the carpenter occupation as experiencing a **genuine skill shortage**.

1.5 The shortage of carpenters is expected to persist through 2006. The current high level of demand for carpenters is likely to continue on the back of sustained activity in the construction industry through 2006. Although trainee numbers will continue to rise, the existing number attaining level 4 qualifications are too low to cope with the current shortfall of carpenters as well as the loss of carpenters through retirement. The Department therefore expects carpenter shortages to persist in the short-term.

2 Introduction

2.1 The purpose of this report is to investigate skill shortages for carpenters in New Zealand.

2.2 The following section presents key findings from the Department of Labour's (the Department's) *Survey of Employers who have Recently Advertised* (SERA). This survey provides an indication of employer's success in filling advertised vacancies for carpenters as well as other information on their recruiting experiences. The next two sections investigate trends in the demand for, and supply of, carpenters. The penultimate section presents some of the issues that arise from the matching of demand and supply in the labour market, such as wage rates. Finally, the 'Assessment' section considers all the information presented in the report and provides a view on whether the occupation is in shortage, and if so, the type of shortage being experienced. A short-term outlook for the shortage situation is also offered.

2.3 Further background to this occupational report, including a discussion of the methodology; a glossary of terms; and an overview of the Department's *Survey of Employers who have Recently Advertised*, including the survey questionnaire, can be found in the 'Background and technical note' at http://www.dol.govt.nz/publications/jvm/trades/2005/background.asp.

2.4 *Carpenters in New Zealand*

2.4.1 Carpenters (code 71121 in the New Zealand Standard Classification of Occupations) cut out, assemble, erect and repair structural and other woodwork at the work bench and on the construction site.

2.4.2 Carpenters work with wood and wood-based materials and are involved in many different kinds of construction activity. Carpenters need to know the building codes covering issues like how and where certain materials can be used, and usually need to be able to do a range of tasks, from more basic construction work (i.e. framing) to detailed finishing and renovation work. Individuals with good basic overall training can switch between residential building or renovation work and commercial construction work, depending on which offers the best work opportunities.

2.4.3 The Department estimates that approximately 18,100 carpenters were employed in New Zealand in 2005. Census figures indicate that almost the entire carpenter workforce is male (99%) and is employed full time (94%).

3 Survey of Employers who have Recently Advertised

3.1 This section presents the key SERA findings of employers' experiences in recruiting carpenters.

3.2 The SERA allows the Department to gain insights into skill shortages by investigating how difficult it is for employers to fill vacancies. A 'fill rate' is calculated for each occupation – this being the proportion of vacancies included in the SERA sample which were filled with an adequately qualified and experienced person within ten weeks of advertising. Occupations with fill rates lower than 80% are typically regarded as being in shortage, while fill rates lower than 40% usually indicate that the occupation is in acute shortage.

Table 2: SERA Results for Carpenters and All Trades Surveyed, August 2005

	Number of Employers	Number of Vacancies	Fill Rate[1]	Average Number of Suitable Applicants per Vacancy[1]
Carpenters	75	174	34%	0.8
All Trades Surveyed	885	1480	37%	1.0

Source: Survey of Employers who have Recently Advertised, Department of Labour.

1 The 'All Trades Surveyed' fill rate and average number of suitable applicants per vacancy figures were both weighted to compensate for any under or over sampling of individual trade worker occupations in the 2005 survey.

3.3 Results from the 2005 SERA show that only 34% of carpenter vacancies included in the survey were filled within ten weeks of being advertised, down from 38% in 2004. The fill rate for carpenters was below the fill rate for all surveyed trade occupations (37%). Employers noted that, on average, there were only eight suitable applicants for every ten vacancies.

