Maximising Utility:
Taking Measures of Wellbeing Seriously in Policy

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Outline

- Economic policy goals
  - & issues with conventional macro indicators
- Subjective wellbeing & the Easterlin paradox
- New Zealand welfare in a global perspective
  - levels
  - distribution
- Revealed preference: Migration & the life-cycle
- Implications for policy

ECON 101

Maximise UTILITY subject to constraints, i.e.:

Max: U = f(consumption, leisure, amenities, …)
s.t.:   budget constraint
        hours constraint
        other (societal/personal) constraints

No theoretical limitations on what is in the utility f^n

What might be in the utility function?

- Market goods & services consumption
- Non-market goods & services consumption (e.g. public art)
- Enjoyment from natural amenities
- Leisure
- Satisfaction from time with family & friends
- Environmental beauty/conservation
- Welfare of others (altruism)
- Welfare of future generations (sustainability)
- …

Since these are in peoples' utility functions, they are all <u>economic objectives</u>

Compare with typical macro-economic policy goals

- GDP per capita (level & growth)
- Full employment
- Price stability (inflation)
- Current account balance (BoP)
- Fiscal balance

- These goals ignore:
  - Demographics
  - Sustainability (can we maintain performance?)
  - Distribution (across various groups)
  - What people actually value

Other famous approaches: 1

There is good government when those who are near are made happy, and when those who are afar are attracted. (Confucius)

No man is an island, entire of itself, every man is a piece of the continent, a part of the main.   (John Donne, 1623)

Consumption is the sole end and purpose of production. ...” (Adam Smith, 1776)

Other famous approaches: 2

*The care of human life and happiness and not their destruction is the first and only legitimate object of good government." (*Thomas Jefferson)

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the <u>pursuit of Happiness</u>. (American Declaration of Independence, 1776)

GDP measures everything except that which is worthwhile … Even if we act to erase material poverty, there is another greater task, it is to confront the poverty of satisfaction - purpose and dignity - that afflicts us all (R. Kennedy, 1968)

Stiglitz, Sen, Fitoussi (SSF) Report, 2009

Commission on the Measurement of Economic Performance and Social Progress

(commissioned by President Sarkozy, 2008)

The Commission's aim has been to identify the limits of GDP as an indicator of economic performance and social progress

SSF: Environment

What we measure affects what we do; and if our measurements are flawed, decisions may be distorted...

Choices between promoting GDP and protecting the environment may be false choices, once environmental degradation is appropriately included in our measurement of economic performance.

SSF: Inequality

When there are large changes in inequality … GDP or any other aggregate computed per capita may not provide an accurate assessment of the situation in which most people find themselves.

If inequality increases enough relative to the increase in average per capita GDP, most people can be worse off even though average income is increasing.

SSF Recommendations

Recommendations 1 & 3: When evaluating material well-being, look at income, consumption and wealth rather than production.

Recommendation 2: Emphasise the household perspective.

Recommendations 4 & 7: Give more prominence to the distribution of income, consumption and wealth. Quality-of-life indicators in all the dimensions covered should assess inequalities in a comprehensive way.

SSF Recommendations (cont)

Recommendation 5: Broaden income measures to non-market activities.

Recommendation 6: Measure people's objective conditions and capabilities including: health, education, personal activities, environmental conditions, social connections, political voice, and insecurity.

SSF Recommendations (cont)

Recommendation 10: *Measure both objective and subjective well-being including people's life evaluations, hedonic experiences and priorities.*

Recommendations 11 & 12: *Adopt a dashboard of sustainability indicators including indicators of our proximity to dangerous levels of environmental damage (such as associated with climate change or the depletion of fishing stocks.)*
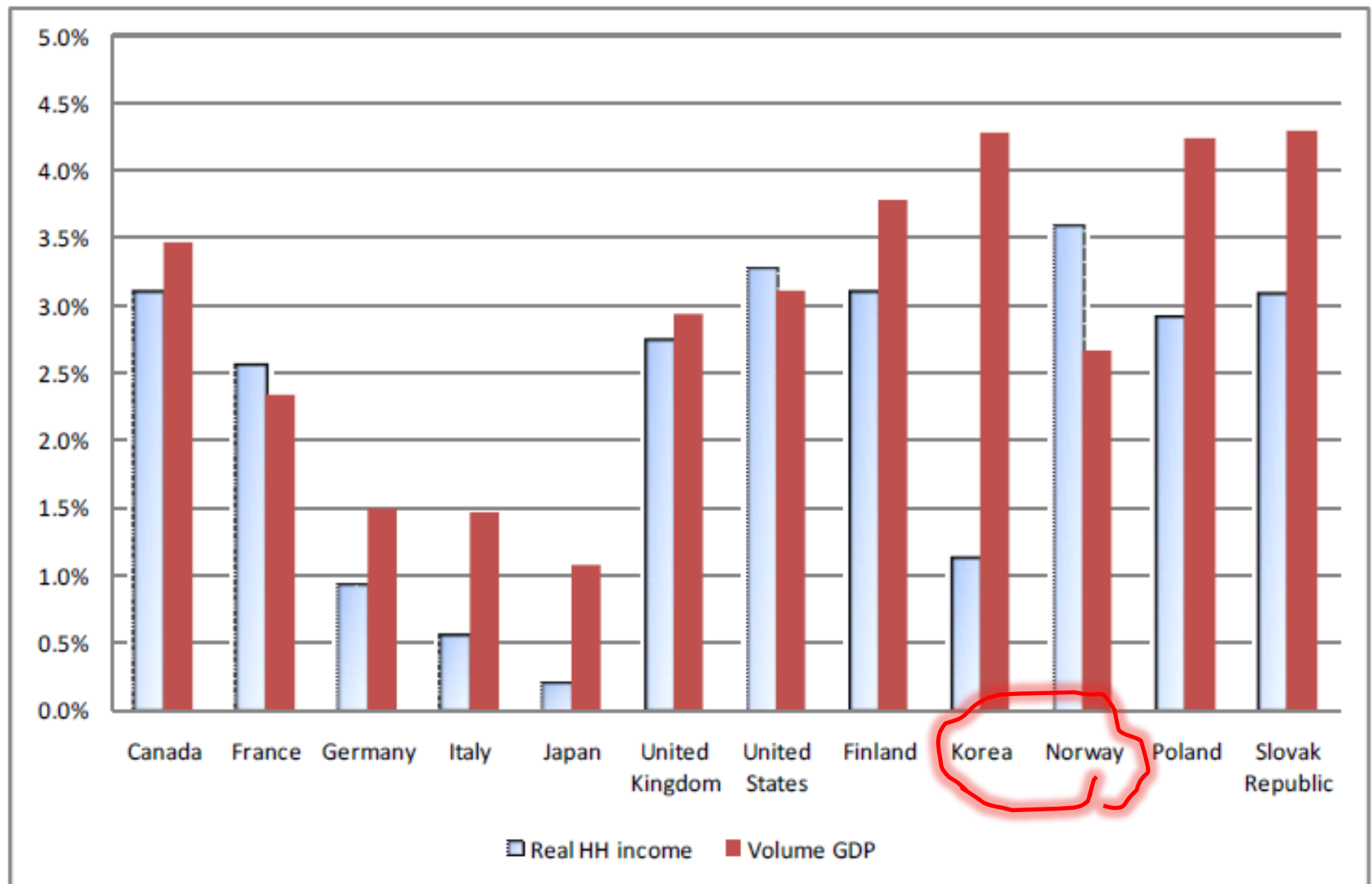
Ireland's GDP: Poor guide to national income

Figure 1.1. Net national disposable income as percentage of gross domestic product

Legend: France, USA, Ireland
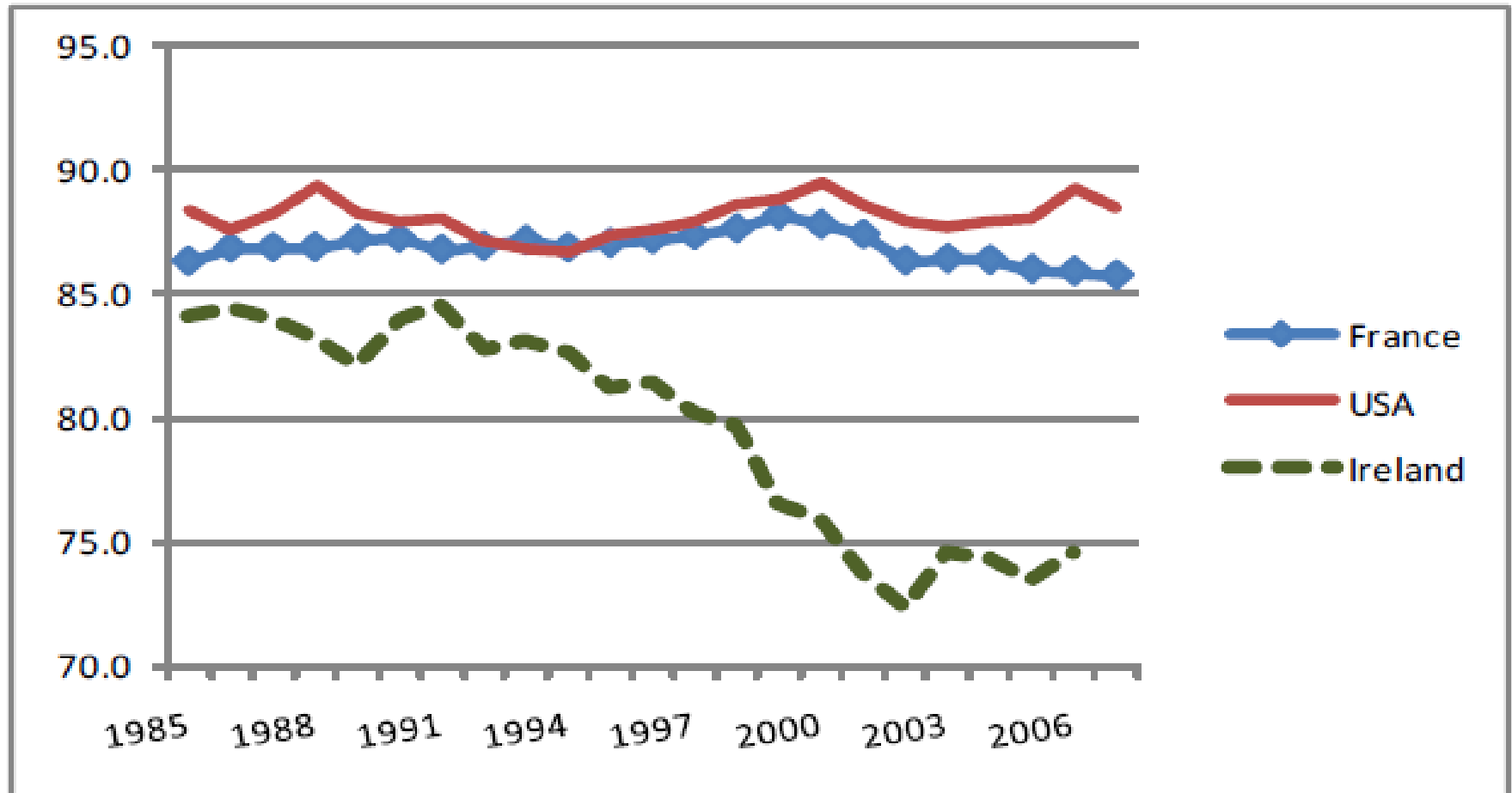
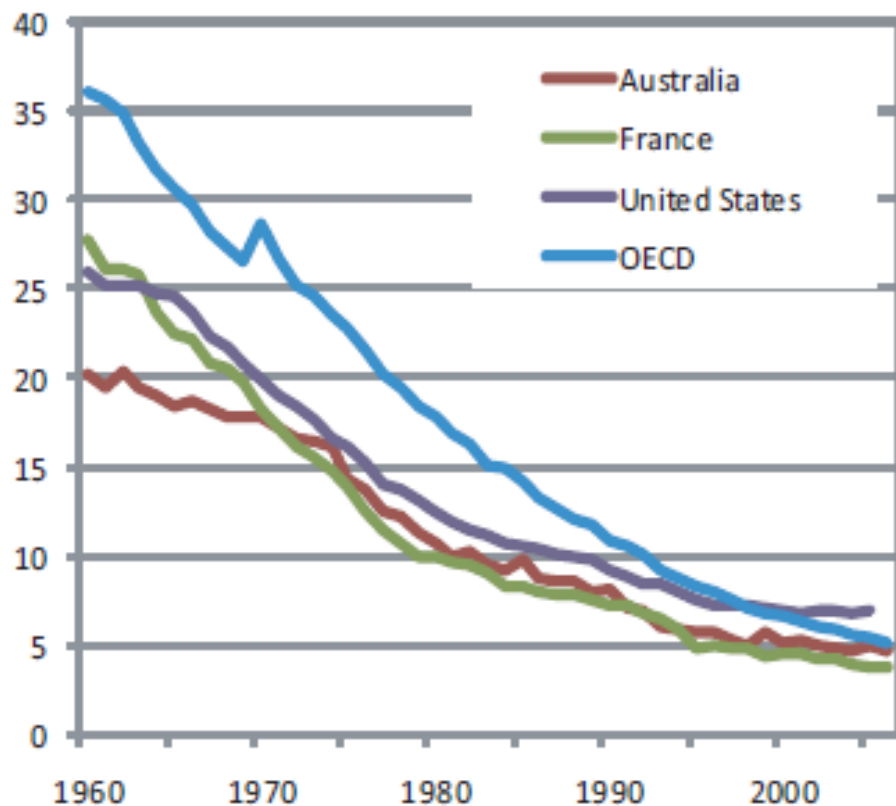*Source*: OECD Annual National Accounts.

