

# Is Auckland a Knowledge Economy?

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# Background & Questions

- Knowledge intensive (KI) sectors support high wages
- KI firms congregate in larger agglomerations
  - and near major research centres
- Do we observe these trends in NZ?
- What about across Australasia?

# Outline

- Recap on economic geography issues (McCann)
- NZ & Australasian city KI trends
- Interpretation & questions for Auckland
  - Does Akld gain or lose from agglomeration trends?

# Economic Geography Forces (McCann, 2009)

- KI activities correlated with high living standards
- Non-routine KI activities cluster in large cities
  - increasingly so;
  - especially for KI services (KIS)
- Routine activities outsourced to periphery
  - cheaper rents & cheaper wages
- Medium/high tech mfg (HTM) location less clear

## Economic Geography Forces (cont)

- Large cities tend to be most productive
  - Industry composition effect
  - Location-specific effect (*localisation & urbanisation*)
- Pay premium & high rents within major cities
- Is Auckland a peripheral or core (KI) city?

# Path Dependence

- City dominance generally long-lived
- But not guaranteed
  - Dunedin 3<sup>rd</sup> largest city in 1901 (78% of Akld pop)
  - Whanganui 6<sup>th</sup> largest in 1901 (flax collapsed)
  - Detroit's future ???
- Will Akld stay a major urban area?
  - or end up like Dunedin/Whanganui?

## 2009 Populations & Pop Growth rates: 1991-2009

• Auckland	1,333,000	(52%)
• Christchurch	386,000	(27%)
• Wellington	386,000	(19%)
• Hamilton	200,000	(37%)
• Napier/Hastings	123,000	(12%)
• Tauranga	118,000	(68%)
• Dunedin	116,000	(8%)

Auckland = 31% of NZ population

# 2008/09 Population Australia & Auckland

- Sydney 4.4 million
- Melbourne 3.9 million
- Brisbane 1.9 million (SE Qld=2.9 million)
- Perth 1.6 million
- Auckland 1.3 million
- Adelaide 1.2 million

Auckland 5<sup>th</sup> largest city in Australasia



# Is Auckland core or periphery?

- Within NZ, Akld is core
  - 3 universities incl medical & engineering schools
- In Australasia, Sydney & Melbourne are core
  - Brisbane is catching up
- Expect KIS within NZ to gravitate to Akld
  - And KIS to leave Akld for Syd/Melb
- Do we see these trends?

# Data

- Use both industry and occupation KI definitions
- Industry data: OECD/EU definitions
- Occupation data: Canadian KI definitions
- All data are for urban areas
  - Downplay Wellington (given capital city status)

# Melbourne Statistical Division (Urban Area)



# Data (cont)

- All NZ data available 5-yrly: 1991-2006
- Aust industry data available 5-yrly: 1991-2006
  - Aust occupation data available 5-yrly: 1996-2006
- All data based on employment shares of KI sectors
  - as % total city employment

# KI Industries



- \* Medium & high tech manufacturing (HTM)
  
- \* Knowledge Intensive Services (KIS)
  - High-Tech (KIS-HT)                      incl: comm's, computing, R&D
  - Financial (KIS-FIN)                      incl: finance, insurance
  - Market (KIS-MKT)                      incl: real estate, bus serv's, transp
  - Other (KIS-OTHER)                      incl: health, educ, culture & rec
  
- KIS-HT & KIS-FIN most prominent in intl studies

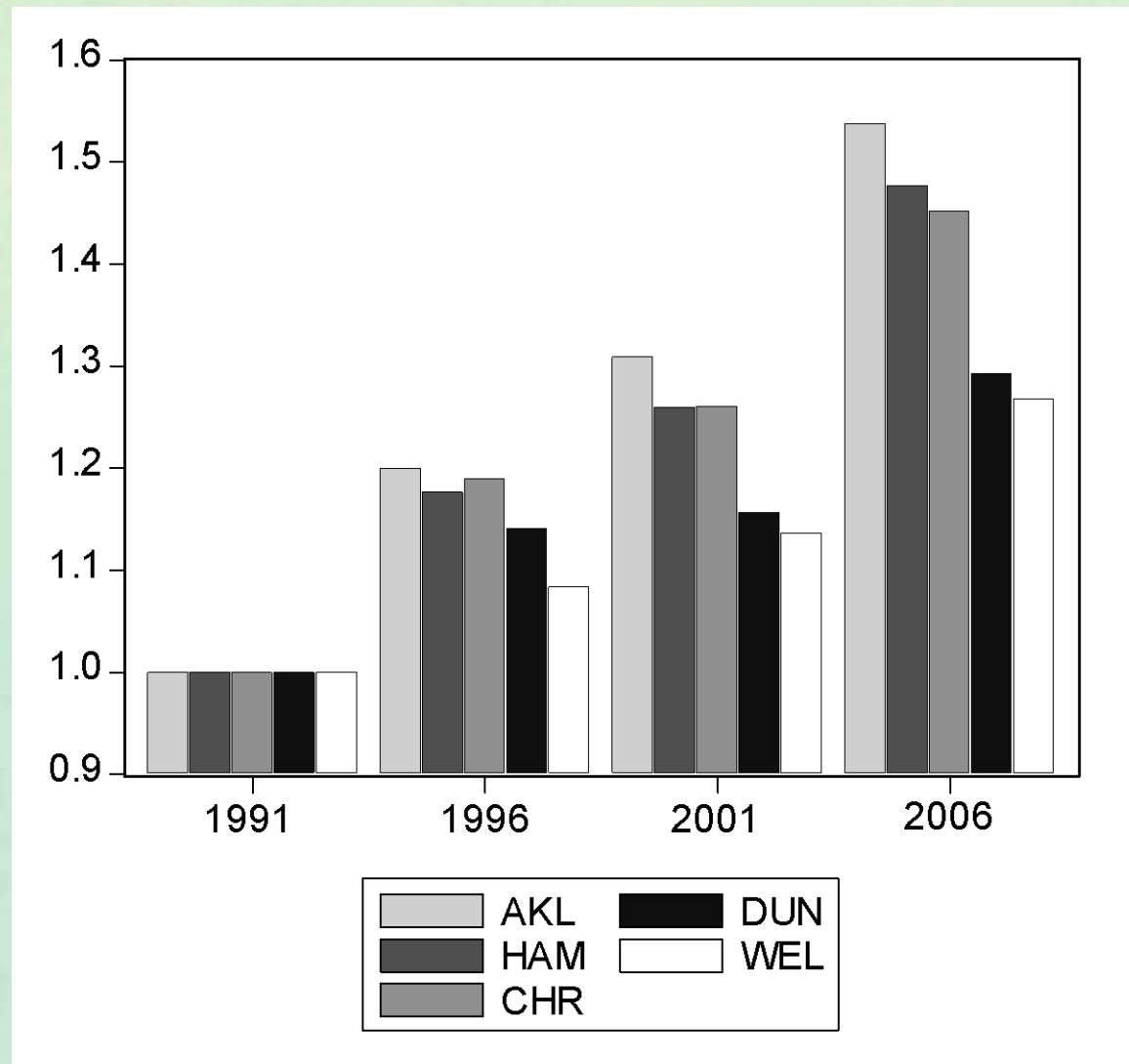
# KI Occupations



- \* Management
- \* Business professionals
- \* Science/engineering professionals
- \* Science – technical occupations
- \* Health professionals
- \* Other health occupations
- \* Education/law/social science (ELSS)
- \* Arts & culture professionals

