

ADE MODEL EXAMPLE

SCENARIO: NICHE HUB

AIRPORT DEVELOPMENT ECONOMICS MODEL (ADE-2.3)

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(P.1) INPUT

I. BASIC FACTS

| | | | |
|-----------------------|-----------|-------------|-----------|
| AIRPORT -----> | Wxxxxxx | | |
| LOCAL AREA -----> | xxxxxx | RUN DA | 31-Oct-03 |
| REGION -----> | xxxxxxxx | CURRENT YR> | 2003 |
| MONEY UNIT (CONSTANT) | xxxxxx | FUTUR | 2008 |
| SCENARIO -----> | Niche Hub | | |

| | CURRENT 2003 | FUTURE 2008 | ANNUAL % CHANGE |
|-------------------------------------|-----------------|----------------|----------------------|
| PASSENGERS (E+D, MILLIONS) | | | |
| DOMESTIC | 0.015 | 0.564 | 107% |
| INTERNATIONAL | 0.000 | 0.343 | NA |
| TOTAL | 0.015 | 0.907 | 127% |
| CARGO (1000 TONNES) | 0.800 | 9.800 | 65% |
| MAIL (1000 TONNES) | 0.000 | 0.000 | 0% |
| % OF REGIONAL PASS | | | |
| % OF REGIONAL PASS | 0% | 63% | -- |
| % OF REGIONAL CARGO | | | |
| % OF REGIONAL CARGO | 0% | 75% | -- |
| % OF REGIONAL MAIL | | | |
| % OF REGIONAL MAIL | 0% | 0% | -- |
| DISTANCE FROM CORE (KM) | 15 | 15 | -- |
| NON-STOP SERVICE (CITIES) | | | |
| # domestic cities | 0 | 3 | NA |
| # regional cities -- | 0 | 7 | NA |
| # continent - | 0 | 0 | NA |
| # other continents | 0 | 0 | NA |
| TOTAL | 0 | 10 | NA |
| NON-STOP FLIGHTS/DAY | | | |
| to domestic cities | 0 | 15 | NA |
| to region | 0 | 25 | NA |
| to continent | 0 | 0 | NA |
| to other continents | 0 | 0 | NA |
| TOTAL | 0 | 40 | NA |
| REGION -----> xxxxxx | | | |
| | | | Ann. % Change |
| POPULATION (* 1000) | 9,391 | 9,813 | 4.5% 2002-2003 |
| EMPLOYMENT (* 1000) | 2,842 | 2,966 | 4.4% 2002-2003 |
| GROSS VALUE ADDED (MIL RAND) | 206,601 | 262,959 | 4.9% 2000-2007 |
| % FOREIGN OWNED MFG | 20% | 20% | |
| NET REGIONAL MULTIPLIER | 3.1 | 3.1 | |
| LOCAL AREA -----> xxxxxxx | | | |
| EMPLOYMENT (* 1000) | 746 | 783 | 5.1% 2002-2003 |
| GROSS VALUE ADDED (MIL RAND) | 55,990 | 74,520 | 5.9% 2002-2007 |
| VACANCY RATE-INDUSTRIAL | 20% | 20% | |
| VACANCY RATE-COMMERCIAL | 5% | 5% | |
| TURNOVER ABSORP RATE | 5% | 5% | |