Figure 7: Real household disposable income and GDP
Percentage growth at annual rate, 1996-2006

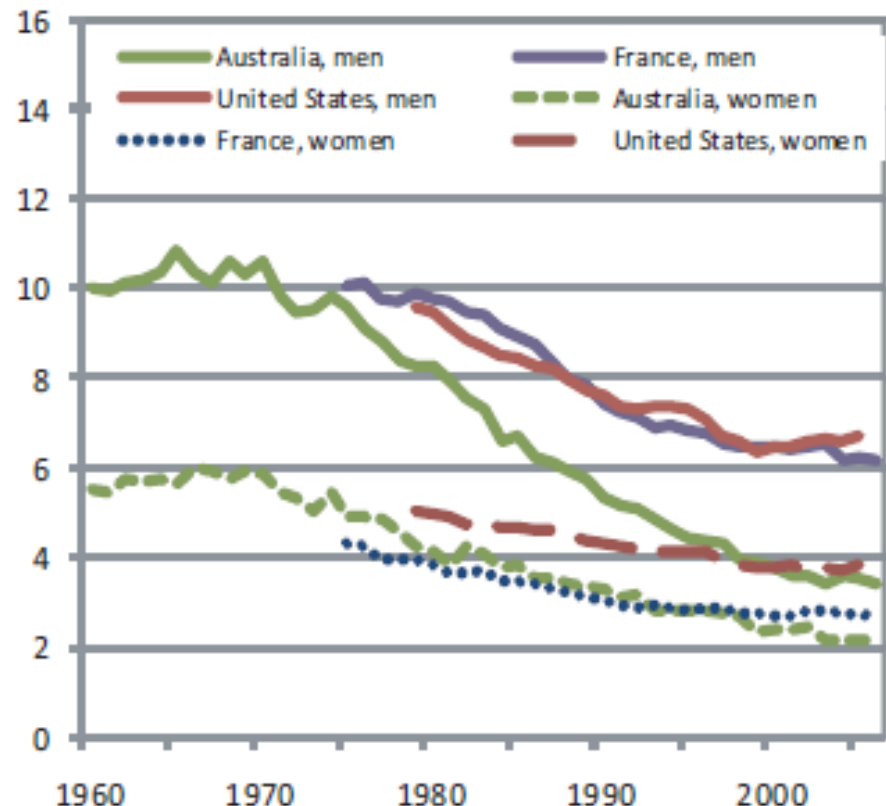# Figure 2.1. Trends in infant and adult mortality in selected countries

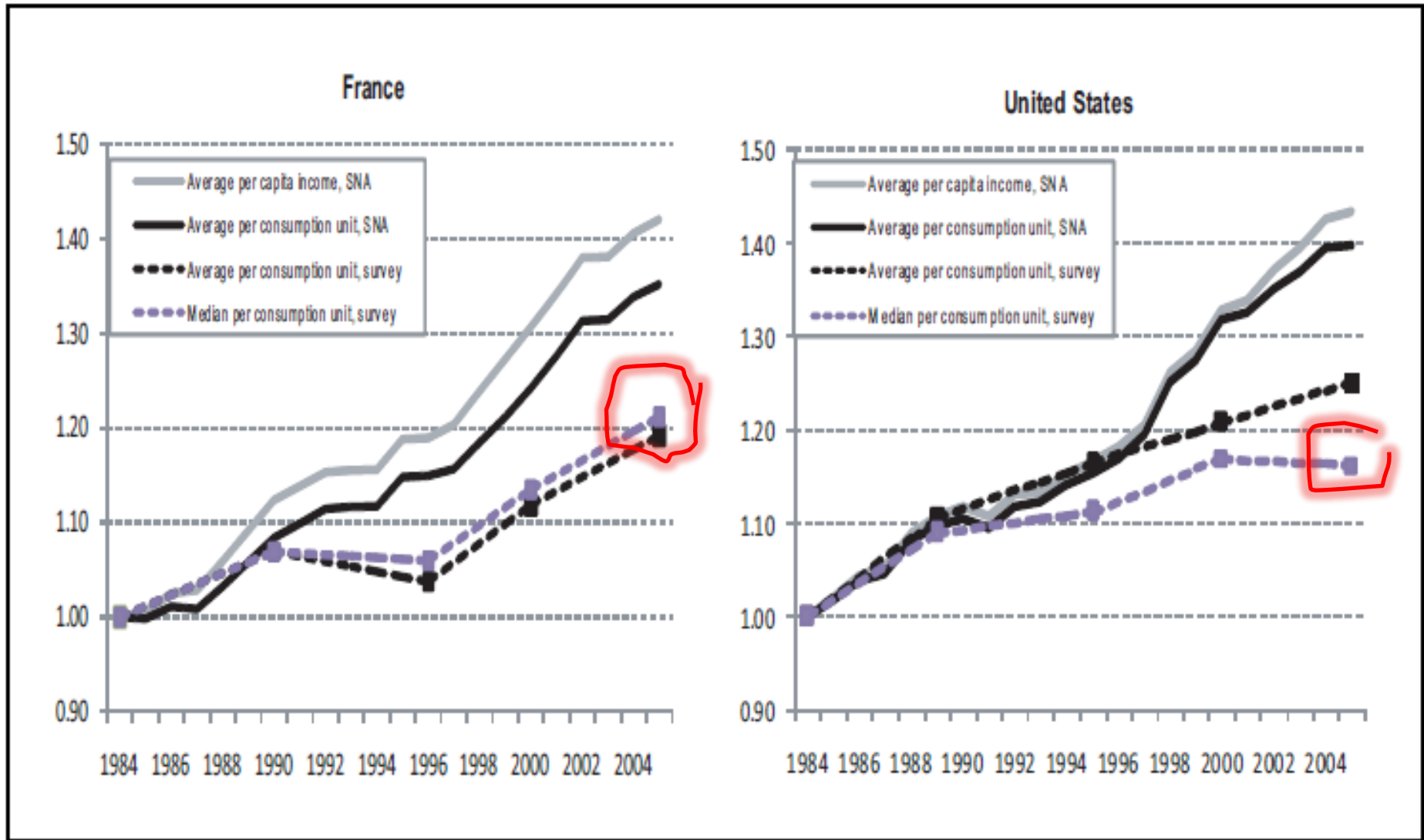Infant mortality, deaths per 1,000 live births

Death rate for men and women aged 50-54, deaths per 1,000 population


Source: OECD Health data.

Figure 1.5. Trends in different measures of household disposable income

France

Legend:
- Average per capita income, SNA
- Average per consumption unit, SNA
- Average per consumption unit, survey
- Median per consumption unit, survey

United States

Legend:
- Average per capita income, SNA
- Average per consumption unit, SNA
- Average per consumption unit, survey
- Median per consumption unit, survey

Source: Computations based on OECD SNA and income distribution data.

Consumption units are households whose size has been adjusted to take account of economies of scale in housing and other costs. This adjustment is of increasing importance as household size shrinks.

Figure 2.1. Gaps in GDP per capita and life expectancy at birth between the United States and France
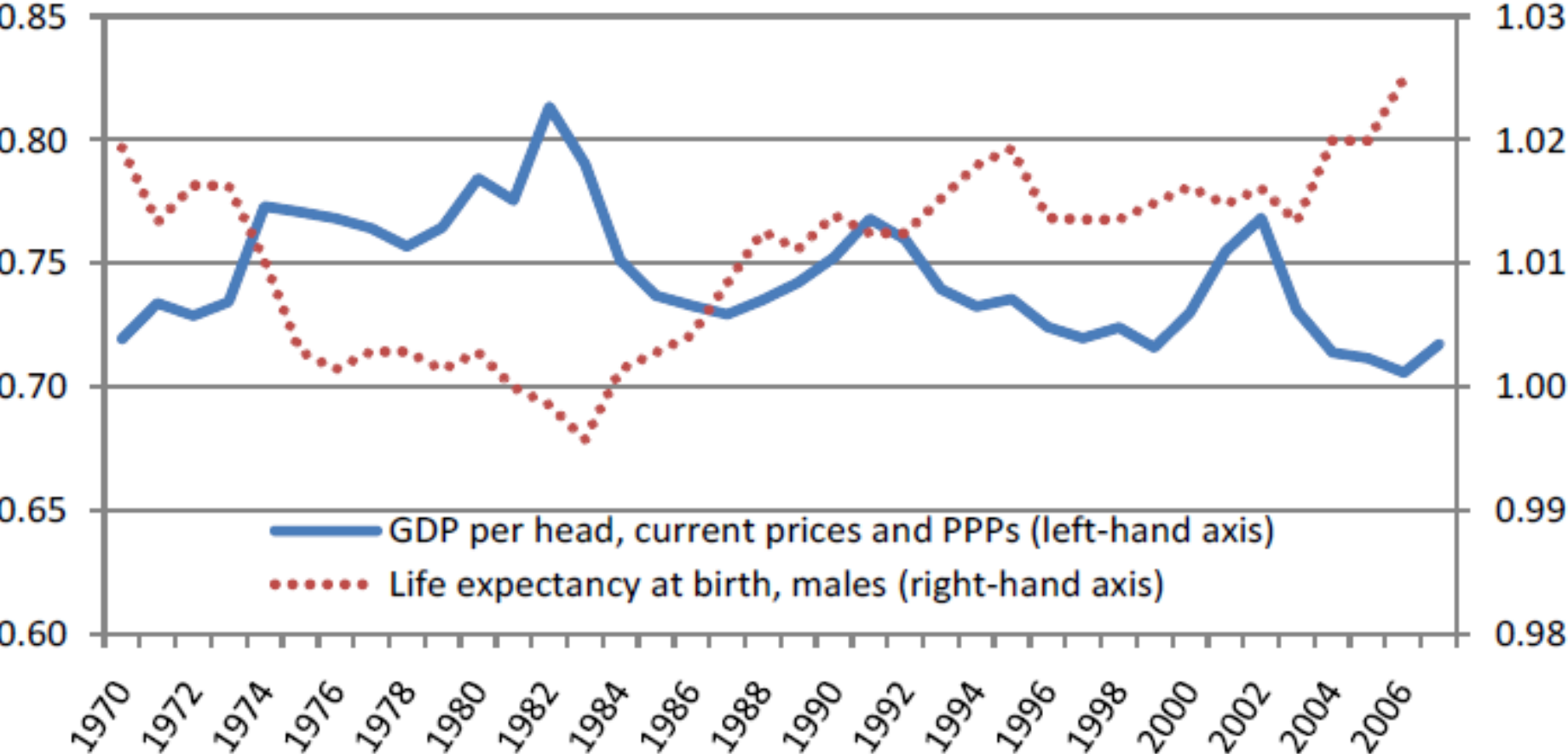
Note: Ratios of French values to US values (values greater than 1 indicate better conditions in France than in the US). For example, in 2006 French GDP per capita was 0.82 of the US level, while the life expectancy of French men was 1.025 times that of men in the United States.

Source: OECD data.