# Total Employment Trends: 1991-2006

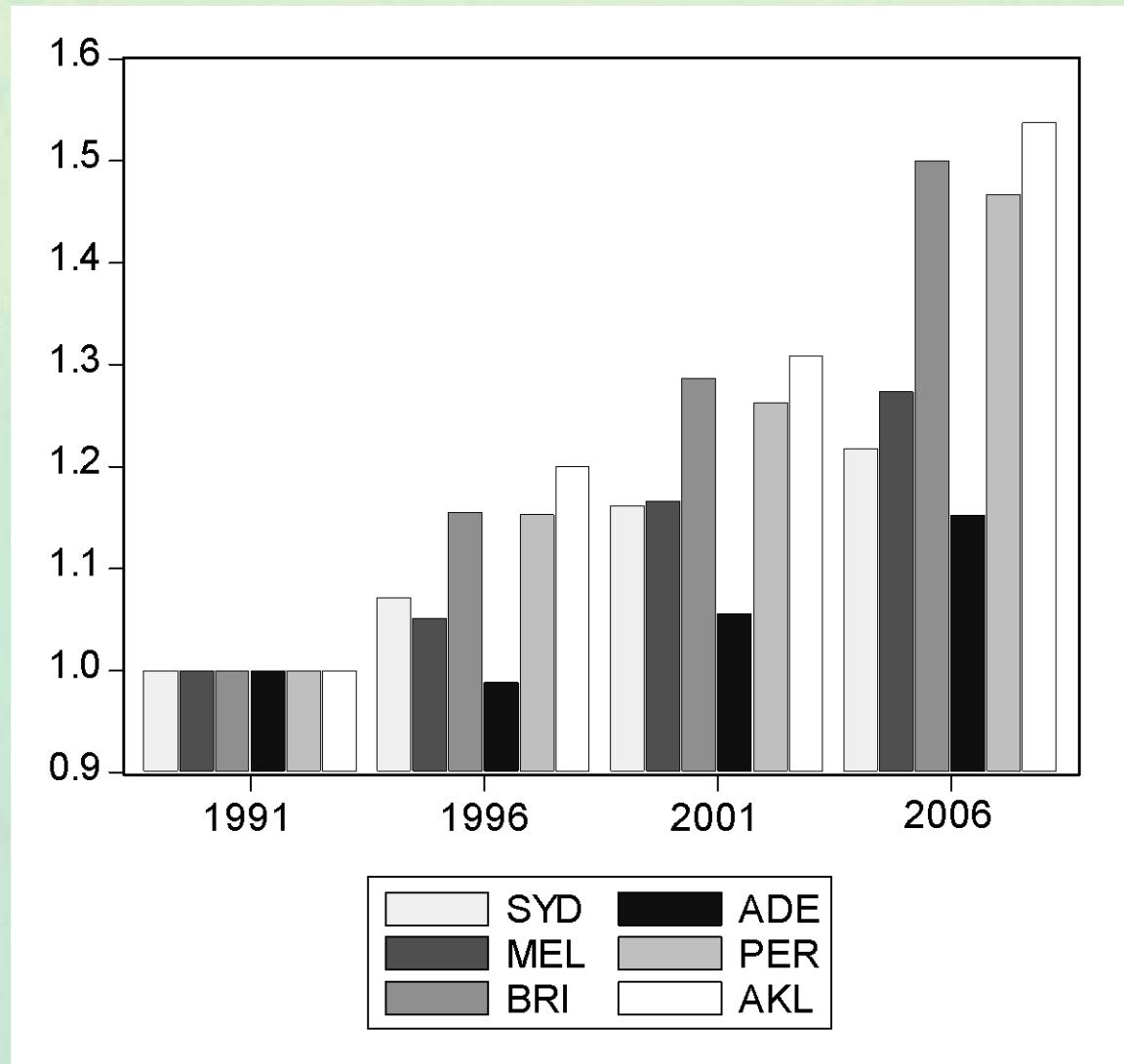
(1991 normalised to 1.0)  
New Zealand



# Total Employment Trends: 1991-2006

(1991 normalised to 1.0)