(P.2) INPUT

AIRPORT: xxxxxxxxxxxx

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II. EMPLOYMENT STATISTICS

| <u>NUMBER OF EMPLOYEES</u> | AT | <u>5 KM</u> | LOCAL | LQ LOCAL |
|-----------------------------------|----------------|-------------------|----------------|--------------------|
| | <u>AIRPORT</u> | <u>xxxxxxxxxx</u> | <u>xxxxxxx</u> | <u>TO NATIONAL</u> |
| FARM | 0 | 2,426 | 8,155 | 0.8 |
| NATURAL RESOURCES | 0 | 156 | 1515 | 0.7 |
| UTILITIES | 0 | 503 | 4992 | 0.7 |
| BIOTECH/PHARMACEUTICALS | 0 | 0 | 0 | 0.0 |
| OTHER METALS & CHEM | 0 | 1,739 | 9,140 | 0.9 |
| DP,ELEC & INSTRUMENT | 0 | 609 | 7,651 | 0.7 |
| AEROSPACE MFG | 0 | 0 | 0 | 0.0 |
| AUTO/TRANSPORT EQUIP MFG | 0 | 6332 | 17023 | 1.9 |
| OTHER METAL GOODS | 0 | 3,242 | 22,731 | 1.2 |
| NON-METAL MFG | 0 | 4,330 | 33,319 | 1.2 |
| CONSTRUCTION | 0 | 4,238 | 33,925 | 1.0 |
| RESTAURANT,BAR | 10 | 1,770 | 11,274 | 1.0 |
| CATERING | 0 | 0 | 0 | 0.0 |
| HOTEL | 40 | 2,277 | 29,920 | 1.2 |
| WHOLESALE/MAILORDER | 0 | 1,540 | 17,754 | 0.7 |
| RETAIL STORES | 10 | 6,270 | 74,026 | 1.0 |
| SALES, REPAIR of TRANSPORT | 0 | 6,187 | 40,719 | 1.1 |
| AIR TRANSPORT | 25 | 181 | 1,609 | 0.5 |
| AIR TRAN GEN AV SUPPORT SERV | 270 | 270 | 270 | 0.6 |
| MOTOR TRANS & OTHER LAND TRAN | 0 | 3,859 | 27,941 | 1.0 |
| STORAGE/WAREHOUSING | 0 | 95 | 1,740 | 0.7 |
| TELEPORT, TELECOM | 0 | 1,277 | 21,804 | 1.4 |
| OTHER TRANSPORT | 0 | 0 | 0 | 0.0 |
| BANKING & INVESTMENT | 0 | 961 | 22,784 | 0.9 |
| BUSINESS SERVICES | 5 | 5,811 | 96,277 | 1.2 |
| INSURANCE, HIRING | 0 | 216 | 10,372 | 1.0 |
| GOVT, PUBLIC ADMIN | 40 | 5,891 | 74,735 | 1.8 |
| CULTURAL/REC (TOURISM) | 0 | 452 | 7,339 | 0.9 |
| RESEARCH & DEVELOPMENT | 0 | 326 | 7,433 | 2.4 |
| <u>OTHER SERV</u> | <u>0</u> | <u>11,780</u> | <u>118,753</u> | <u>0.8</u> |
| TOTAL | 400 | 72,738 | 703,201 | 1.0 |

| | 1990 | 2000 |
|----------------------------|----------------|---------------|
| <u>II. COMPUTED STATUS</u> | <u>CURRENT</u> | <u>FUTURE</u> |
| % FLTS INTERCONTINENTAL | 0% | 0% |
| % FLTS CONTINENTAL | 0% | 0% |
| % FLTS NATIONAL | 0% | 70% |
| <u>% FLTS REGIONAL</u> | <u>0%</u> | <u>30%</u> |
| TOTAL | 0% | 100% |

COMPUTED RATING

| | | | |
|---------------------------|-----|------|----|
| 1A INTERCONT GATEWAY/HUB | 0.0 | 0.0 | 1A |
| 1B LG INTERNA GATEWAY/HUB | 0.0 | 0.0 | 1B |
| 2A HUB/EMERG INT GATEWAY | 0.0 | 0.0 | 2A |
| 2B REGIONAL HUB | 0.0 | 10.0 | 2B |
| 3 ORIGIN-DEST SPOKE | 0.0 | 9.0 | 3 |
| AIRPORT TYPE = | 3 | 2B | |

Airport Development Model

III. EXPERT RATINGS

(0=BARRIER, 5=AVG, 10=MOST OPPORTUNITY)