Figure 1.6. Housework, paid work and leisure
Minutes per day and person, latest year available*
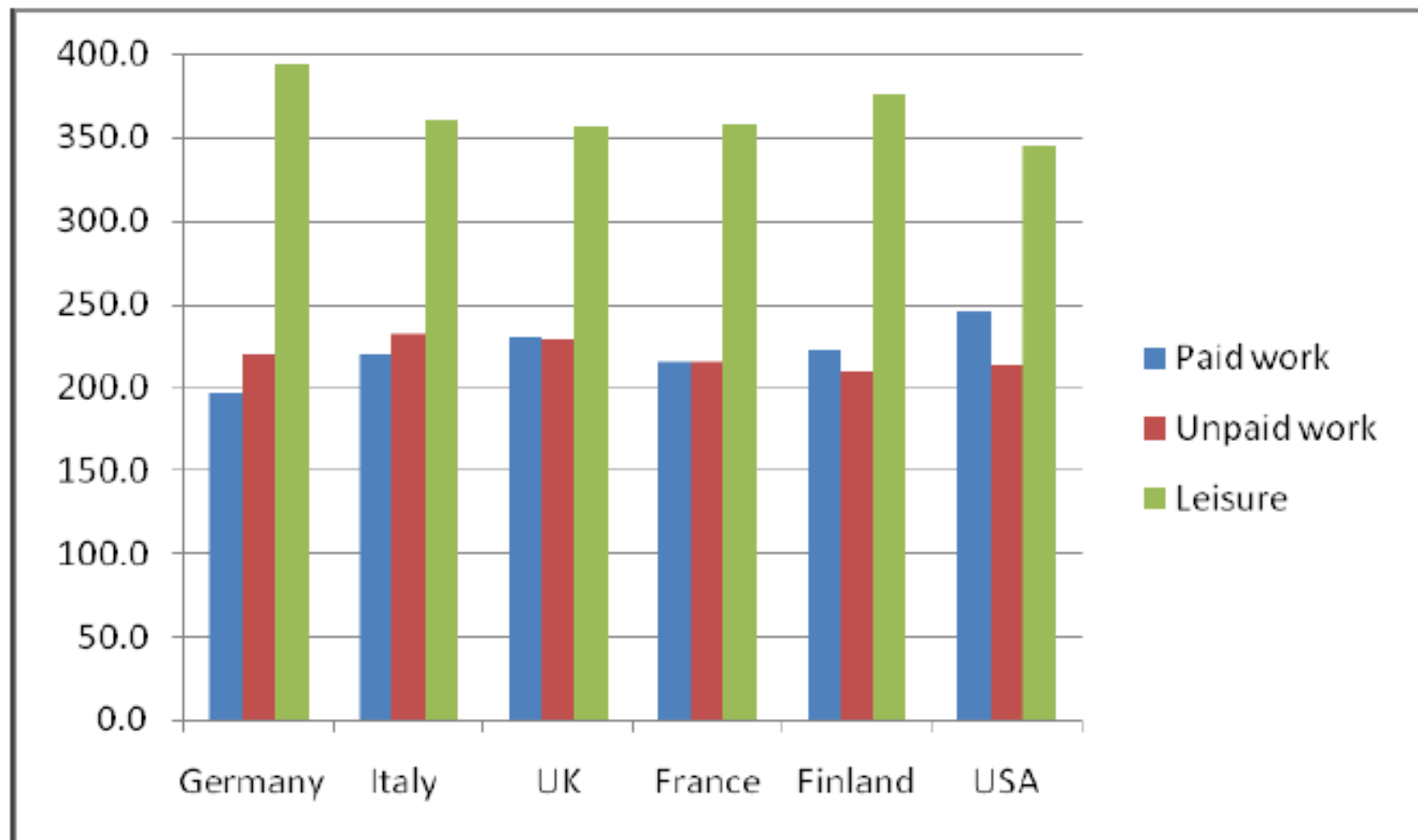
Note. Using normalised series for personal care; Unites States: 2005, Finland 1998, France 1999, Germany 2002, Italy 2003, United Kingdom 2001.

Source: OECD (2009), *Growing Unequal? Income Distribution and Poverty in OECD Countries*; Paris.

Table 8: Time spent in different activities, ratio men/women

	Paid work	Unpaid work	Leisure
Germany	1.74	0.66	1.36
Italy	2.10	0.62	2.17
UK	1.69	0.75	1.43
France	1.61	0.78	1.46
Finland	1.41	0.89	1.31
USA	1.44	0.95	1.32

*Unites States: 2005, Finland 1998, France 1999, Germany 2002, Italy 2003, United Kingdom 2001.
*Source*: OECD (2009), based on HETUS and ATUS databases.

N.B. Leisure ratio $\cong$ 1.0 for NZ (Stats NZ Time use Survey, 2009/10)

Composite Aggregate Country Indicators

- The Human Development Index (UNDP)
  - a function of <u>life expectancy</u>, <u>education</u>, and (log) <u>income</u>.

- OECD Better Life Index

- Legatum Prosperity Index

- Happy Planet Index

  … (many others)

NB: Weights tend to be arbitrary

Figure 2.7. Trends in the HDI and in GDP per capita in France and the United States
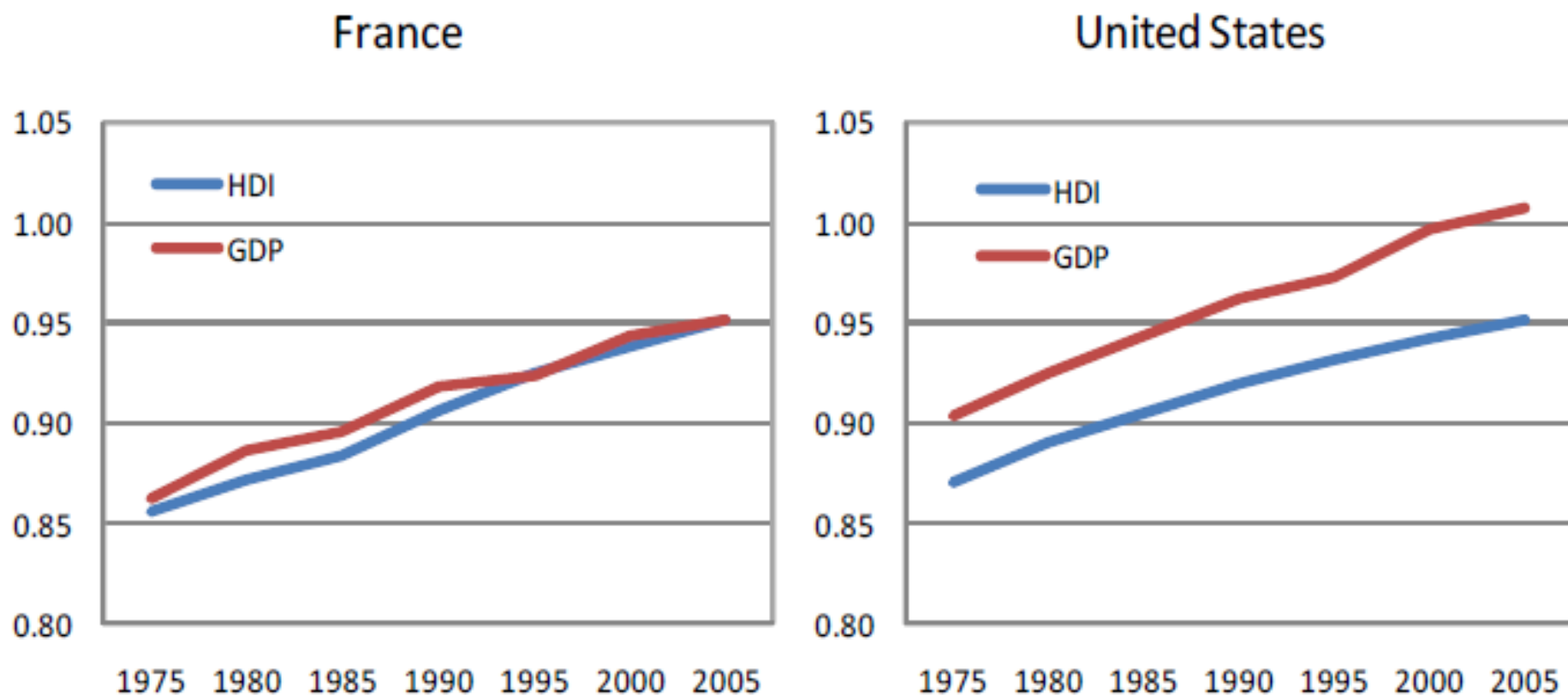
Values of the HDI as reported in the UNDP Human Development Report 2007-2008. Trends in the GDP series are based on OECD values of GDP per capita at constant prices, based on the same transformation underlying the HDI calculation (*e.g.* the difference between the natural logarithm of GDP per capita in a given year and the log of 100 USD, divided by the difference between the log of 40000 USD and the log of 100).

Source: OECD and UNDP data.

Material Wellbeing: Cross-Country

Grimes, Arthur & Sean Hyland (2015) *A New Cross-Country Measure of Material Wellbeing and Inequality: Methodology, Construction & Results*, Motu WP 15-09.

Grimes, Arthur & Sean Hyland (2015) *The Material Wellbeing of New Zealand Households* Motu Note #21.

Approach

- Measures what possessions households actually have in the household (Adam Smith, SSF)
- Takes account of:
  - different prices (including effects of tariffs)
  - cost of housing (poorly done in other measures incl PPP)
  - access to credit to smooth consumption over life
- Uses a very well-sampled survey of households
  - at <u>same stage of life</u> (household has a 15-yr old student)
  - covering many countries across multiple years

OECD PISA Data

- Programme for International Student Assessment Survey tests 15-yr olds on educational achievement

- Asks supplementary questions on what the child's household has in the house, including:
  - Bedrooms, bathrooms, study place, cars, desk, dishwasher, televisions, computers, internet connection, educational software, cell-phones, artworks, books (dictionary, poetry, classic literature, textbooks)

- We use consistent data for 40 countries in each of 2000, 2009, 2012 (pre- and post-GFC)
  - Gives data for **800,000 households**

Multiple measures of material wellbeing (MW)

- HMWI: index of household MW
- MWI: index of national average MW
- AIM: index of inequality of MW within country
  (Atkinson's Inequality Measure)
- IMWI: inequality-adjusted national MW