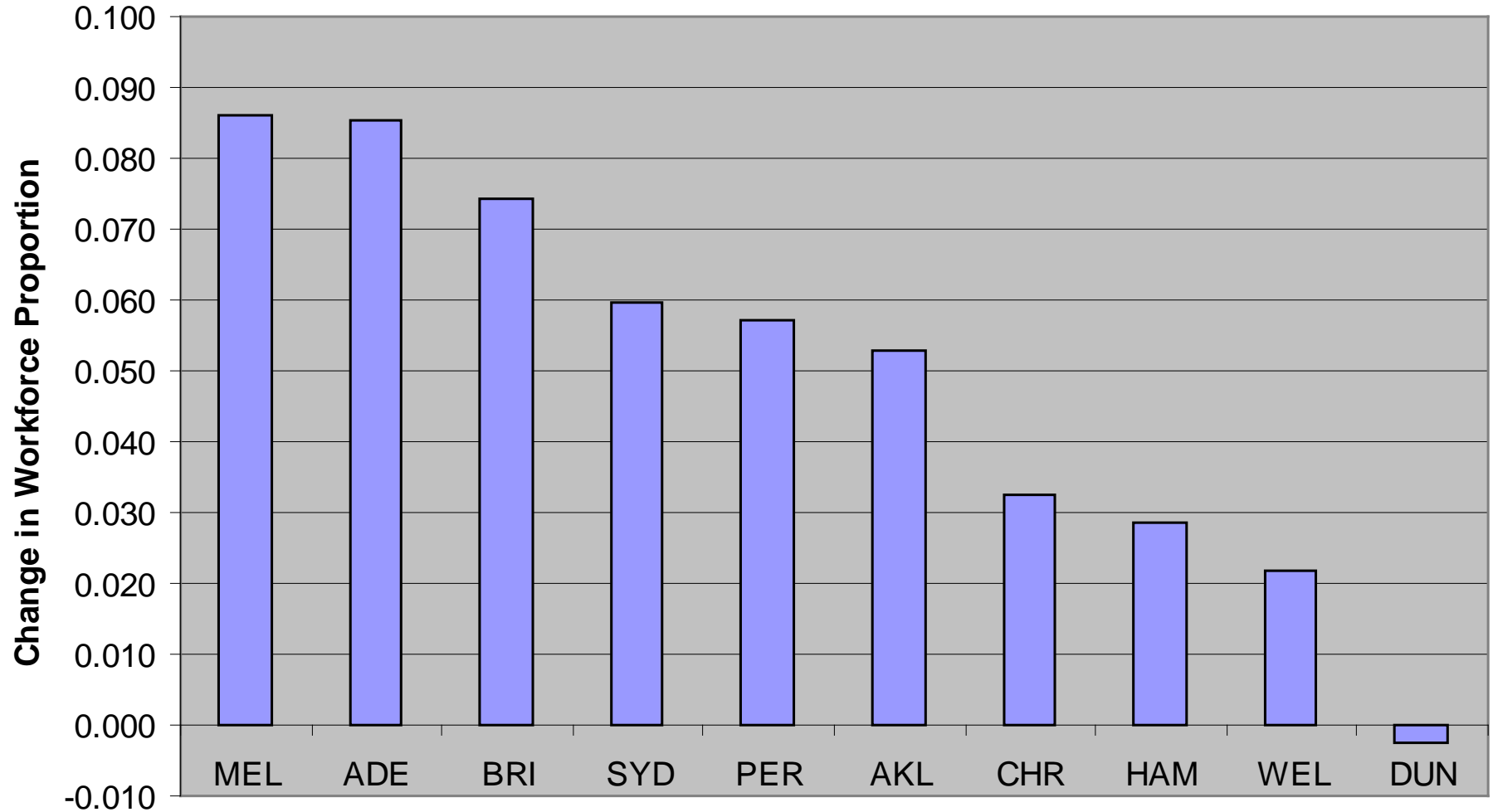
## Australia



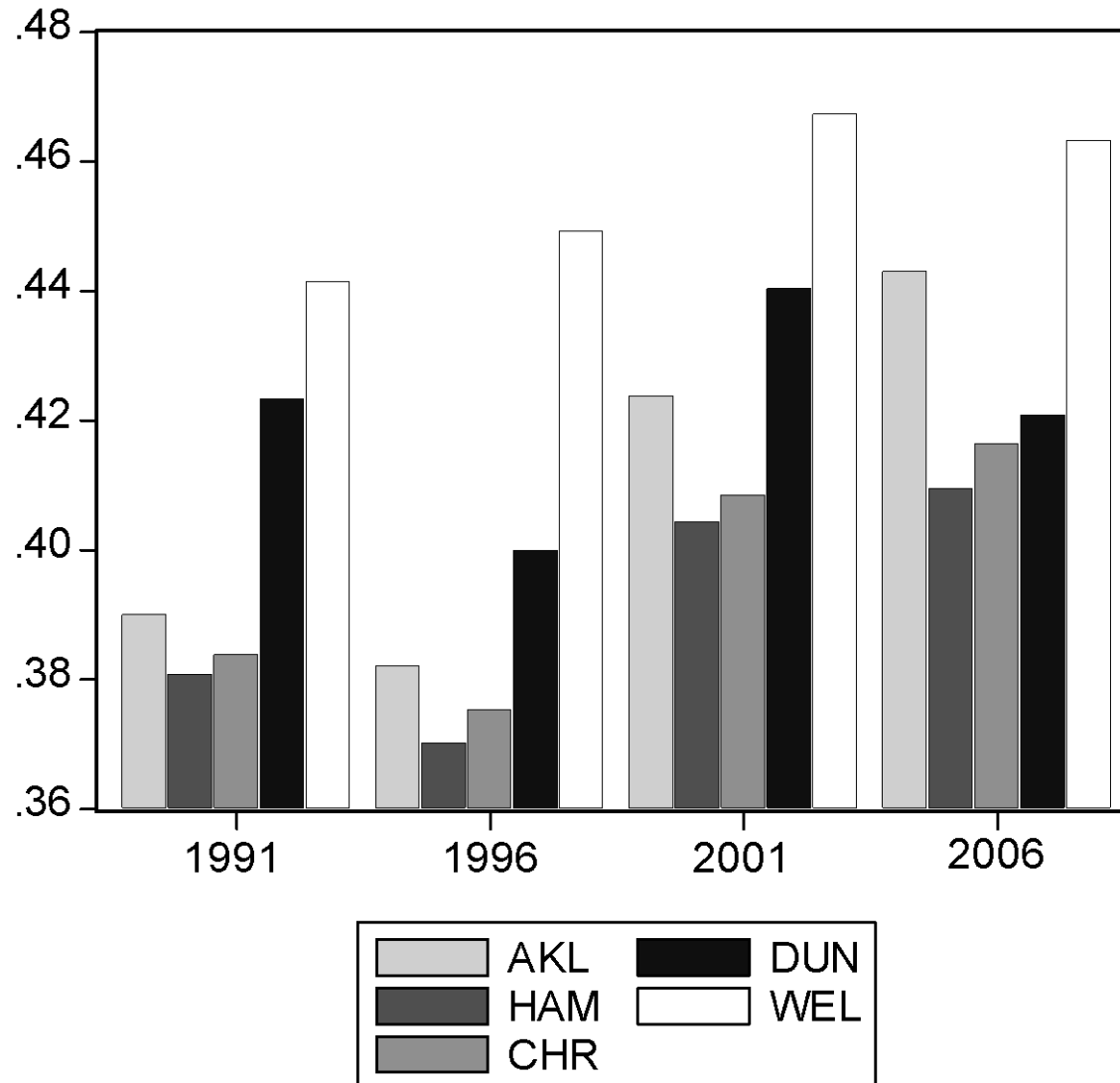


# HTM+KIS Share Changes

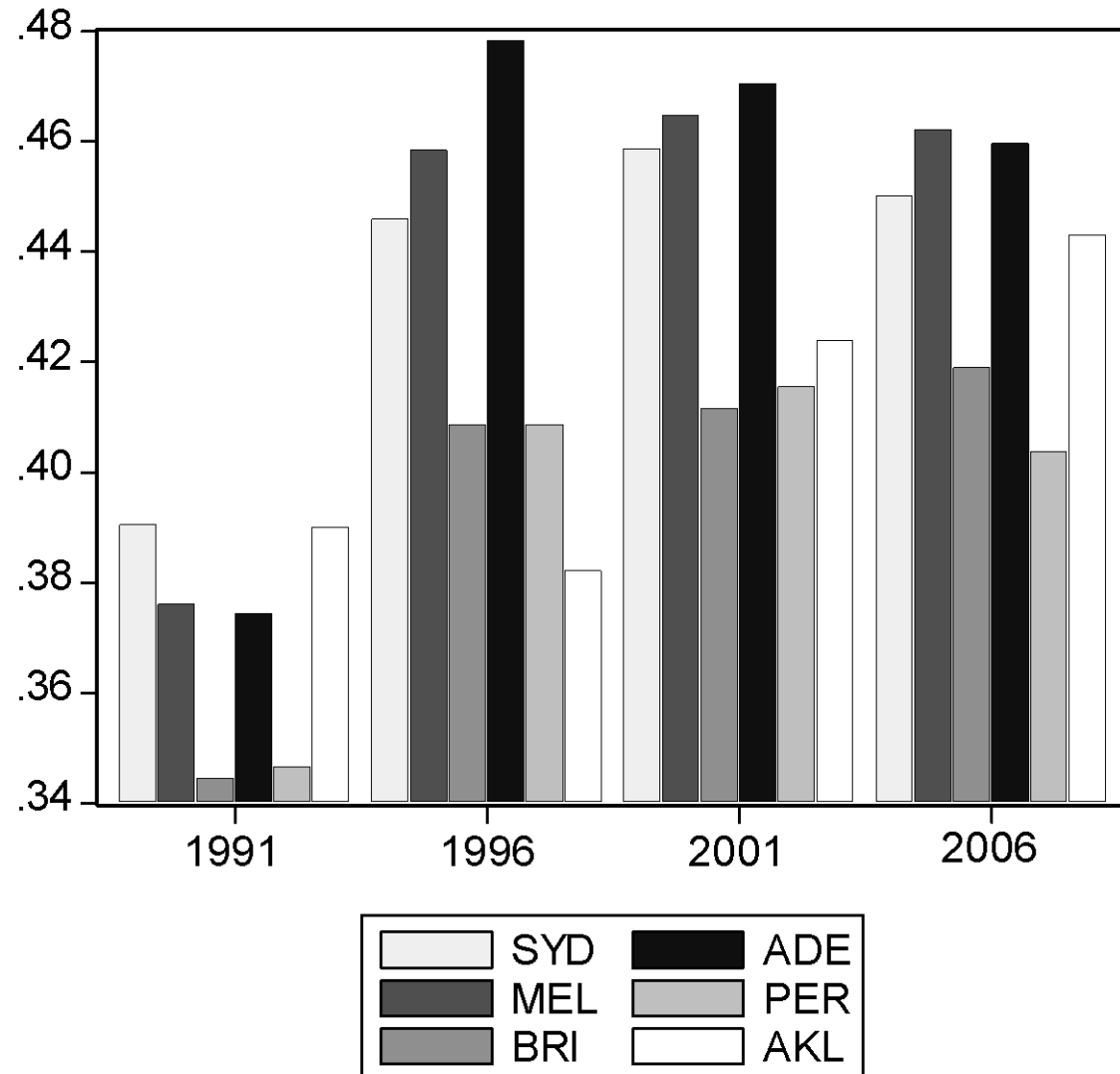
HTM+KIS: 1991 - 2006



# HTM+KIS: (employment shares) New Zealand

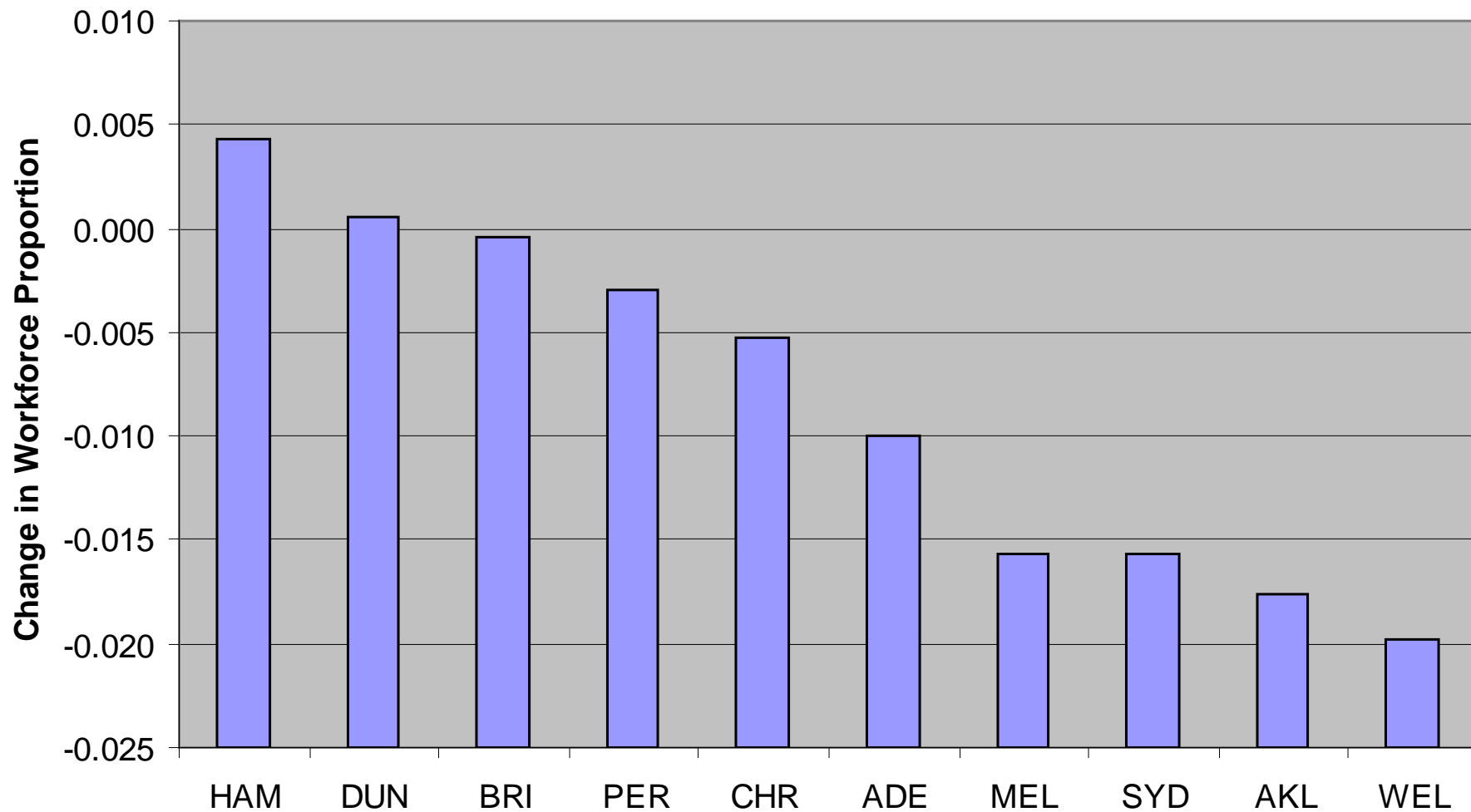