| <u>AIRPORT FEATURE</u> | <u>CURRENT RATING</u> | <u>FUTURE RATING</u> | <u>REASON FOR RATING LEVEL OR CHANGE</u> |
|--------------------------------|---------------------------|--------------------------|---|
| AIR SERVICE | | | |
| 1A INTERCONT GATEWAY/HUB | 0 | 0 | no activity current or planned |
| 1B LG INTERNA GATEWAY/HUB | 0 | 0 | no activity current or planned |
| 2A HUB/EMERG INT GATEWAY | 0 | 8 | proposed as small gateway for xxx |
| 2B REGIONAL HUB | 0 | 7 | proposed as small gateway for xxx |
| 3 ORIGIN-DEST SPOKE | 1 | 6 | proposed connector service to xxx |
| AIR CARGO DISTRIBUTION | 4 | 6 | would grow with proposed scheduled air service |
| OVERNIGHT PARCEL HUB | 1 | 3 | little activity expected |
| OTHER AIRPORT FUNCTION | | | |
| COMMUTER | 1 | 5 | extended runway |
| CORP FLEET (PASS) | 3 | 7 | extended runway |
| INDUSTRIAL PURPOSE | 3 | 7 | extended runway |
| CHARTER | 7 | 7 | already strong |
| MILITARY | 1 | 1 | occurs elsewhere |
| RELIEVER | 2 | 7 | extended runway |
| AIRCRAFT MAINTENANCE | 8 | 8 | already strong |
| AIRCRAFT/PARTS MFG | 5 | 5 | --- |
| AIRPORT AREA/LAND | | | |
| ROOM FOR RUNWAY EXPANSION | 8 | 8 | City has acquired land |
| NEARBY MFG/WAREHOUSE SPACE | 7 | 8 | land available |
| ACCESS TO OFFICE CENTRES | 9 | 6 | xxxxx |
| NEAR PRESTIGE AREA | 6 | 6 | xxxxxxxxx |
| REGIONAL HWY ACCESS | 9 | 9 | Good, uncongested hwys |
| REGIONAL RAIL CONNECTIONS | 4 | 4 | limited use for airport |
| ORGANIZATIONAL CAPABILITY | 9 | 9 | x |
| LAND OWNERSHIP/CONTROL | 7 | 7 | Acquisition needed |
| EXISTING ATTRACTOR NEARBY | 9 | 9 | Universities |
| DEVELOPMENT PLANS | 8 | 8 | Strong govt. push |
| CITY/REGION | | | |
| GOVERNMENT HEADQUARTERS | 10 | 10 | xxxxx |
| CONVENTION CENTRE | 9 | 9 | xxxxx |
| TOURISM ATTRACTION | 6 | 8 | xxxxx |
| RAPID POPULATION GROWTH | 8 | 8 | Rapid growth in xxxxx |
| NEW TOWN DEVELOPMENT | 5 | 7 | Significant new development needs |
| SINGLE CITY DOMINANT | 4 | 6 | xxxxx |
| TRADE/DISTRIBUTION SPECIALTY | 5 | 7 | xxxxx |
| SERVICE/FINAN SPECIALTY | 6 | 6 | regional economic strength in banking and finance |
| HIGH TECH/R&D SPECIALIZATION | 5 | 8 | Universities |
| COMMUNICATION/TELECOM SPECIALT | 7 | 7 | Headquarters of xxxxx companies |
| AEROSPACE/AVIATION SPECIALTY | 7 | 7 | Existing centre for aviation repair |
| CORP OFFICES -REGIONAL | 5 | 6 | xxxxx |
| -NATIONAL | 4 | 5 | xxxxx |
| -INTERNATIONAL | 3 | 4 | xxxxx |
| BUSINESS CLIMATE -COST | 5 | 5 | --- |
| -REGULATION | 6 | 8 | Regulations are changing to encourage business |
| QUALITY OF LIFE | 6 | 7 | Wil depend onxxx |

(P.4) Results

SCENARIO: xxxxxxxx

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IV. OVERALL FORECAST OF AIRPORT IMPACT

| CATEGORY | AIRPORT RELATED | | | ---CHANGE--- | |
|--------------------------------------|-------------------|--------------------------|-------------|--------------|------------|
| | ACTUAL CURRENT | --POTENTIAL-- CURRENT | FUTURE | NUMBER | ANN % |
| EMPLOYMENT | | | | | |
| AIRPORT COMM AVIATION EMP | 85 | 85 | 831 | 746 | 133% |
| AIRPORT GENERAL AVIATION EMP | 270 | 270 | 270 | 0 | 0% |
| AIRPORT TOTAL | 355 | 355 | 1101 | 746 | 25% |
| ADJACENT ATTRACTED IND | | 30 | 524 | 495 | 77% |
| ADJACENT HOTEL & RESTAURANT EMP | 40 | 40 | 106 | 66 | 22% |
| ADJACENT RETAIL | | 8 | 140 | 132 | 77% |
| ADJACENT TOTAL | | 78 | 771 | 693 | 58% |
| TOTAL LOCAL EMP (AIRPORT + ADJACENT) | 750 | 788 | 2973 | 2185 | 30% |
| REGIONAL TOURISM EMP | | 30 | 2721 | 2691 | 146% |
| REGIONAL INDIRECT&INDUCE EMP | | 1625 | 10845 | 9220 | 46% |
| REGIONAL ADJUST FOR REDISTRIBUTION | | -44 | -530 | -486 | 64% |
| TOTAL REGIONAL EMP | | 2399 | 16009 | 13610 | 46% |
| NET DIRECT REG EMP | | 774 | 5164 | 4390 | 46% |