All measures are equivalised for household size

Concentrate here on MWI and AIM

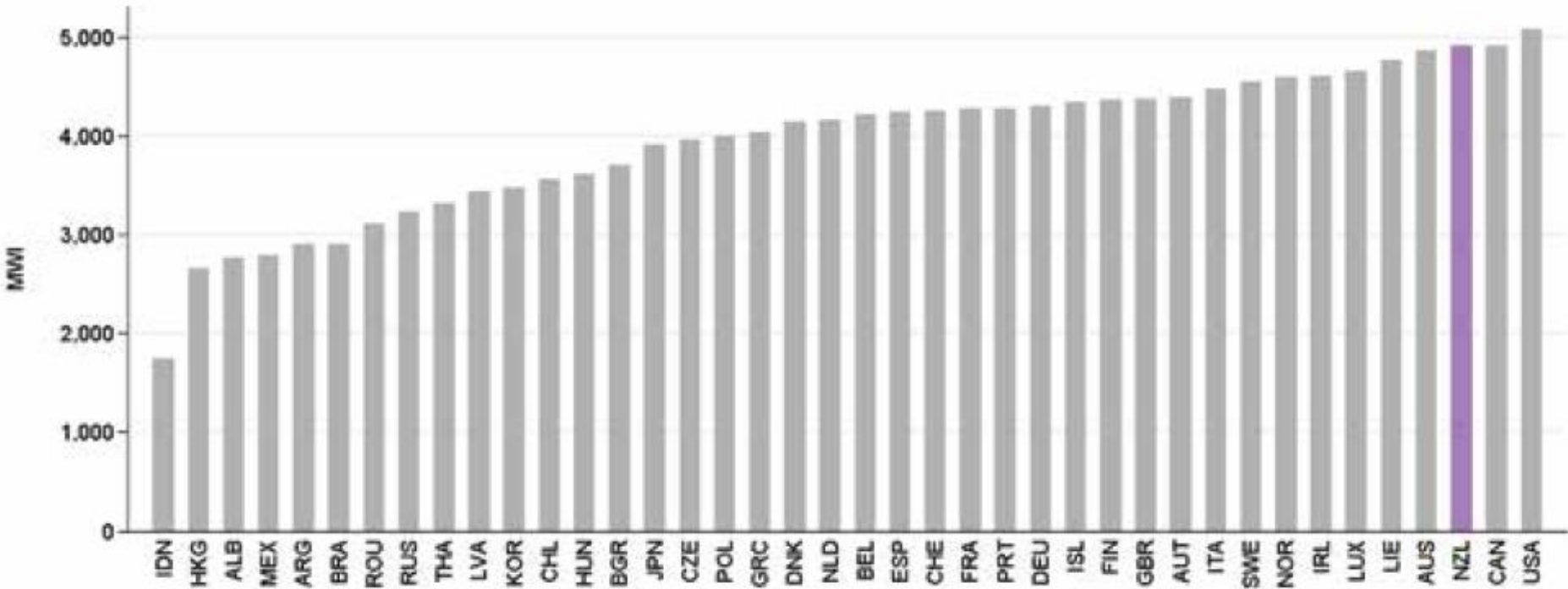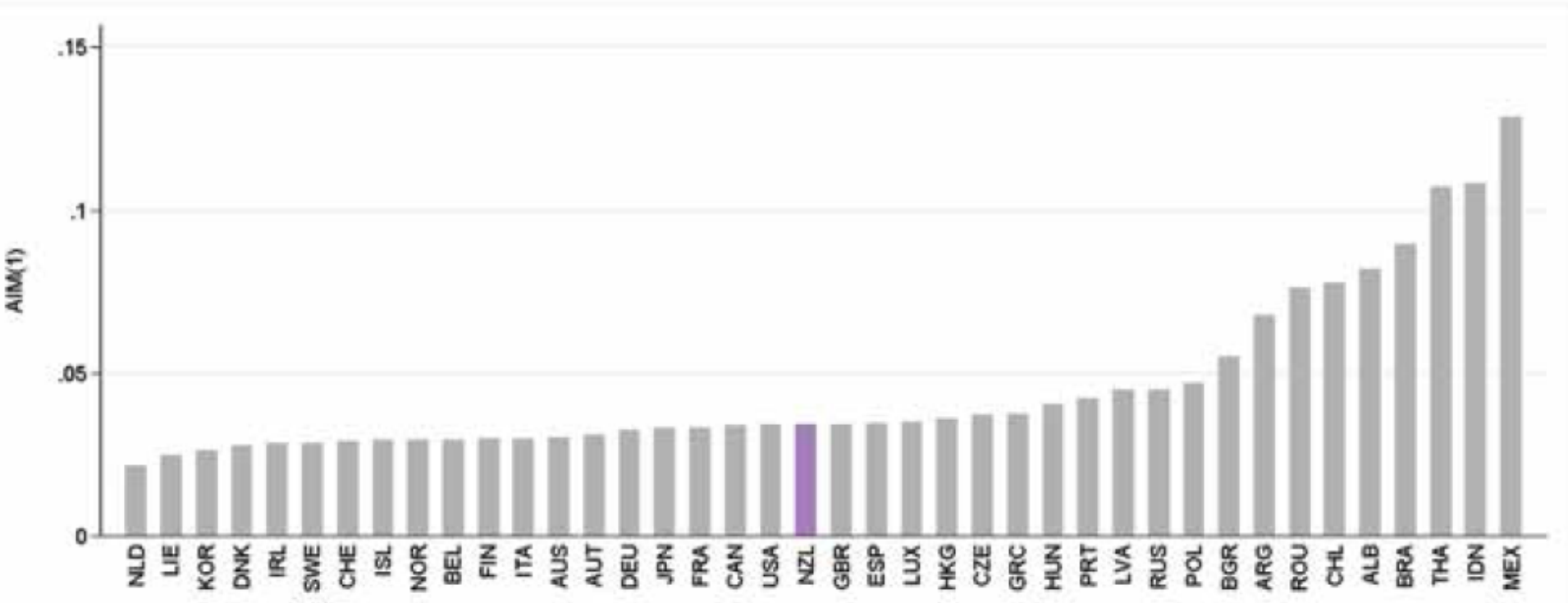**FIGURE 1: Cross-country MWI Levels, 2012**

FIGURE 5: Cross-country AIM(1) Levels 2012

Subjective wellbeing (SWB)

- Large literature on subjective wellbeing measures:

  – Happiness (at present) often using a 1-4 or 1-5 scale

  – Positive & negative affect (psychological measures)

  – Life satisfaction: *"All things considered, how satisfied are you with your life as a whole these days?"* (1-10 scale)

  – Cantril ladder: *Please imagine a ladder with steps numbered from zero at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?*

Easterlin Paradox (EP)

- Richer people tend to have higher life satisfaction (LS)
- But Richard Easterlin* found the following paradox:
  - Within a country, richer people are happier
  - People in richer countries are happier than in poorer countries
  - Over time people get richer
  - But over time, people get no happier

Easterlin R. (1974) Does economic growth improve the human lot? In M Abramovitz, P David & M Reder (Eds.), *Nations and households in economic growth: Essays in honor of Moses Abramovitz*. New York: Academic Press.

Mean Self-reported Well-being and Real Household Income for a Cross-section of Americans in 1994.
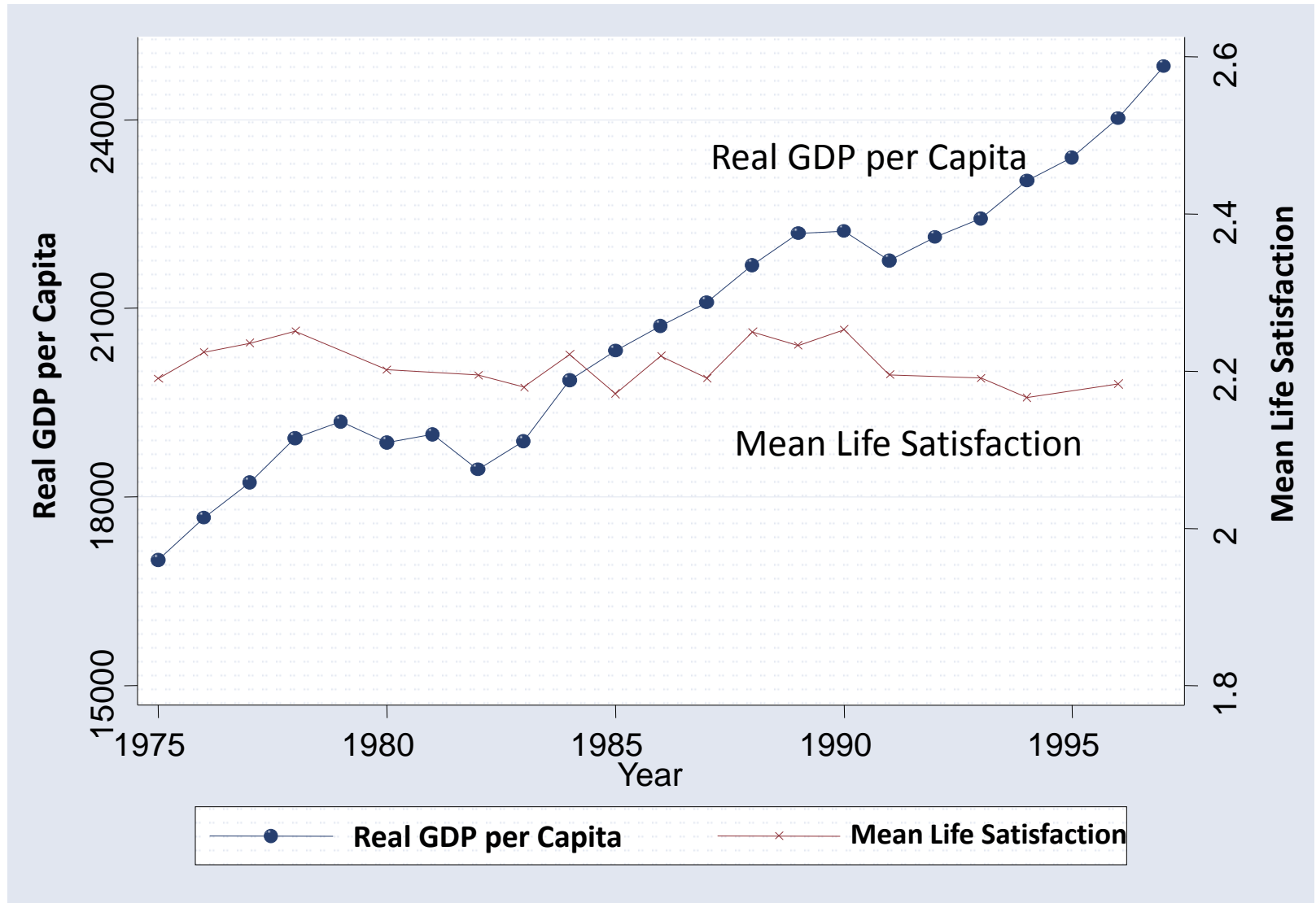

Easterlin, 2006
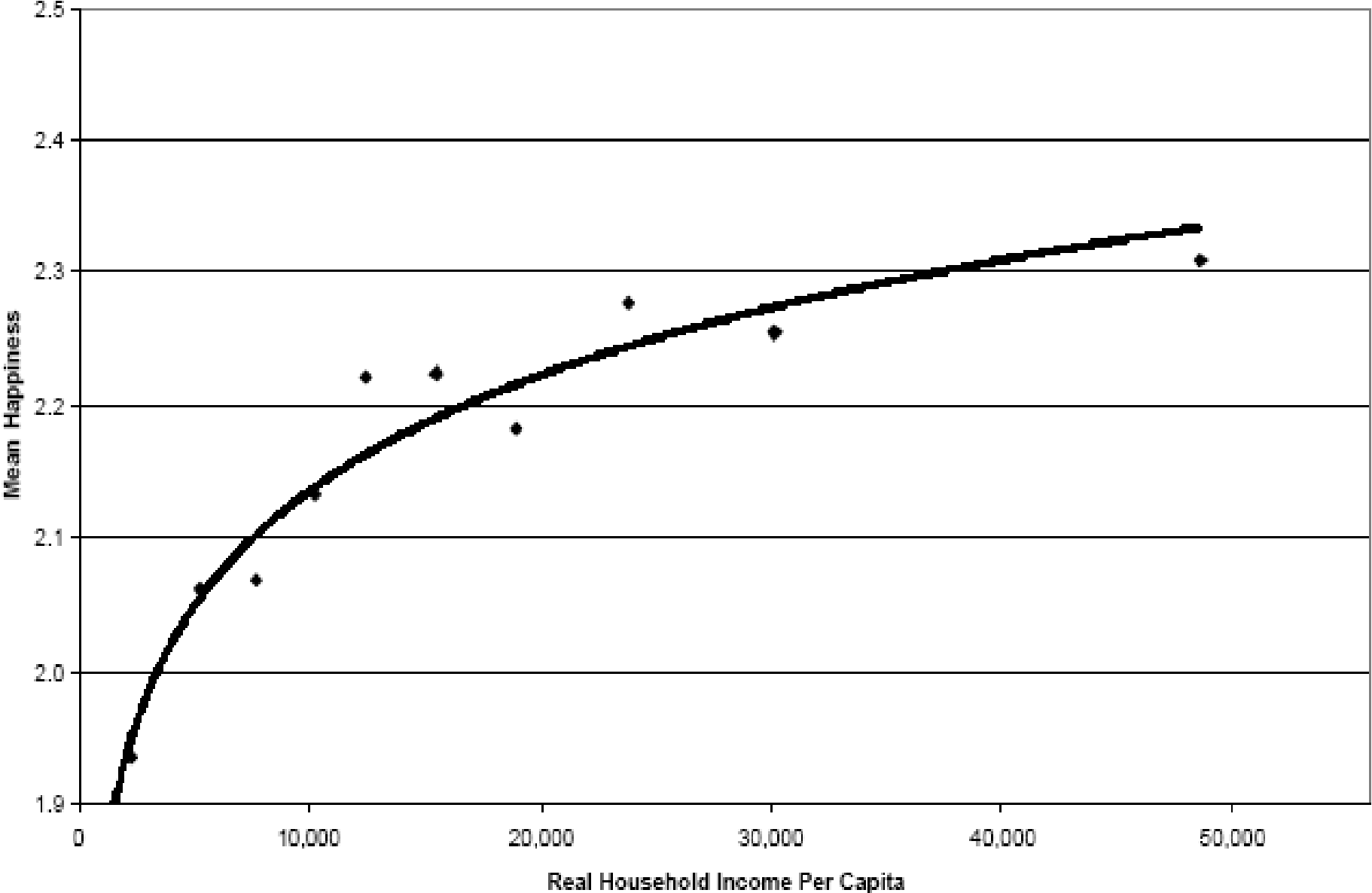
Mean Self-reported Well-being for a Cross-section of 65 Nations in 1995
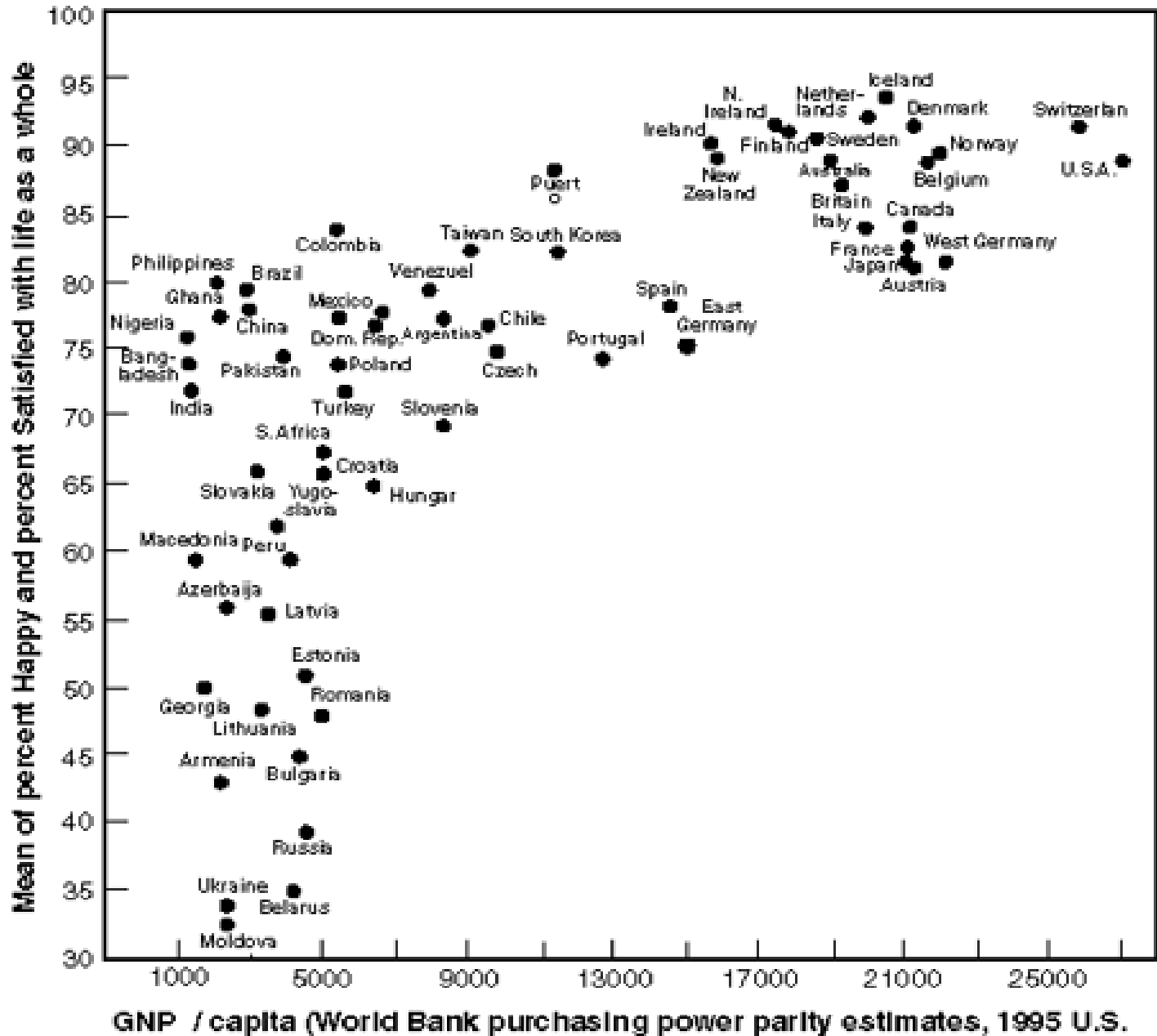
Mean Self-reported Well-being and Real GDP per Capita from 1975-97 for Repeated Cross-sections of (different) Americans.