# HTM+KIS: (employment shares) Australia

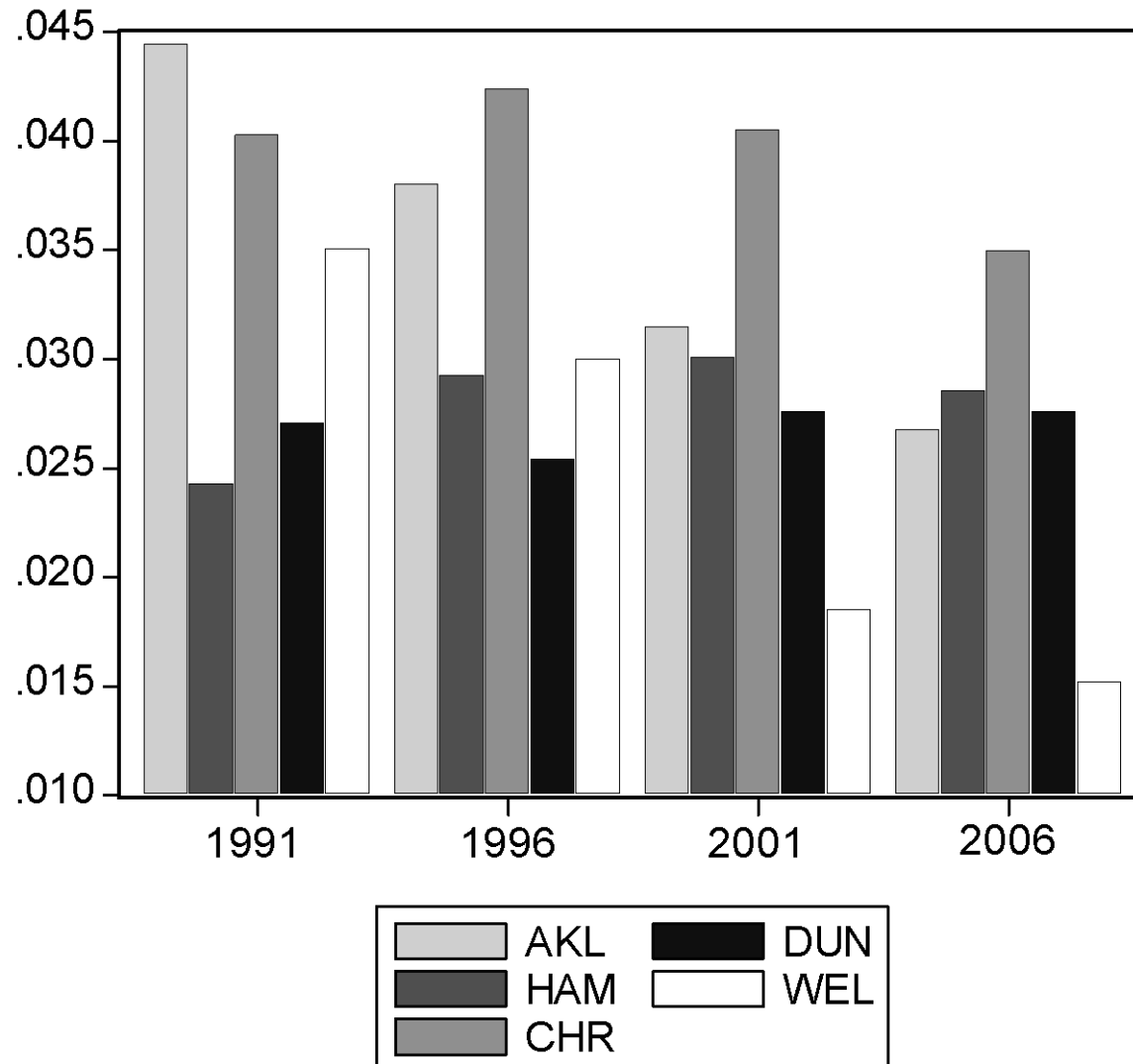


# HTM Share Changes

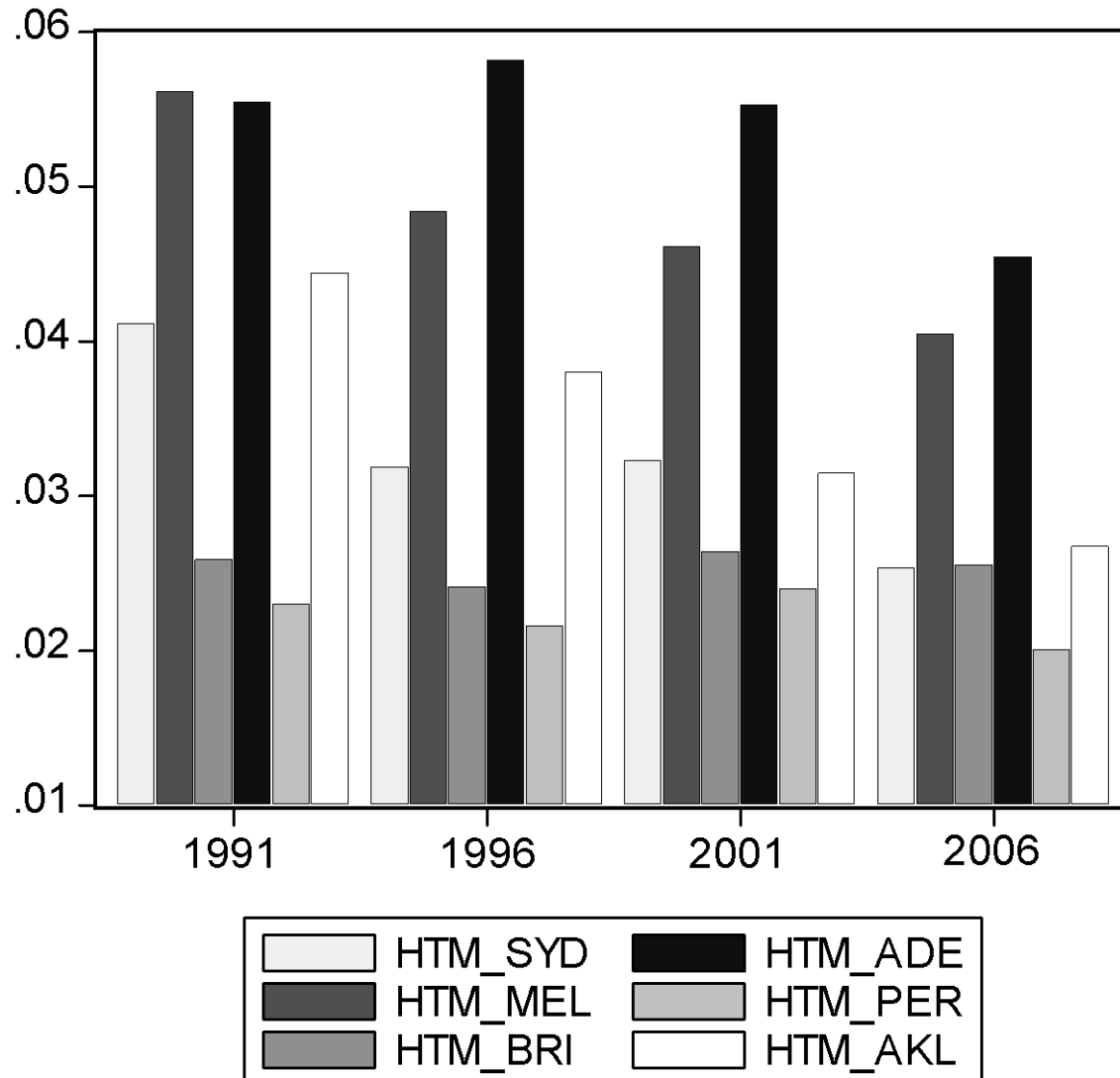
HTM: 1991 - 2006



# HTM: (employment shares) New Zealand

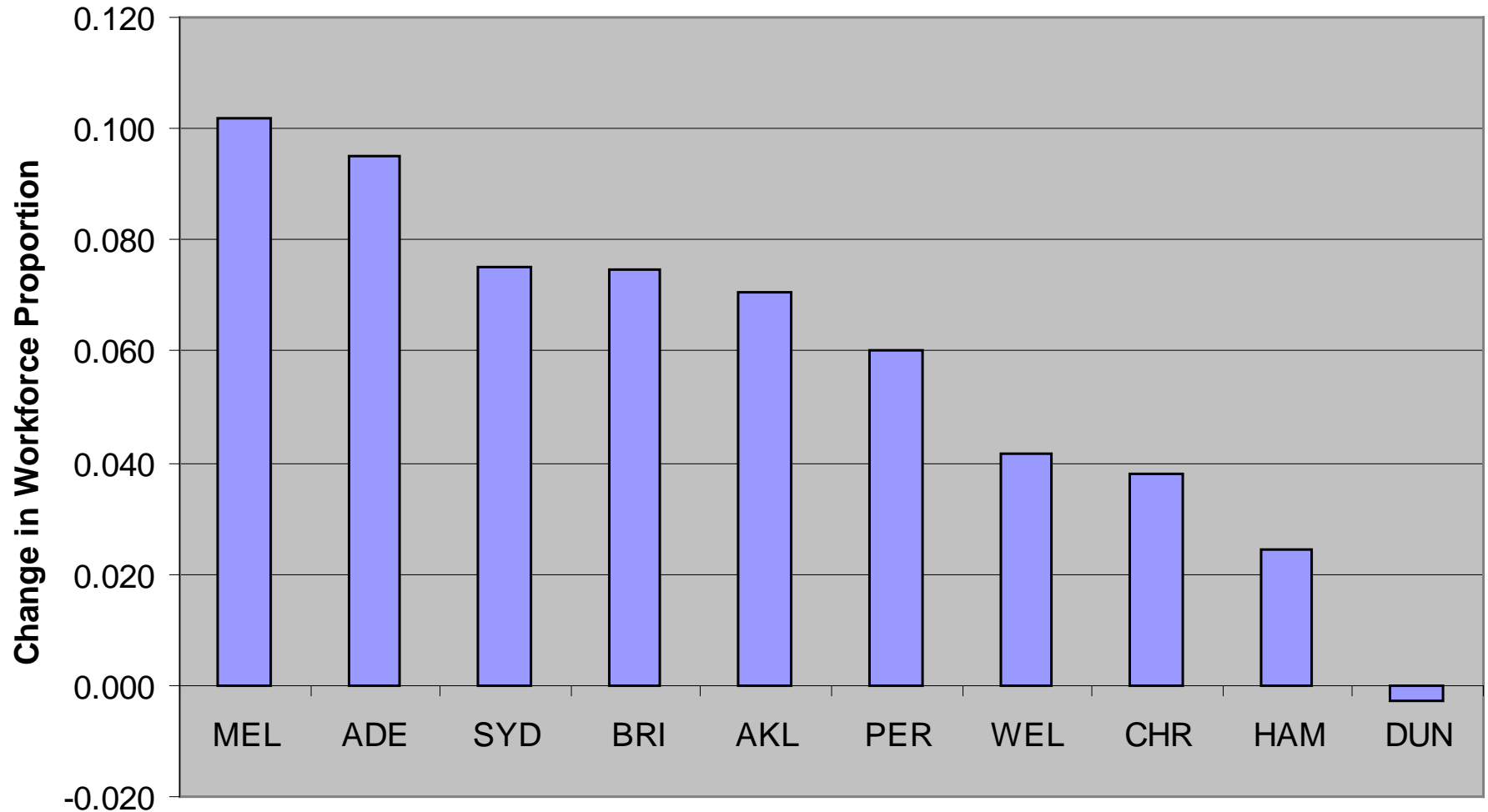