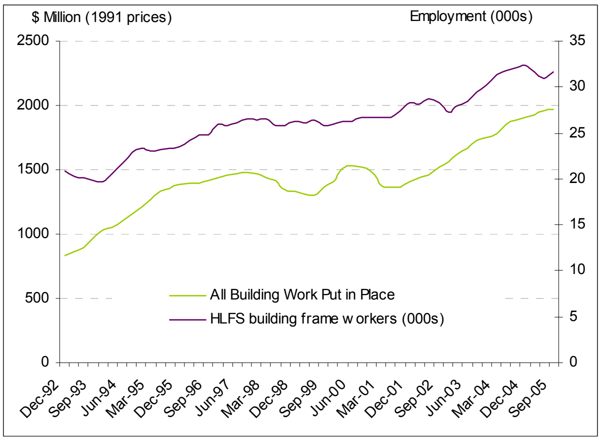
4 Demand for Carpenters

4.1 This section investigates trends in the demand for carpenters and the factors underlying these trends. Demand is measured by the number of carpenters required by employers at current wage rates.

4.2 *Historical Demand*

4.2.1 The demand for *building frame and related trade workers*[1] is closely associated with activity in the construction industry (see Figure 1). For instance, during the building boom of 1994 and 1995, the value of buildings completed rose by 14% per annum while employment of *building frame and related trade workers* grew by 18% per annum. During the building downturn of 1998 and 1999, the decline in building completions of 7% per annum was accompanied by a drop in employment of *building frame and related trade workers* of 6% per annum. The recent building boom has again been accompanied by strong growth in demand for *building frame and related trade workers*.

Figure 1: Employment Trend of Building Frame and Related Trade Workers, 1991-2005



Source: Statistics New Zealand.

4.2.2 It is estimated that the number of *building frame and related trade workers* employed increased by 16% in the four years to December 2005. This is low when compared with 42% growth in employment in the construction sector as a whole, and 44% growth in the value of work put in place. The relatively slow growth in employment is probably due to a supply constraint. It is likely that demand for the services of *building frame and related trade workers* grew by more than the actual growth in employment over this period.

4.3 *Future Demand*

4.3.1 The Department's demand overview for the construction sector, (which is given in Appendix 1), suggests that while growth in construction activity is expected to slow in 2006, demand is still forecast to remain at a high level, driven mainly by growth in the non-residential sector. It follows that the demand for carpenters will remain at a high level.

4.3.2 Requirements of the Building Act 2004 are likely to stimulate increased demand for fully qualified carpenters. Under the Act, certain building work will be defined by regulation as 'restricted work' from November 2009. In order for a Certificate Code Compliance to be issued, 'restricted work' will need to be carried out or supervised by a licensed building practitioner with the appropriate licence. Aspects of a building's structure and envelope will most likely be classified as 'restricted work' and should this require carpentry skills, all such work will have to be done by or under the supervision of a licensed carpenter. In addition, site

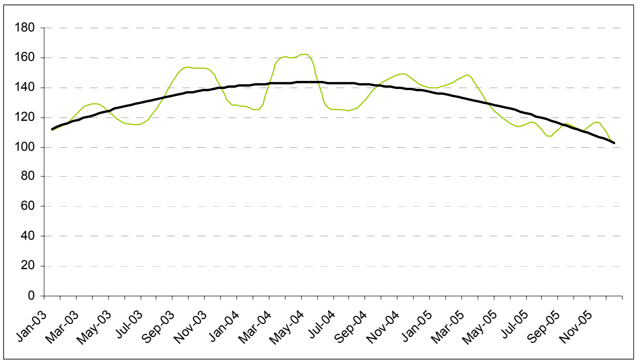
[1] Household Labour Force Survey only shows data at the broader 3-digit category of *building frame and related trade workers*. However, demand for carpenters is most likely to reflect similar trends in demand for *building frame and related trade workers* as they constitute a significant proportion of this broad occupational group (Census data estimates that carpenters comprised between 40% and 38% of this 3-digit category during the period 1991-2001).

supervision for significant building projects may also be restricted work. This role is anticipated to be filled, in part, by carpenters. It is likely that these requirements will stimulate increased demand for the participation of fully qualified, rather than partially trained, carpenters in all building projects.