What explains EP (if it exists)?
1: Adaptation ('Hedonic Treadmill')

- People adapt to their previous living standard
- Duesenberry (1949) incorporated this into the consumption function; see also
  - Fuhrer (2000) in AER;
  - Di Tella, Haisken-De New, MacCulloch (2010) in JEBO
- Evidence also that people adapt (partially or in full) to debilitating life events (e.g. loss of limb)

2: Relative Success (Keeping up with the Jones')

- Our norms are set by other people's standards (Veblen, Duesenberry)

- Implies if everyone gets 10% richer then we feel no better off

- Stevenson & Wolfers argue longer datasets overturn the EP

  - Similar intra-country & inter-country LS:income gradients

  - USA is an outlier because *mean of log(family income)* has grown very slowly relative to *log(GDP per capita)*

  - but this then suggests that inequality is a major policy issue

Figure 11. Within-Country and Between-Country Estimates of the Life Satisfaction–Income Gradient: Gallup World Poll[a]
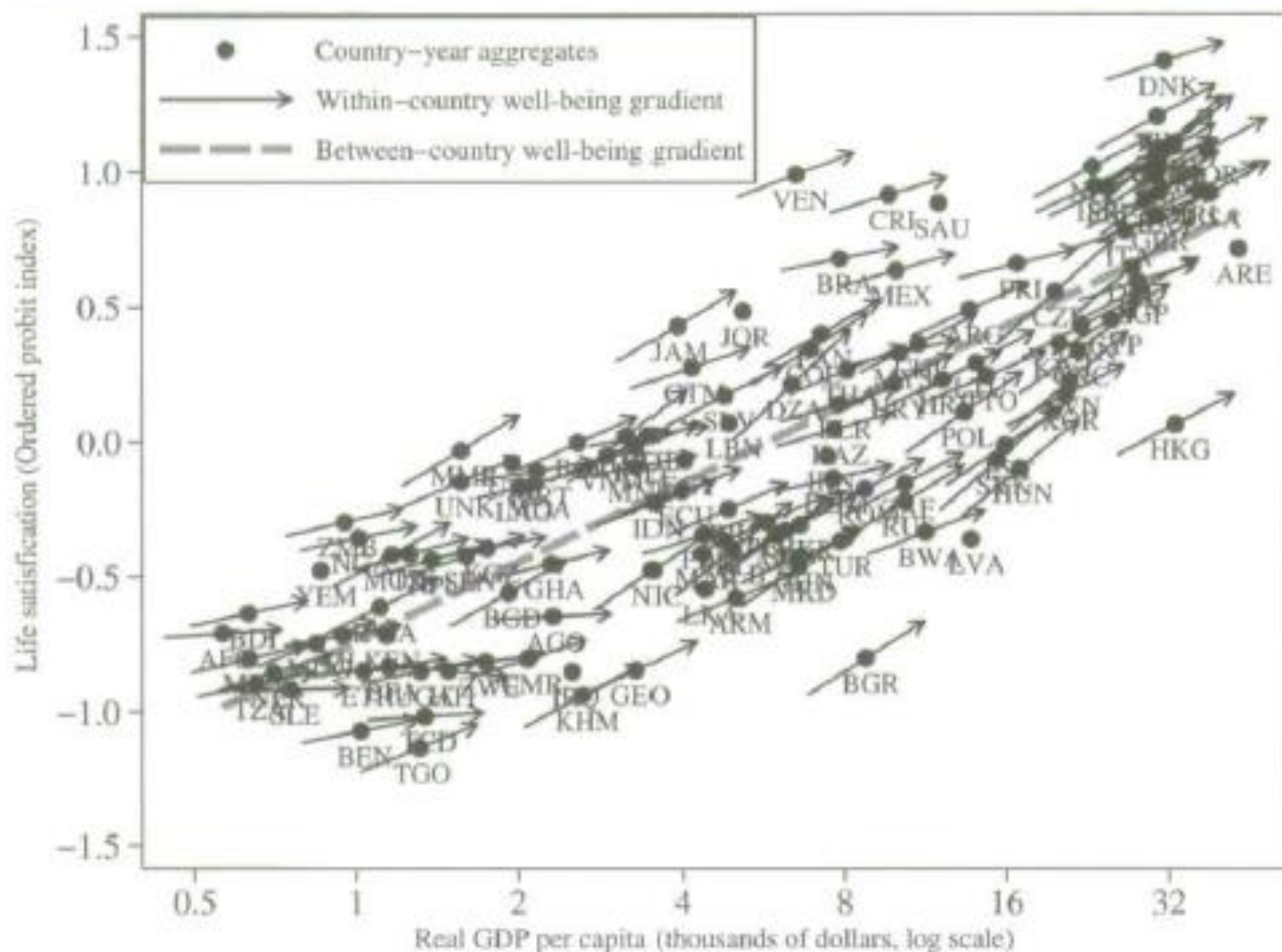
Who are relevant comparison groups?

- Who are the relevant comparison groups?
  - "Like" people (by: age, gender, education, ...)?
  - People across the country?
  - People in my region?
  - People in other countries?
- Grimes & Reinhardt (Motu WP15-10) test how LS of a person is related to:
  - personal characteristics,
  - region-type (rural through to large city),
  - country-type (developed or transitional),
  - own-income,
  - income of like person (by age, gender, education) in own country,
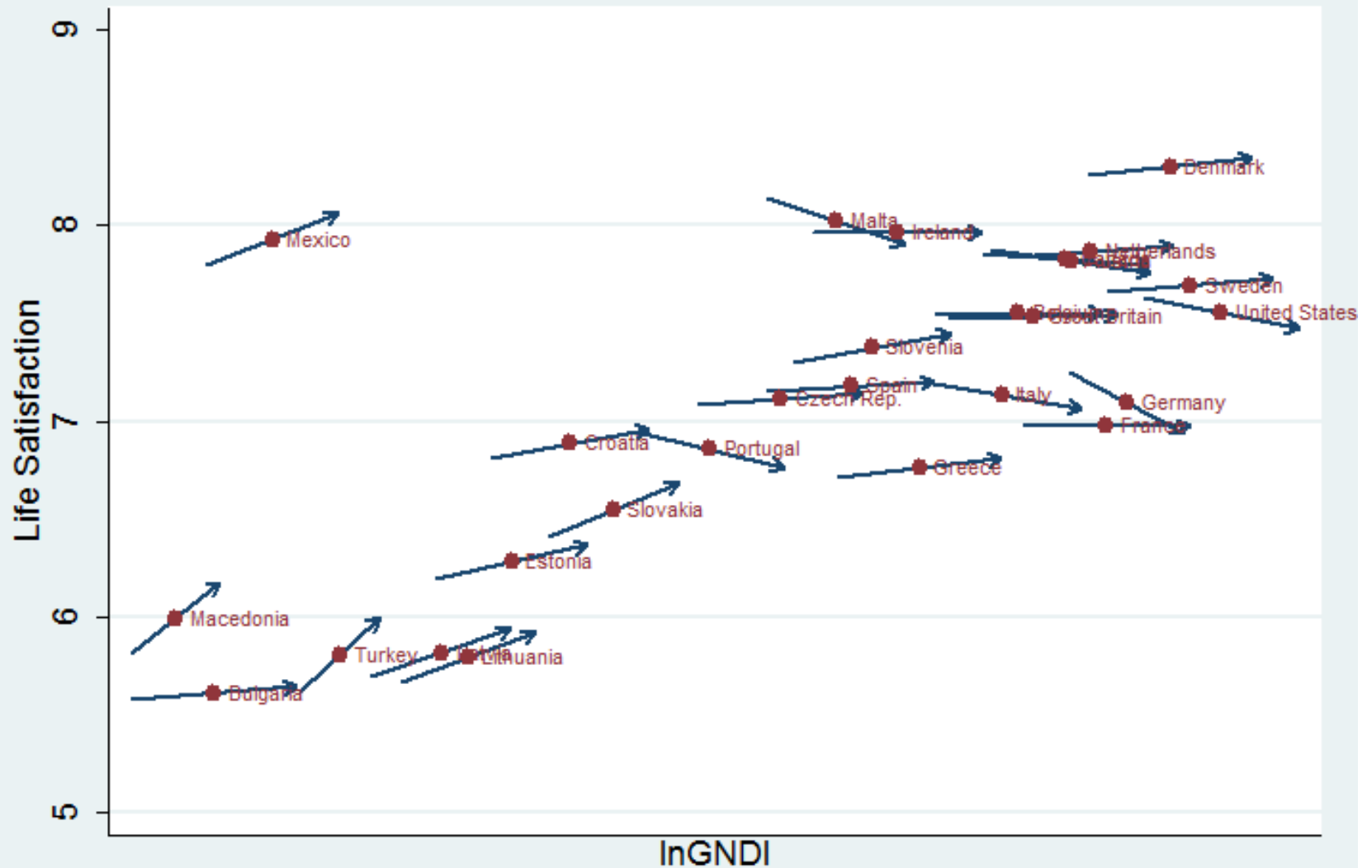 - country per capita GNDI relative to EU average