TOTAL VALUE ADDED

| | | | | |
|----------------------------|---------|----------|----------|-----|
| GROSS REGIONAL ECON IMPACT | 176.311 | 1438.798 | 1262.487 | 52% |
| GROSS LOCAL ECON IMPACT | 59.173 | 282.838 | 223.666 | 37% |
| NET REG DIRECT ECON IMPACT | 58.158 | 477.147 | 418.989 | NA |

INCOME

| | | | | |
|----------------------------|---------|----------|----------|-----|
| GROSS REGIONAL ECON IMPACT | 158.680 | 1294.918 | 1136.239 | 52% |
| GROSS LOCAL ECON IMPACT | 53.255 | 254.554 | 201.299 | 37% |
| NET REG DIRECT ECON IMPACT | 52.342 | 429.433 | 377.090 | NA |

(P.5) RESULTS...

SCENARIO: xxxxxxx

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V. SECTOR BREAKDOWN OF LOCAL JOBS ATTRACTED

A. AIRPORT + AIR TRANSPORT-RELATED JOBS

| CATEGORY | ACTUAL | ---POTENTIAL ADDITION--- | | |
|-----------------------|----------|-----------------------------|----------------------------|-------------------------------|
| | CURRENT | CURRENT <i>potential</i> | FUTURE <i>potential</i> | CHANGE <i>from current</i> |
| RESTAURANT,BAR | 10 | 0 | 23 | 13 |
| RETAIL STORES | 10 | 0 | 15 | 5 |
| AIR TRANSPORT | 25 | 7 | 387 | 362 |
| AIR TRAN SUPPORT SERV | 270 | 1 | 342 | 72 |
| STORAGE/WAREHOUSING | 0 | 1 | 62 | 62 |
| AIRPORT OPER & GOVT | 40 | 4 | 248 | 208 |
| <u>OTHER SERVICES</u> | <u>0</u> | <u>0</u> | <u>23</u> | <u>23</u> |
| TOTAL AT AIRPORT | 355 | 14 | 1101 | 746 |

B. LOCAL NEARBY (OFF-AIRPORT) JOB ATTRACTION (EXCL AIR TRANS)

| CATEGORY | WITHIN 5km | ---POTENTIAL--- | | |
|------------------------------|------------|-----------------|-----------|-----------|
| | EXCL APT | CURRENT | FUTURE | CHANGE |
| FARM | 2426 | 0 | 5 | 5 |
| NATURAL RESOURCES | 156 | 0 | 0 | 0 |
| UTILITIES | 503 | 0 | 0 | 0 |
| BIOTECH/PHARMACEUTICALS | 0 | 0 | 0 | 0 |
| OTHER METALS & CHEM | 1739 | 0 | 0 | 0 |
| DP,ELEC & INSTRUMENT | 609 | 4 | 62 | 57 |
| AEROSPACE MFG | 0 | 0 | 0 | 0 |
| AUTO/TRANSPORT EQUIP MFG | 6332 | 5 | 123 | 118 |
| OTHER METAL GOODS | 3242 | 0 | 0 | 0 |
| NON-METAL MFG | 4330 | 2 | 42 | 41 |
| CONSTRUCTION | 4238 | 0 | 0 | 0 |
| RESTAURANT,BAR | 1760 | 8 | 140 | 132 |
| CATERING | 0 | 0 | 0 | 0 |
| HOTEL | 2237 | 40 | 106 | 66 |
| WHOLESALE/MAILORDER | 1540 | 4 | 59 | 55 |
| RETAIL STORES | 6260 | 0 | 0 | 0 |
| SALES, REPAIR of TRANSPORT | 6187 | 0 | 0 | 0 |
| AIR TRANSPORT | -- | -- | -- | -- |
| AIR TRAN GEN AV SUPPORT SER | -- | -- | -- | -- |
| MOTOR TRANS & OTHER LAND TI | 3859 | 1 | 13 | 12 |
| STORAGE/WAREHOUSING | 95 | 3 | 44 | 41 |
| TELEPORT, TELECOM | 1277 | 2 | 22 | 21 |
| OTHER TRANSPORT | 0 | 0 | 0 | 0 |
| BANKING & INVESTMENT | 961 | 0 | 6 | 5 |
| BUSINESS SERVICES | 5806 | 3 | 31 | 28 |
| INSURANCE, HIRING | 216 | 1 | 7 | 6 |
| GOVT, PUBLIC ADMIN | 5851 | 0 | 7 | 7 |
| CULTURAL/REC (TOURISM) | 452 | 0 | 0 | 0 |
| RESEARCH & DEVELOPMENT | 326 | 3 | 47 | 44 |
| OTHER SERV | 11780 | 0 | 0 | 0 |
| <u>UNCLASSIFIED (ADJUST)</u> | | <u>2</u> | <u>57</u> | <u>55</u> |
| TOTAL ADJACENT | 72182 | 78 | 771 | 693 |