# HTM: (employment shares) Australia

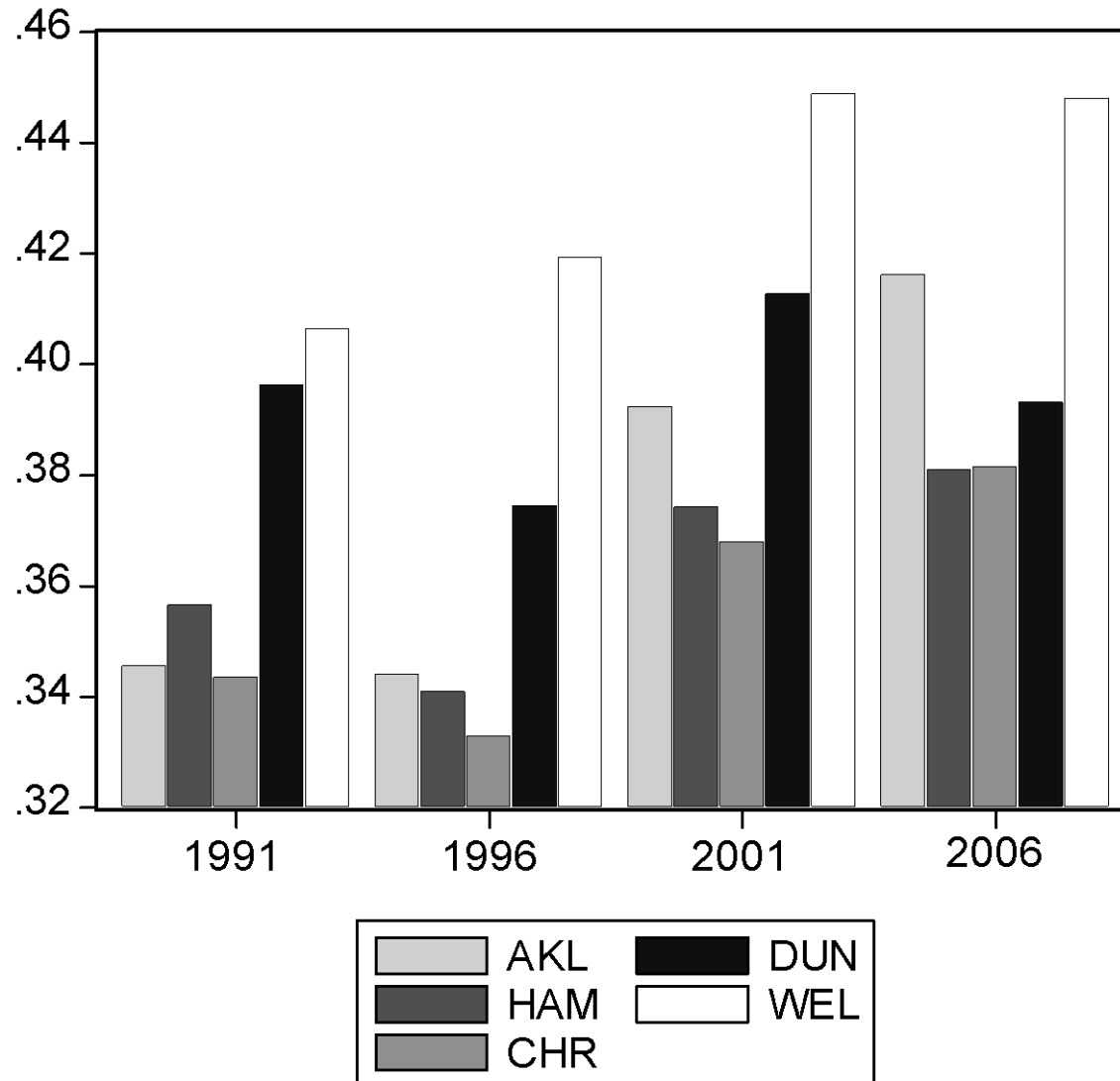


# KIS-TOTAL Share Changes

KIS-TOTAL: 1991 - 2006

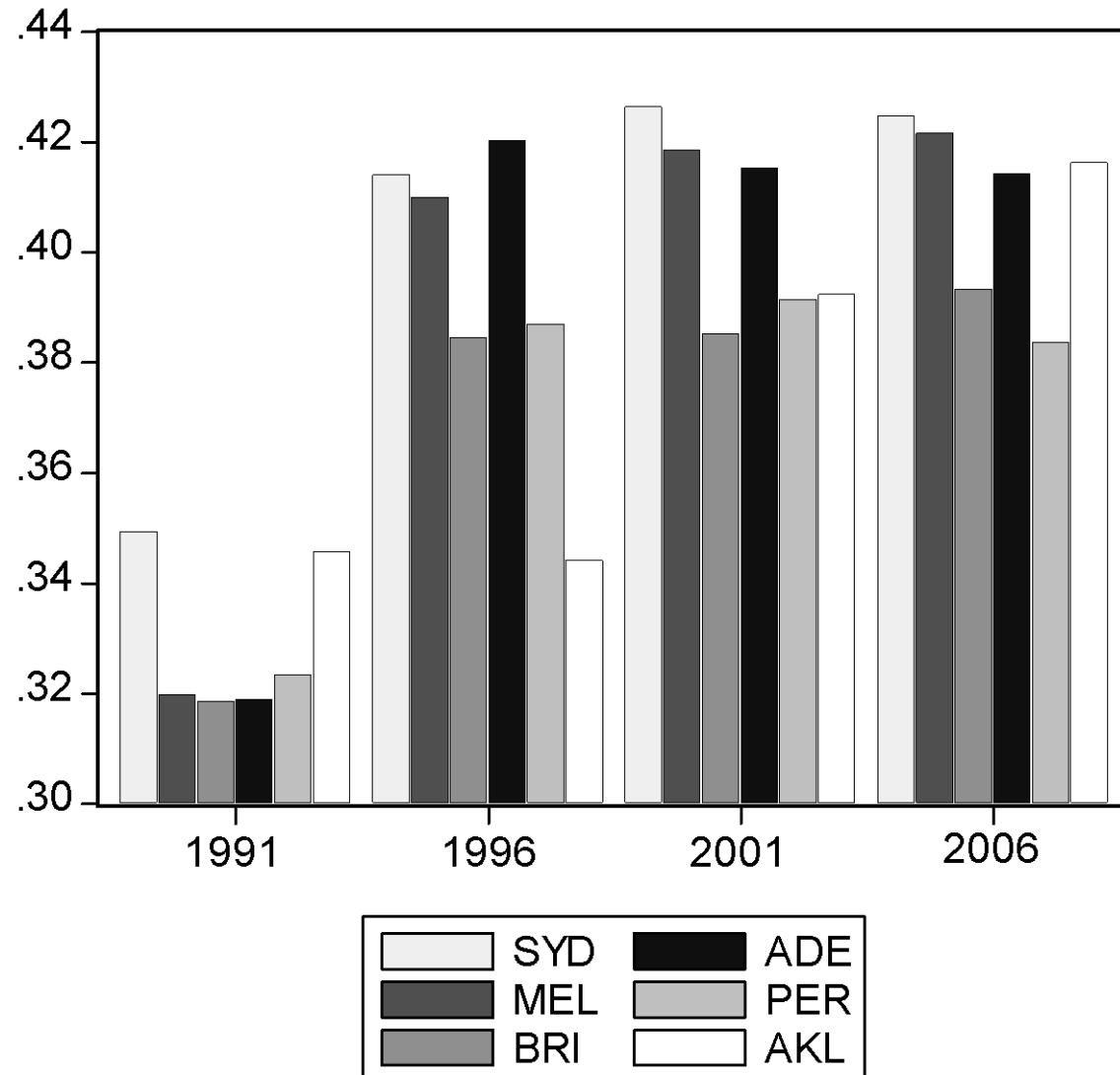


# KIS-Total: (employment shares) New Zealand



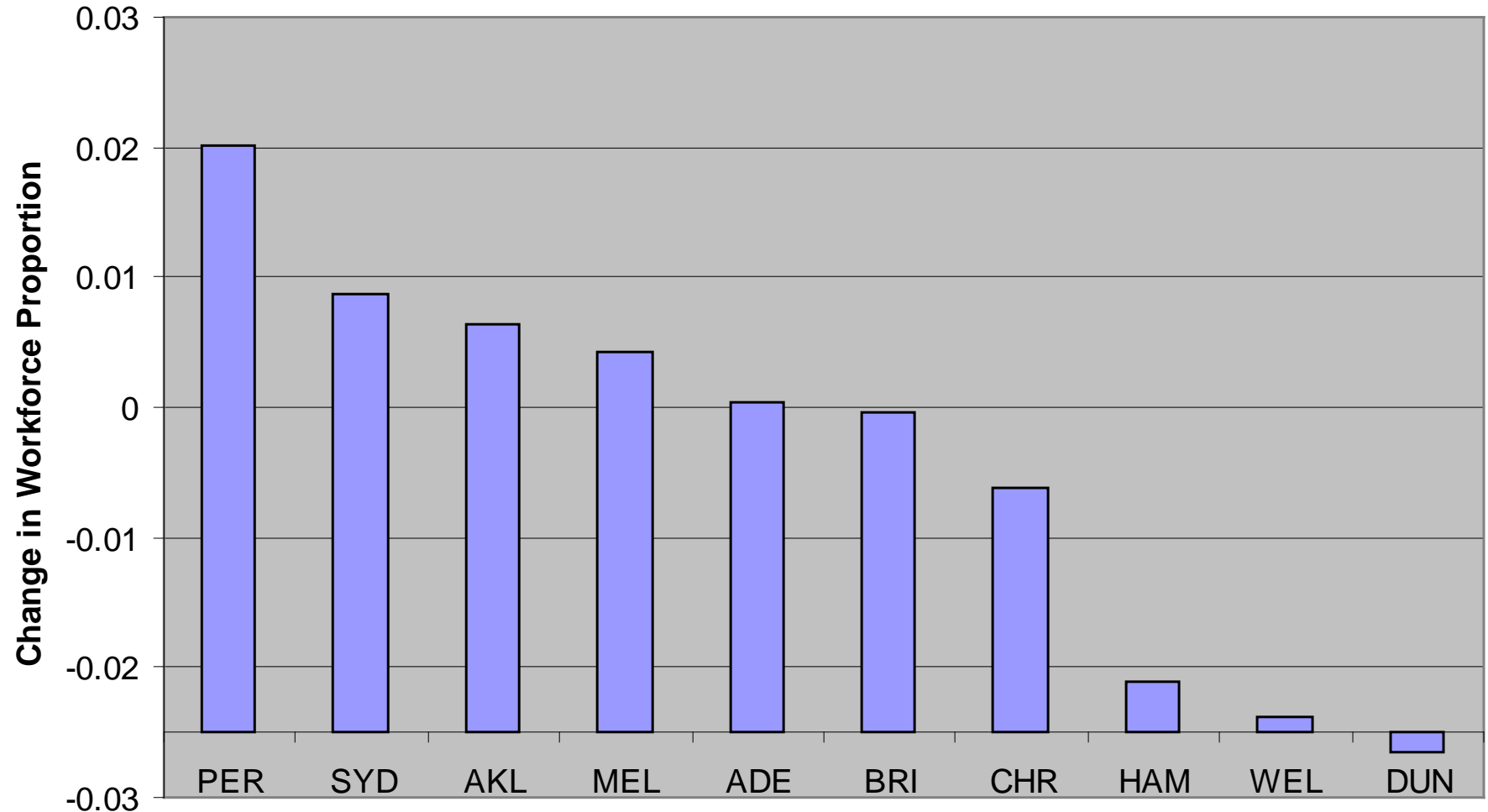