G&R: WVS - Relative National Income

Life Satisfaction and Relative National Income over time
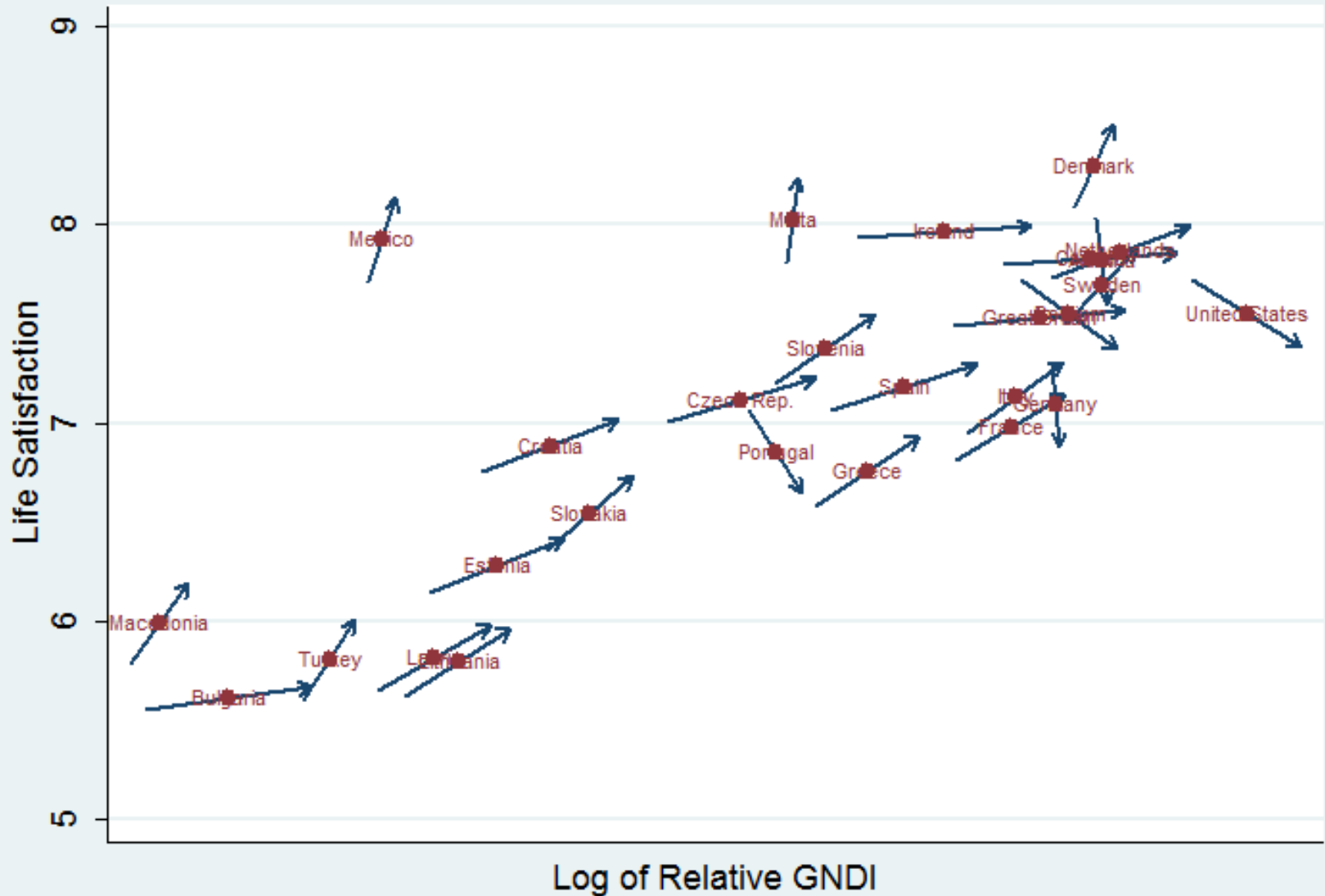
G&R: WVS - Absolute National Income

Life Satisfaction and National Income over time

Findings

- *Own income* has +ve effect on LS for all types

- *Reference Income* has –ve effect on LS $\forall$ types
  - Intra-country EP holds for all developed country region-types; & for rural transitional regions, but not for others

- *Relative GNDI* has +ve effect on LS $\forall$ types

- Results show own income matters, but so too do intra-country and inter-country relative incomes

- Thus "no country is an island"

Does Money Buy Me Love?
Testing Alternative Measures of National Wellbeing

Arthur Grimes, Les Oxley, Nicholas Tarrant in: The Economics *of Wellbeing: Volume V.* of *Wellbeing: A Complete Reference Guide*, Ed: David McDaid & Cary Cooper. 2014. John Wiley & Sons. [Also: Motu Working Paper 12-09]
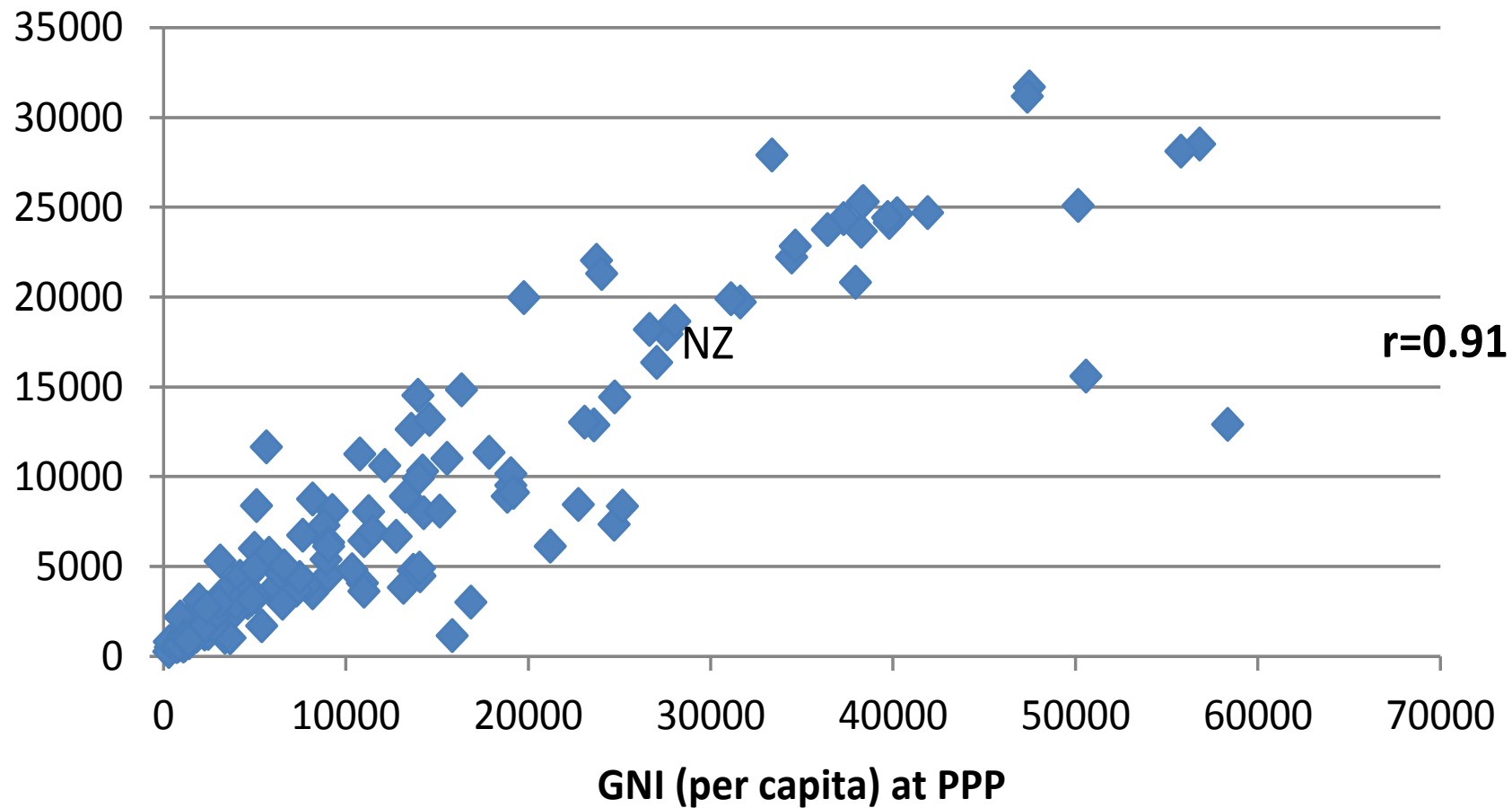
- Compares alternative national wellbeing measures across countries

- Extended & updated results presented here with emphasis on NZ relative to 24 "early OECD" (developed) countries

- Also examined whether life satisfaction or other measures (e.g. HDI) helps explain international migration over and above income
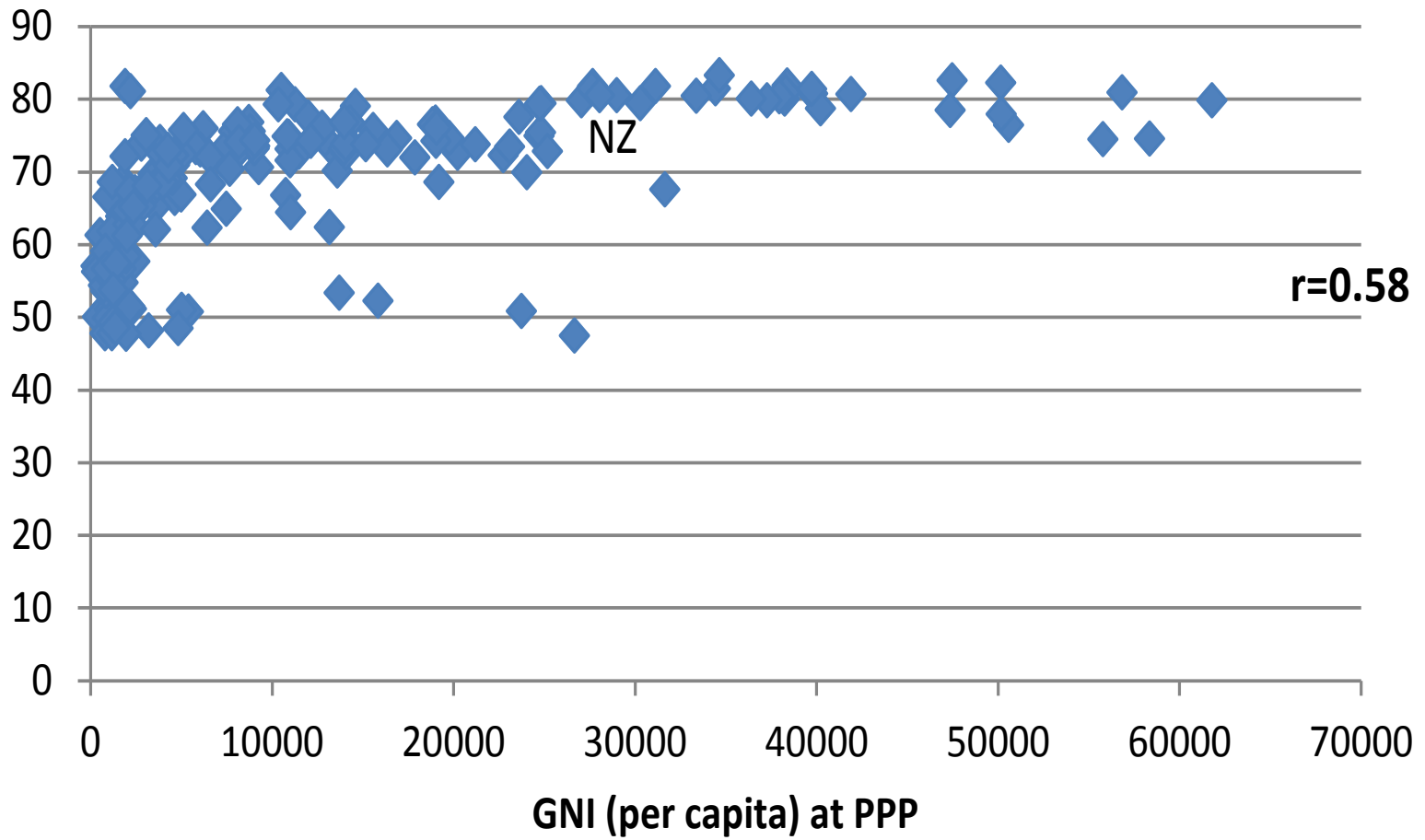
New Zealand Rankings (24 early OECD countries)

(A low ranking and a low percentile implies a comparatively high level of wellbeing.)