C. REGIONAL BUSINESS ATTRACTED (NON-LOCAL)

(SEE I-O MODEL FOR SECTORAL BREAKDOWN)

| | | | |
|-------|------|-------|-------|
| TOTAL | 1611 | 13036 | 11425 |
|-------|------|-------|-------|

(P.6) RESULTS...

SCENARIO: xxxxxxxx

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**VI. FORECAST OF AIRPORT IMPACT ON LOCAL AREA DEVELOPMENT
(OFF-AIRPORT, NOT INCLUDING AIR TRANSPORT SERVICES)**

EMPLOYMENT GROWTH (OFF-AIRPORT ADJACENT AREA)

| | <i>CURRENT</i> | <i>-- AIRPORT-RELATED POTENTIAL--</i> | | | <i>% OF</i> |
|---------------------|------------------|---------------------------------------|---------------|---------------|------------------|
| | <i>5 km AREA</i> | <i>CURRENT</i> | <i>FUTURE</i> | <i>CHANGE</i> | <i>5 km AREA</i> |
| INDUSTRIAL | 13,765 | 6 | 139 | 133 | 1.0% |
| CONSTRUCTION & WA | 5,873 | 7 | 103 | 96 | 1.6% |
| OFFICE/R&D | 35,602 | 14 | 248 | 234 | 0.7% |
| RETAIL,RESTAURANT | 8,020 | 8 | 140 | 132 | 1.7% |
| HOTEL | 2,237 | 40 | 106 | 66 | 3.0% |
| TRANS & PUBLIC UTIL | 5,136 | 2 | 35 | 33 | 0.6% |
| TOTAL | 70,633 | 78 | 771 | 693 | 1.0% |

GROSS BUILDING SPACE DEMAND (1000 m2)

| | <i>CURRENT</i> | <i>-- AIRPORT-RELATED POTENTIAL--</i> | | | <i>% OF</i> |
|---------------------|------------------|---------------------------------------|---------------|---------------|------------------|
| | <i>5 km AREA</i> | <i>CURRENT</i> | <i>FUTURE</i> | <i>CHANGE</i> | <i>5 km AREA</i> |
| INDUSTRIAL | 798 | 0.38 | 8.07 | 7.70 | 1.0% |
| WAREHOUSING | 1500 | 1.78 | 26.22 | 24.44 | 1.6% |
| OFFICE/R&D | 1158 | 0.45 | 8.05 | 7.60 | 0.7% |
| RETAIL,RESTAURANT | 149 | 0.15 | 2.61 | 2.46 | 1.7% |
| HOTEL | 100 | 1.78 | 4.74 | 2.95 | 3.0% |
| TRANS & PUBLIC UTIL | 477 | 0.22 | 3.24 | 3.02 | 0.6% |
| TOTAL | 4482 | 4.77 | 52.93 | 48.17 | 1.2% |