# KIS-Total: (employment shares) Australia



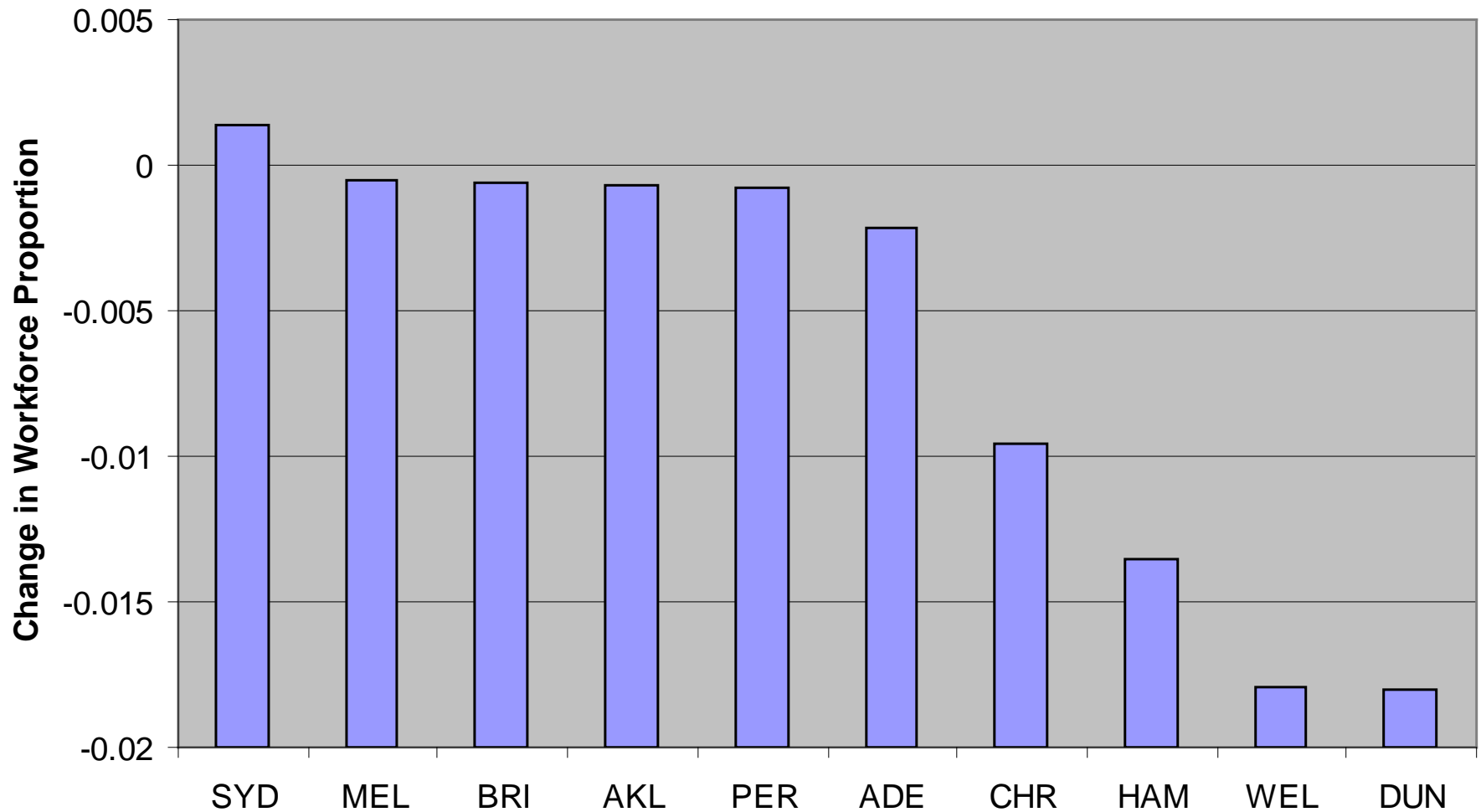
# KIS-HT+FIN Share Changes

KIS-HT+FIN: 1991 - 2006



# KIS-FIN Share Changes

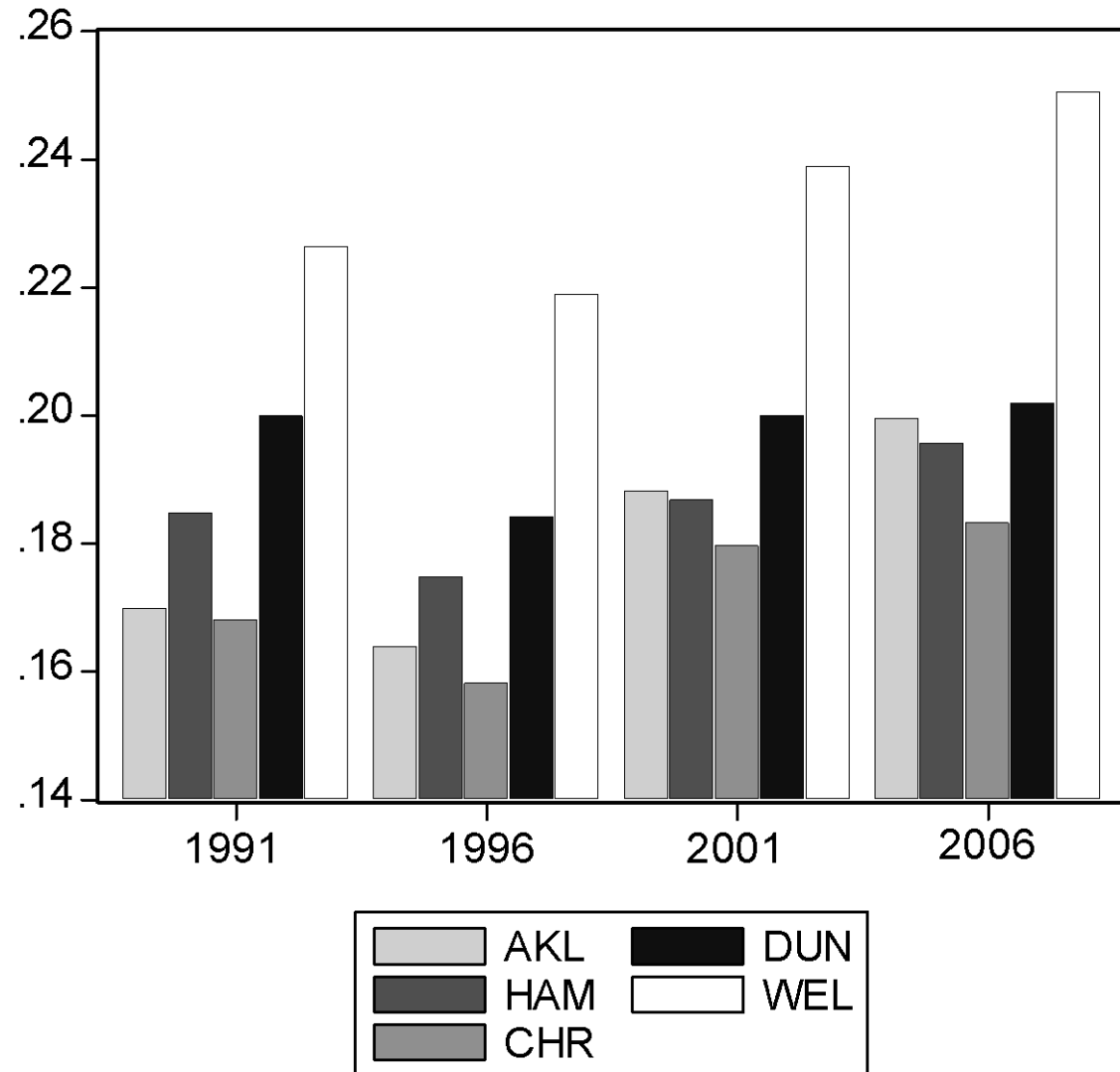
KIS-FIN: 1991 - 2006