Indicator	OECD 24 Country Ranking	OECD 24 Country Percentile
Objective Wellbeing Measures		
GNI(pc)	22 / 24	92
GDP(pc)	19 / 21	90
Material Wellbeing Index	3 / 23	13
Life Expectancy	12 / 24	50
Composite & Subjective Wellbeing		
HDI	5 / 24	21
OECD-BLI (equal weighted)	8 / 24	33
Life Satisfaction - HPI	9 / 23	39
Life Satisfaction -WVS- Mean	18 / 24	75
Life Satisfaction – Gallup (BLI)	7/24	29
Environment		
Yale Environmental Performance Index	11 / 24	46
Ecological Footprint	20 / 23	87
Inequality		
Gini coefficient of income	21 / 24	88
Material Wellbeing Inequality (AIM(1))	18/23	78
LS-WVS-Standard Deviation	22 / 24	92

GDP (per capita) at PPP

GNI (per capita) at PPP

NZ

r=0.91

Life Expectancy (Years) vs GNI (per capita) at PPP. NZ labeled. r=0.58
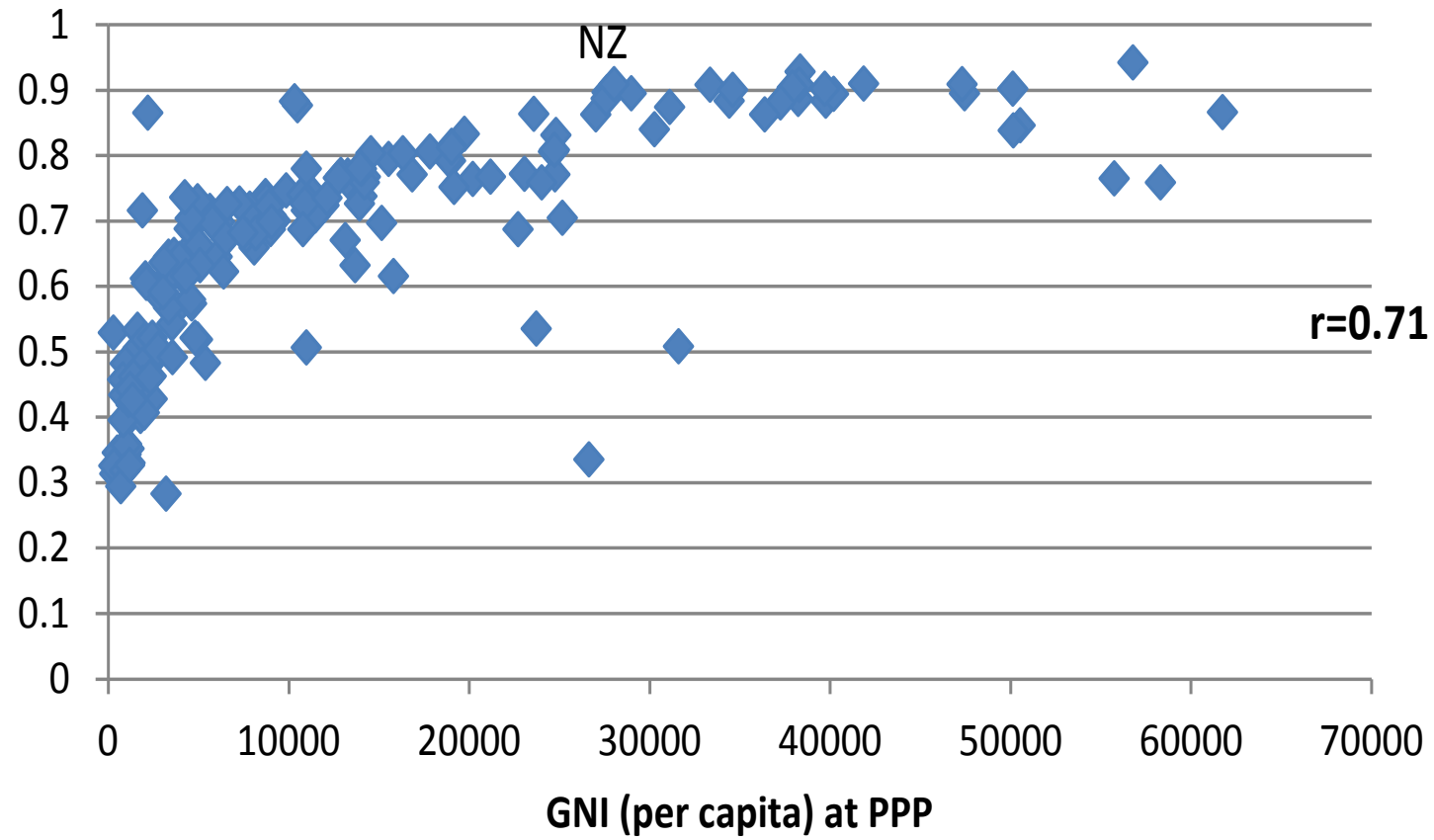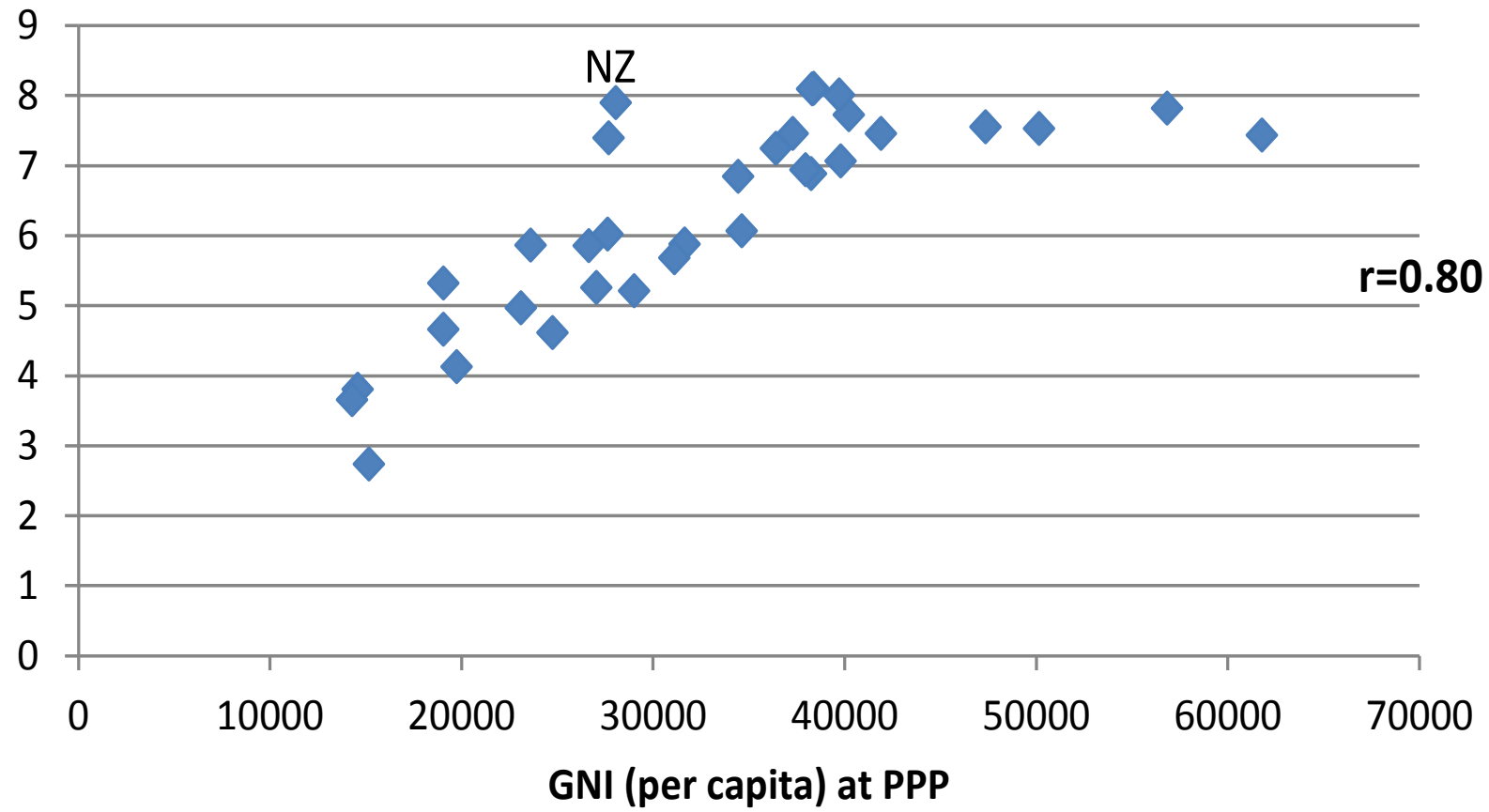
Life Satisfaction (for HPI)

NZ

r=0.43

GNI (per capita) at PPP
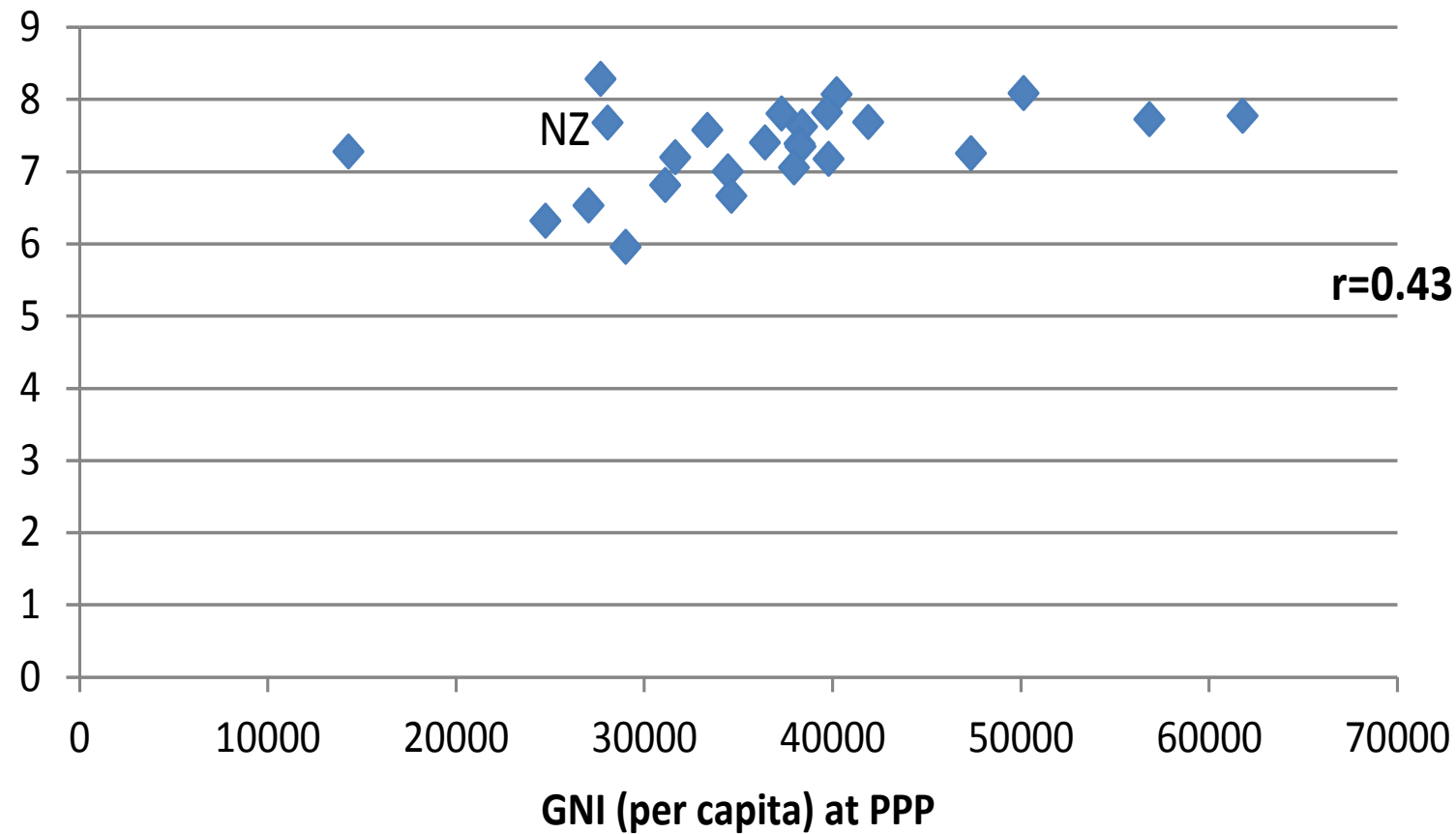
Life Satisfaction, mean (WVS)