4.4 *Changes in Market Conditions*[2]

4.4.1 The Department's Job Vacancy Monitor shows that between May 2003 and May 2004, the three-monthly moving average for advertised vacancies for carpenters grew by 35% (see Figure 2). However, since mid-2004 the number of advertised vacancies began to fall. In the three months to December 2005 there were 28% fewer advertised vacancies for carpenters compared to the three months to December 2004. This reflects an easing in the tightness of the labour market for carpenters. It is expected that this trend will continue if growth in construction activity continues to slow over 2006.

Figure 2: Number of Advertised Vacancies for Carpenters



Source: Job Vacancy Monitor, Department of Labour.

5 Supply of Carpenters

5.1 This section investigates the various sources contributing to the supply of carpenters. Supply is a measure of the number of people willing and able to work as carpenters at current wage rates.

5.2 *Training - National Certificate (Level 4) Qualifications and Equivalent*

5.2.1 This section investigates the growth in supply of *fully qualified* carpenters through training. It considers two sources of supply:

1. The award of the National Certificate in Carpentry (Carpenters) Level 4 by the Building and Construction Industry Training Organisation (BCITO). This is the nationally recognised qualification for carpenters which is designed by BCITO to meet the needs of employers of carpenters.

2. The award of the National Certificate in Carpentry (Carpenters) Level 4 or the award of qualifications which are deemed to be equivalent to the National Certificate in terms of level and number of credits by other providers such as polytechnics.

[2] Analysis of the Job Vacancy Monitor suggests that it is an indicator of change in labour market tightness, or change in the degree of difficulty of recruiting staff. An increase in vacancies typically indicates increasing difficulty in recruiting staff and vice versa. While changes in demand usually dictate changes in labour market tightness, it can also be affected by changes in supply conditions, such as a rise in net migration.

5.2.2 Table 3 shows that the vast majority of training for the National Certificate Level 4 qualifications is overseen by BCITO. The total number of enrolments for this qualification has more than tripled between 2001 and 2005. This increase was aided by a 70% increase between 2004 and 2005. Achievement numbers are likely to increase sharply in a few years time given the recent large increase in the number of enrolments.

Table 3: Number of Trainees Enrolled for the National Certificate in Carpentry (Carpenters) Level 4 and Other Equivalent Qualifications

	National Certificate in Carpentry (Carpenters) Level 4 (BCITO)	**National Certificate in Carpentry (Carpenters) Level 4 or Other Equivalent Qualifications (Other Providers)**	**Total**
2001	1740	620	2360
2002	2090	785	2875
2003	3022	609	3631
2004	4059	525	4584
2005	7108	778	7886

Source: BCITO, Tertiary Education Commission. Some figures were estimated by the Department.

Table 4: Number of Trainees Achieving the National Certificate in Carpentry (Carpenters) Level 4 and Other Equivalent Qualifications

	National Certificate in Carpentry (Carpenters) Level 4 (BCITO)	**National Certificate in Carpentry (Carpenters) Level 4 or Other Equivalent Qualifications (Other Providers)**	**Total**
2001	292	185	477
2002	421	241	662
2003	399	140	539
2004	593	177	770
2005	646	212	858

Source: Building and Construction Industry Training Organisation; Tertiary Education Commission.

5.2.3 The training rate for carpenters is given in Table 5. This indicator provides an approximate measure of the rate at which the supply of fully qualified carpenters can potentially grow through training. The training rate is calculated by expressing the number of trainees achieving the relevant qualification as a percentage of total employment in that occupation. The training rate for carpenters has increased in the last three years from 3.0% in 2003 to 4.7% in 2005. The training rate for carpenters in 2005 was higher than the average training rate of 3.3% for all trades analysed by the Department. By way of comparison, the average training rate for carpenters in New South Wales, Australia[3] in the three years to June 2005 was 4.3% - slightly lower than the training rate in New Zealand in 2005.