# Auckland: Analysing KIS

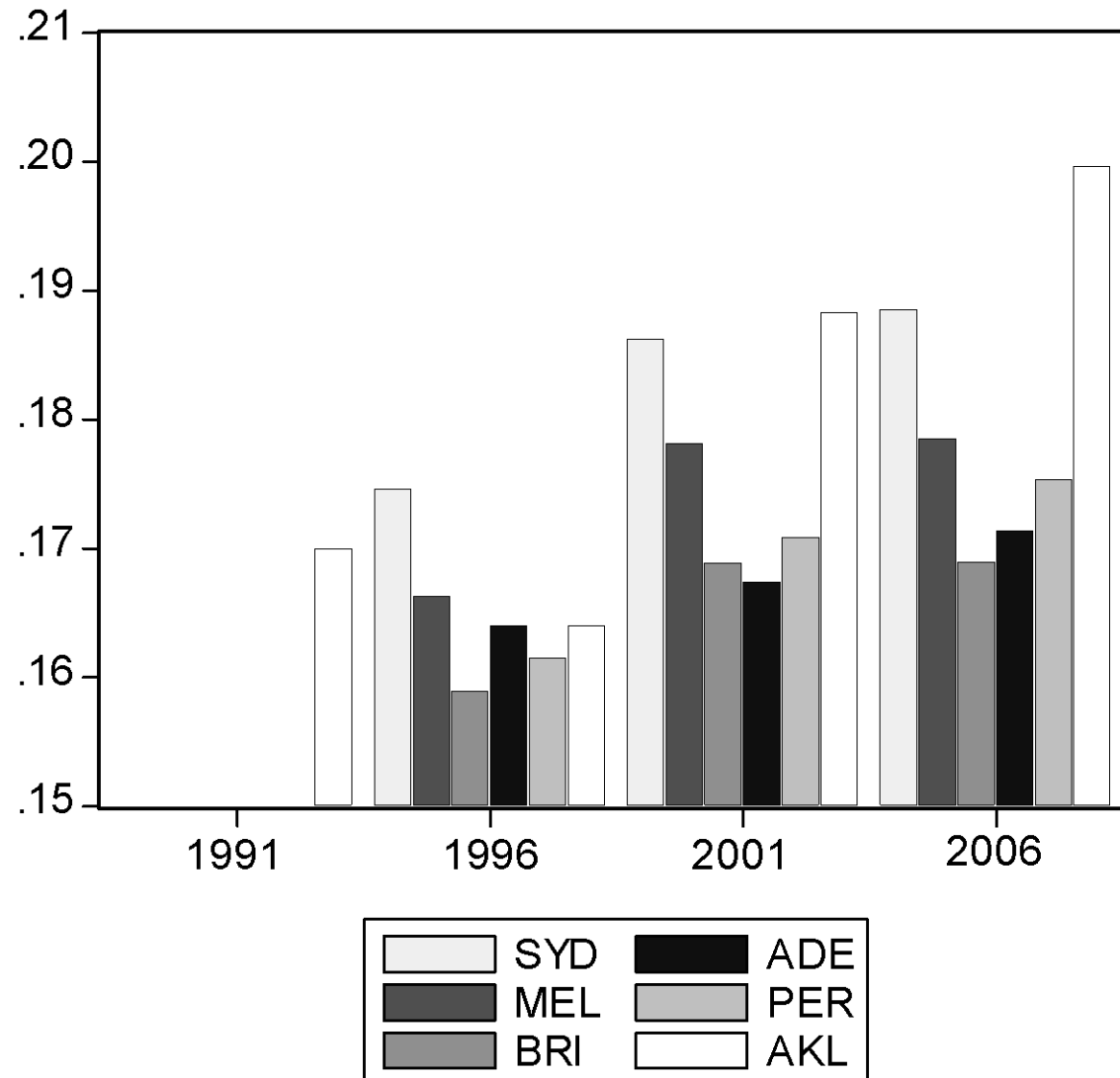
- Akld asserted new dominance in KIS-HT & KIS-FIN in NZ
- Akld kept pace with leading Aust cities for these
- Akld always dominant in NZ & Aust in KIS-MKT
- KIS-HT & KIS-FIN most important for agglomeration externalities