NET BUILDING SPACE DEMAND (1000 m2)

| | <i>FUTURE DEVEL POTENTIAL</i> |
|--------------------------|-----------------------------------|
| INDUSTRIAL | 6.16 |
| WAREHOUSING | 19.55 |
| OFFICE/R&D | 7.22 |
| RETAIL,RESTAURANT | 2.34 |
| HOTEL | 2.80 |
| TRANS & PUBLIC UTILITIES | 2.42 |
| TOTAL | 40.48 |

(P.7) RESULTS

SCENARIO: xxxxxxxx

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**VII. FORECAST OF DIRECT IMPACT ON NEW JOBS, INCOME AND VALUE ADDED
at airport and in surrounding region**

| CATEGORY | -----POTENTIAL ADDITION----- | | |
|--|------------------------------|------------------|-----------------------------|
| | JOB number | INCOME 1000's | GROSS VALUE ADDED 1000's |
| 11 Agriculture and hunting | 5 | 89 | 136 |
| 12 Forestry and logging | 0 | 0 | 0 |
| 13 Fishing, operation of fish farms | 0 | 0 | 0 |
| 21-25 Mining | 0 | 0 | 0 |
| 22 Extraction of crude petroleum and natural | 0 | 0 | 0 |
| 23 Mining of gold and uranium ore | 0 | 0 | 0 |
| 24 Mining of metal ores | 0 | 0 | 0 |
| 25 Other mining and quarrying | 0 | 0 | 0 |
| 29 Service activities incidental to mining | 0 | 0 | 0 |
| 30 Food, beverages and tobacco products | 0 | 0 | 0 |
| 31 Textiles, clothing and leather goods | 0 | 0 | 0 |
| 32 Wood and wood products | 0 | 0 | 0 |
| 33 Fuel, chemical and rubber products | 0 | 0 | 0 |
| 34 Other non-metallic mineral products | 41 | 2,477 | 3,922 |
| 35 Metal products, machinery and household | 0 | 0 | 0 |
| 36 Electrical machinery and apparatus | 0 | 0 | 0 |
| 37 Electronic, sound/vision, medical & other a | 57 | 5,424 | 3,894 |
| 38 Transport equipment | 118 | 12,837 | 14,371 |
| 39 Furniture and other items NEC and recycli | 0 | 0 | 0 |
| 41 Electricity, gas, steam and hot water suppl | 0 | 0 | 0 |
| 42 Collection, purification and distribution of w | 0 | 0 | 0 |
| 50 Construction | 0 | 0 | 0 |
| 61 Wholesale and commission trade | 55 | 6,603 | 6,947 |
| 62 Retail trade and repairs of goods | 0 | 0 | 0 |
| 63 Sale and repairs of motor vehicles, sale of | 0 | 0 | 0 |
| 64 Hotels and restaurants | 199 | 2,755 | 4,567 |
| 71 Land transport | 12 | 831 | 1,112 |
| 72 Water transport | 0 | 0 | 0 |
| 73 Air transport | 746 | 129,471 | 169,609 |
| 74 Supporting transport activities (inc. storage | 41 | 9,540 | 14,141 |
| 75 Post and telecommunication | 21 | 2,828 | 7,816 |
| 81 Financial intermediation | 5 | 743 | 1,066 |
| 82 Insurance and pension funding | 6 | 697 | 1,063 |
| 83 Activities auxiliary to financial intermediatio | 0 | 0 | 0 |
| 84 Real estate activities | 0 | 0 | 0 |
| 85 Renting of machinery and equipment | 0 | 0 | 0 |
| 86 Computer and related activities | 0 | 0 | 0 |
| 87 Research and development | 44 | 2,480 | 4,235 |
| 88 Other business activities | 28 | 1,213 | 1,934 |
| 91 Public administration and defence activitie | 7 | 778 | 484 |
| 92 Education | 0 | 0 | 0 |
| 93 Health and social work | 0 | 0 | 0 |
| 94 Other community, social and personal serv | 0 | 0 | 0 |
| 95 Activities of membership organisations | 0 | 0 | 0 |
| 96 Recreational, cultural and sporting activitie | 0 | 0 | 0 |
| 99 Other service activities | 0 | 0 | 0 |
| Unclassified | 55 | 6,762 | 8,901 |
| Total | 1,439 | 185,528 | 244,197 |