Table 5: Training Rate for Carpenters, 2001-2005

	Carpenters	All Trades[4]
2001	3.2%	2.0%
2002	3.9%	2.2%
2003	3.0%	2.2%
2004	4.2%	2.7%
2005	4.7%	3.3%

Source: Department of Labour.

5.3 *Migration*

5.3.1 New Zealand has experienced a net migratory inflow of 657 *building frame and related trade workers* in the four years to December 2005, coinciding with the strengthening of the domestic economy (see Table 6). However, these inflows do not offset migratory losses in the previous four-year period from 1997 to 2001, when a net outflow of 1,523 was recorded. The net increase in the past four years has been mainly driven by increases in arrivals. Departures generally show a more consistent pattern, averaging about 864 per annum.

Table 6: Permanent and Long-term Arrivals, Departures and Net Migration of Building Frame and Related Trade Workers, 1998-2005 December Year End

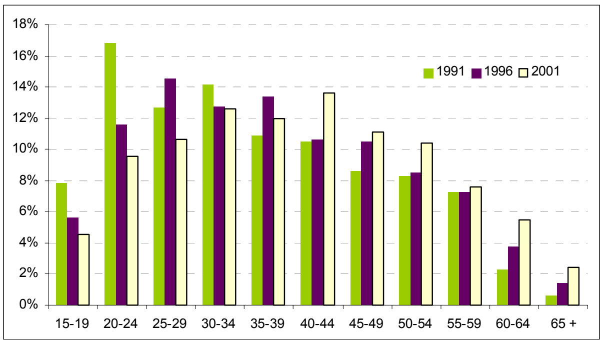
	1998	1999	2000	2001	2002	2003	2004	2005
Arrivals	536	494	590	605	779	896	1014	1133
Departures	776	990	992	990	733	690	764	978
Net Migration	-240	-496	-402	-385	46	206	250	155

Source: External Migration, Statistics New Zealand. This data is only available at the broad (3-digit) occupational level of 'building frame and related trade workers'. Carpenters comprise a significant proportion (38% in the 2001 Census) of this broader group.

5.4 *Retirements*

5.4.1 The Department estimates that approximately 1.5% of the carpenter workforce retires each year (assuming a retirement age of 65). This equates to about 270 carpenters per annum. This is above the average retirement rate for all trade occupations (1.3%). Census data shows an ageing of

Figure 3: Age Profile of Carpenters, 1991-2001



Source: Census of Population and Dwellings, Statistics New Zealand.

[3] Australian national level estimates of training rates are not available.

[4] The training rates for 'all trades' were calculated for the 14 trade occupations that were examined in-depth using data from the SERA Intensive 2005. As the composition of occupations being examined changes from year-to-year, so will the training rates.

carpenters occurred between 1991 and 2001 (see Figure 3). The percentage of carpenters under 35 years of age decreased from 52% in 1991 to 37% in 2001, while the proportion in all age groups over 40 increased. By 2001, more than half of all carpenters were 40 years of age or older and the average age was 40, up from 36 in 1991. As the carpenter workforce ages, the number of carpenters retiring each year will increase.

5.5 *Occupational Detachment*[5]

5.5.1 Employers were asked if they thought carpenters left the occupation to go and do something different more or less than in other occupations. Of the nine employers who answered this question, five thought they left at a higher rate than in other occupations, four thought they left at about the same rate, and none thought they left at a lower rate.

5.5.2 This suggests that occupational detachment is having some impact on supply for this occupation, with some employers saying this may be because of factors such as the ageing workforce and the physical nature of the work.

6 Matching of Supply and Demand

6.1 This section considers some of the issues that arise from the labour market matching of the supply of carpenters with the demand for carpenters.

6.2 *Salaries*

6.2.1 Carpenter wages are slightly lower compared with other trades (see Table 7). The Labour Cost Index (LCI) measured an average hourly wage of $18.81 for carpenters in June 2005 compared with an average wage for all trade workers of $19.81. According to the LCI, wages of carpenters have increased by 5.2% in the twelve months to June 2005, compared with 4.8% in all trades.