# Total Knowledge Workers (excl MGMT) New Zealand



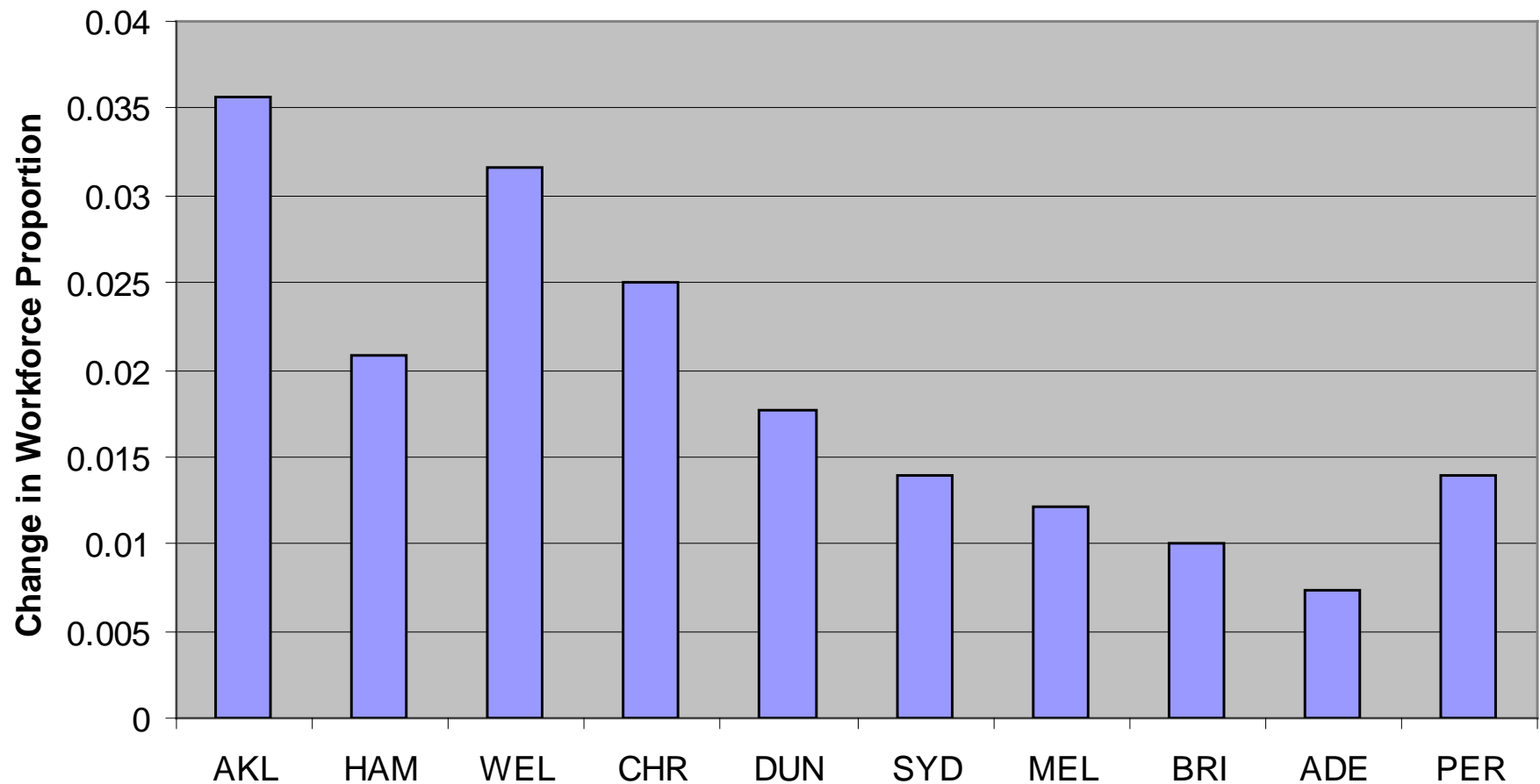
# Total Knowledge Workers (excl MGMT)

## Australia



# Knowledge Workers: Share Changes

TKW-excl MGMT: 1996-2006



# Analysing Total Knowledge Workers

- Akld dominant in Business Prof's in NZ
  - Up with Syd/Melb;
  - Well ahead of Brisbane/Adelaide/Perth
- Akld top in NZ & Aust for Science/Engineering
- Akld lowest on Health in NZ/Aust
- Low on Educ/Law/SS in NZ
  - Went from average to highest in Aust (cf Hazledine)
- Akld mid-ranked in NZ on arts/culture
  - But ahead of any Aust city



# Overall Interpretation

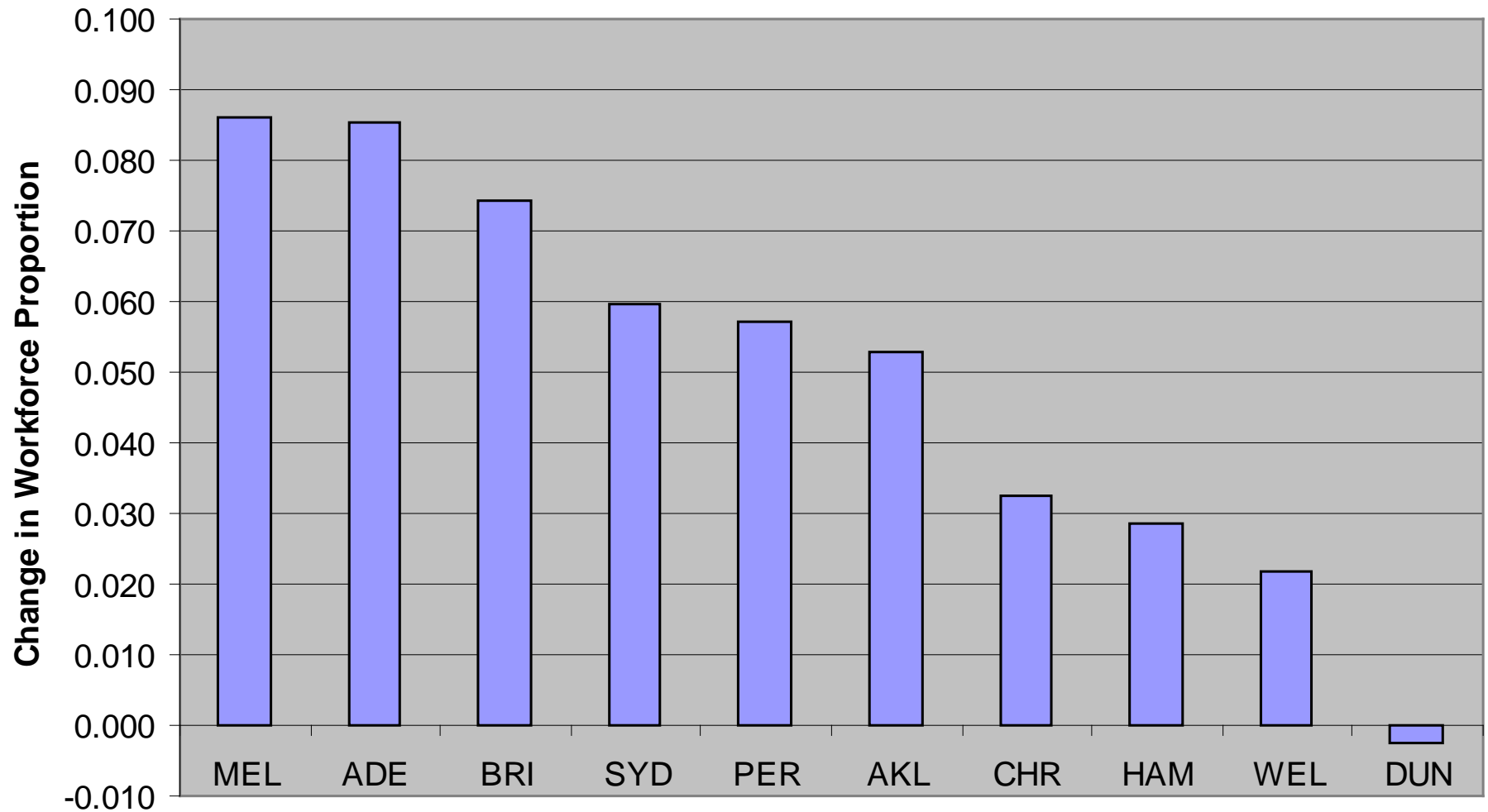
- Strong trend of KI activities → Akld within NZ
- Akld slipping cf Aust cities in KI activities
  - But still mid-ranked on levels
- These trends are consistent with agglomeration forces indicated by modern economic geography
- NB: Aust/NZ cities lowly ranked for KI activities (esp HTM) cf European peripheral cities

# Auckland's Situation

- Akld performs broadly as expected
  - dominant city in a peripheral country within a peripheral region
- Has low shares in health & social areas
  - Despite high-profile medical school & universities (cf Dun/Ham)
- No longer has same high HTM intensity as Chch
  - Despite both having major engineering schools
- Relationship btwn tertiary education & industry in Akld?
- But Akld (& NZ) has high % of knowledge workers
  - especially SCIENCE occupations

# Recap: HTM+KIS Share Changes

HTM+KIS: 1991 - 2006



# Final Observations



- Akld has sucked talent & firms from rest of NZ
  - and boosted its KI credentials
- Aust cities sucking talent & firms from Akld (& NZ)
- What happens when rest of NZ is sucked dry?
- NZ's KI-intensive workforce ripe for picking
- What are Akld's KI advantages?
- Are they being capitalised upon?