Table 7: Average Hourly Wage Rates for Carpenters[6]

	June 2004	June 2005
Carpenter	$17.87	$18.81
All Trades	$18.90	$19.81

Source: Labour Cost Index, Statistics New Zealand.

7 Assessment

7.1 This section considers all the information presented in this report on employers' recruiting experiences, supply and demand trends, and matching issues, and offers a view on whether there is a shortage of carpenters and the type of shortage. A short-term outlook for the shortage situation is also offered.

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5 'Occupational detachment' refers to individuals who choose not to continue practising in their occupation but retain a connection to the occupation (e.g. move into a management or supervisory role, or retain professional registration), or who leave the occupation entirely (e.g. by changing occupation or withdrawing from the labour market).

6 The data shown from the LCI are unadjusted mean hourly rates. Caution should be taken with interpreting this information due to the relatively small sample sizes, particularly at the occupational level. Futhermore, the LCI is designed to measure changes in, rather than the actual level of, wage and salary rates.

7.2 Demand for carpenters has grown rapidly over the past few years on the back of a booming construction industry. The value of building work put in place has grown by just under 10% per annum during the past four years and the demand for carpenters is likely to have grown by a similar rate. While the supply of carpenters through training has grown significantly over recent years (noting that about 270 carpenters retire each year), this growth has not matched growth in construction activity. Due to this disparity between the growth in demand and the growth in supply, an acute shortage of carpenters has resulted. This is reflected in the extremely low fill rate of 34% and there being only eight suitable applicants for every ten carpentry vacancies. This disparity that has developed as demand has outgrown supply indicates that the shortage of carpenters is a **genuine skill shortage** (see Box 1 for definition).

Box 1: Skill Shortage Definitions

Genuine Skill Shortage

Occurs when employers have difficulties filling their job vacancies because there are not enough individuals with the required skills in the potential labour market to fill the positions on offer.

Recruitment and Retention Difficulty

Occurs when there is a considerable supply of individuals with the required skills in the potential labour market but they are unwilling to take up employment at current levels of remuneration and conditions of employment. Retention problems are often a major contributor to this condition.

7.3 While the high growth of the last four years in the building and construction industry is slowing, demand for carpenters is expected to be maintained at historically high levels. There has been a net migratory inflow of carpenters in recent years, and the number of trainees achieving the relevant National Certificate qualifications is expected to increase over the next few years. While these increases to supply will not be sufficient to eliminate the current shortfall of carpenters, they will go some way in easing the shortage of carpenters in the short-term.

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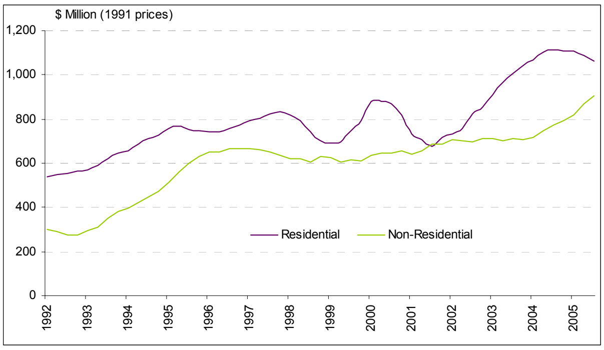
Appendix 1: Construction Industry Demand Overview

New Zealand has experienced four years of strong growth in construction activity, and although the rate of growth has recently slowed, growth remains high. Figure A1 shows the rapid (44%) growth in building work put in place which occurred between late 2001 and late 2005. The boom has resulted in construction industry employment growth of 42% over the same period. While growth in total building work put in place still remains strong (4% in the year to September 2005), it has slowed from an average growth rate of 11% per annum in the previous three years.

The strong growth in the construction industry has been driven predominantly by activity in the residential sector, although in the last year the non-residential sector has begun to catch up. Until recently, growth in the residential sector has been driven by a range of factors. These include: low real interest rates from early 2001 to early 2004, high population growth caused by record net immigration, strong wage and job growth, a previous lull in building activity, and falling household sizes. However, in the year to September 2005, there has been a 4% decrease in the value of residential building work put in place. In contrast, there has been a 17% increase in the value of non-residential building work put in place driven most strongly by growth in commercial buildings. It is likely that the slowdown in the residential sector has freed up resources for growth in the non-residential sector.

Figure A1: Building Work Put in Place, Residential and Non-residential



Source: Statistics New Zealand.

Table A1: Construction Activity and Employment, Years to September, 2001-2005

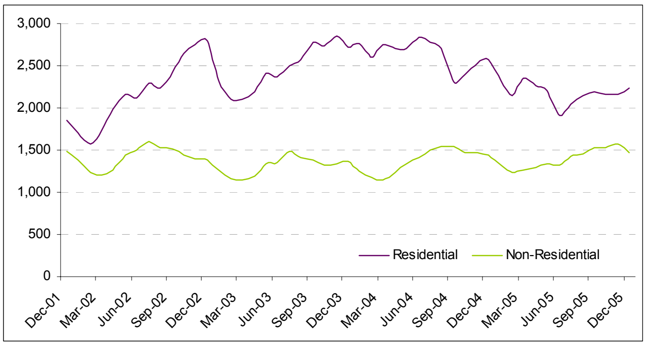
	Year to Sep 2001	Year to Sep 2002	Year to Sep 2003	Year to Sep 2004	Year to Sep 2005
Work Put in Place (1991 $m)	5,461	6,088	6,898	7,544	7,869
% Change		11.5%	13.3%	9.4%	4.3%
Residential Building Consents (number)	19,533	24,408	30,139	31,864	27,092
% Change		25.0%	23.5%	5.7%	-15.0%
Non-residential Building Consents (number)	16,680	17,143	15,799	16,432	16,647
% Change		2.8%	-7.8%	4.0%	1.3%
Construction Employment (Four Quarter Moving Average)	113.0	119.1	135.8	150.1	160.3
% Change		5.4%	14.1%	10.5%	6.7%

Source: Statistics New Zealand.

Outlook for the Residential Sector

The residential sector has slowed down in the last year after a sustained period of high growth. This slowdown is likely to continue because all the key drivers of that growth have turned. Interest rates have risen[7], lower levels of net inward migration[8] have slowed population growth, the downturn in international students coming to New Zealand may negatively impact apartment building, and the high exchange rate may discourage offshore investors. Figure A2 shows there has been a downward trend in the number of residential consents issued since mid-2004. In the 12 months to September 2005 there was a 15% decrease in the number of consents issued for residential buildings, indicating that residential activity will continue to weaken. In addition, December 2005 Consensus Forecasts from the New Zealand Institute of Economic Research predict that residential investment will fall by 8.9% in the year to March 2007.

Figure A2: Quarterly Building Consents Issued, Residential and Non-residential (Number)



Source: Statistics New Zealand.

Outlook for the Non-residential Sector

Non-residential building activity grew strongly over 2005. This is reflected by a sharp increase in the number of non-residential building consents issued in 2004 (see Figure A2). Although the number of non-residential building consents issued began to slow over the second half of 2004, it has shown an upward trend in the first three quarters of 2005. The Department expects non-residential building activity to remain strong as construction resources are freed up from the downturn in the residential sector. An increase in the number of non-residential consents combined with increasing government and infrastructure expenditure indicates construction activity will increase in the sector over 2006.

Overall Outlook

The slowdown in the residential sector in 2006 is likely to be compensated by continued growth in the non-residential sector. Activity in the overall construction sector is consequently expected to remain at historically high levels. This will maintain the demand for labour at equally high levels.

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[7] The Reserve Bank of New Zealand increased its Official Cash Rate to 7.25 per cent in December 2005, a rise of 2.25 percentage points since the beginning of 2004.

[8] Net inward migration (permanent and long-term arrivals less departures) fell to 7,000 in the year to December 2005 from a peak of 42,500 in the year to May 2003.