NZ

r=0.33

GNI (per capita) at PPP

Ecological Footprint

NZ

r=0.59

GNI (per capita) at PPP
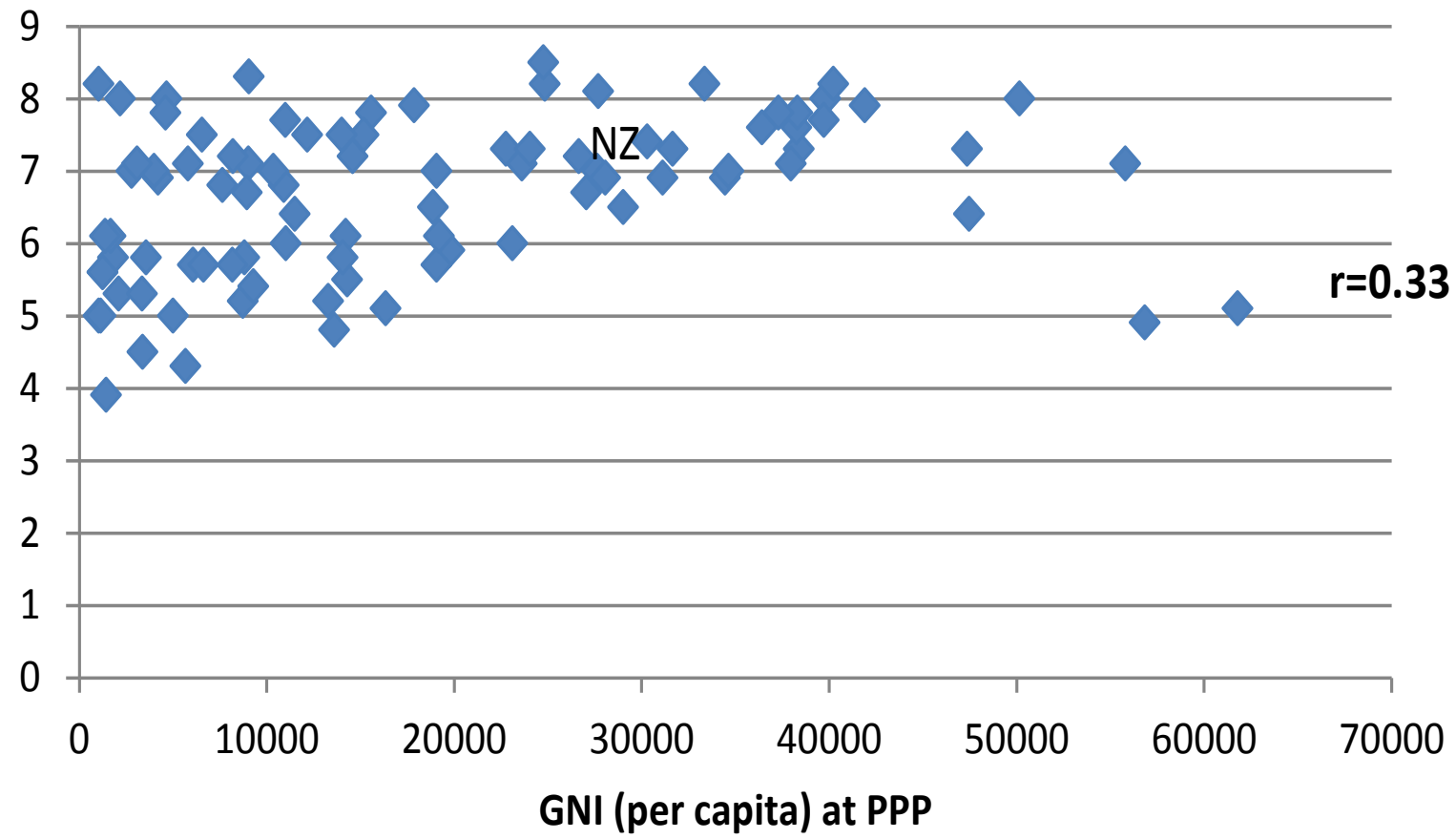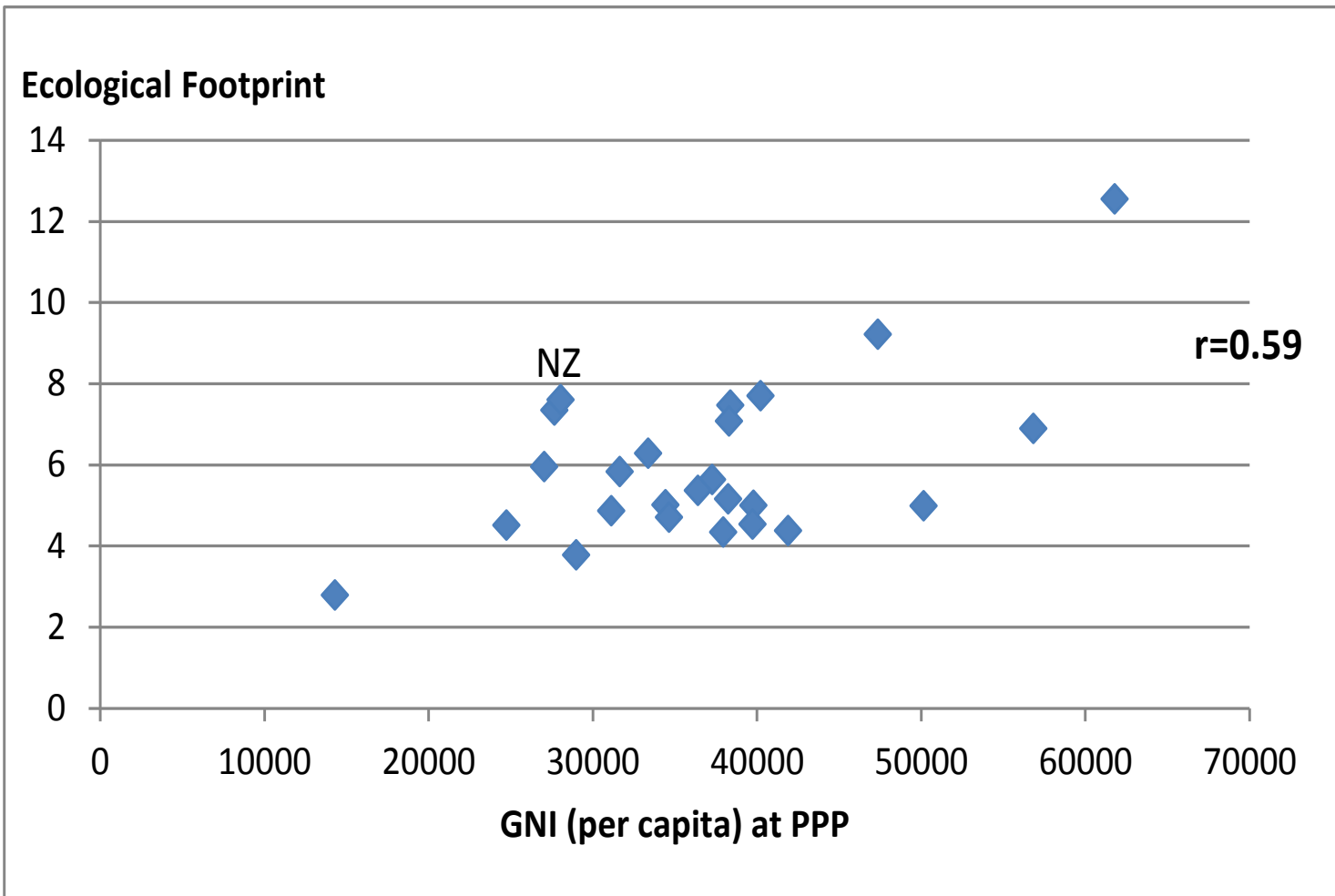
N.B: High Ecological Footprint is 'bad'

Environmental Performance Indicator vs GNI (per capita) at PPP. Data point labelled "NZ". r=0.53
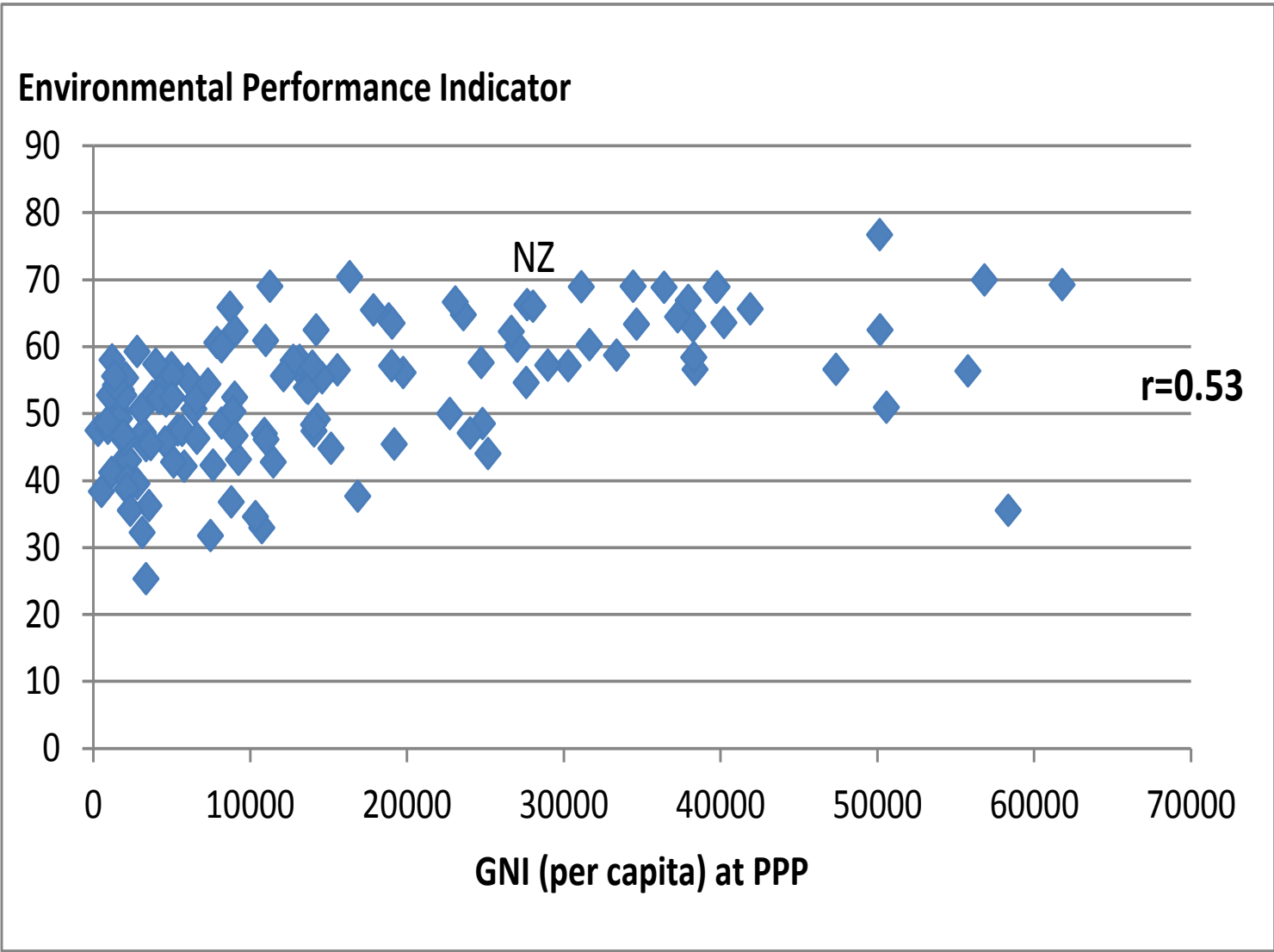
N.B.: High level of Yale's EPI is 'good'.

Gini Coefficient

r=-0.38

NZ

GNI (per capita) at PPP
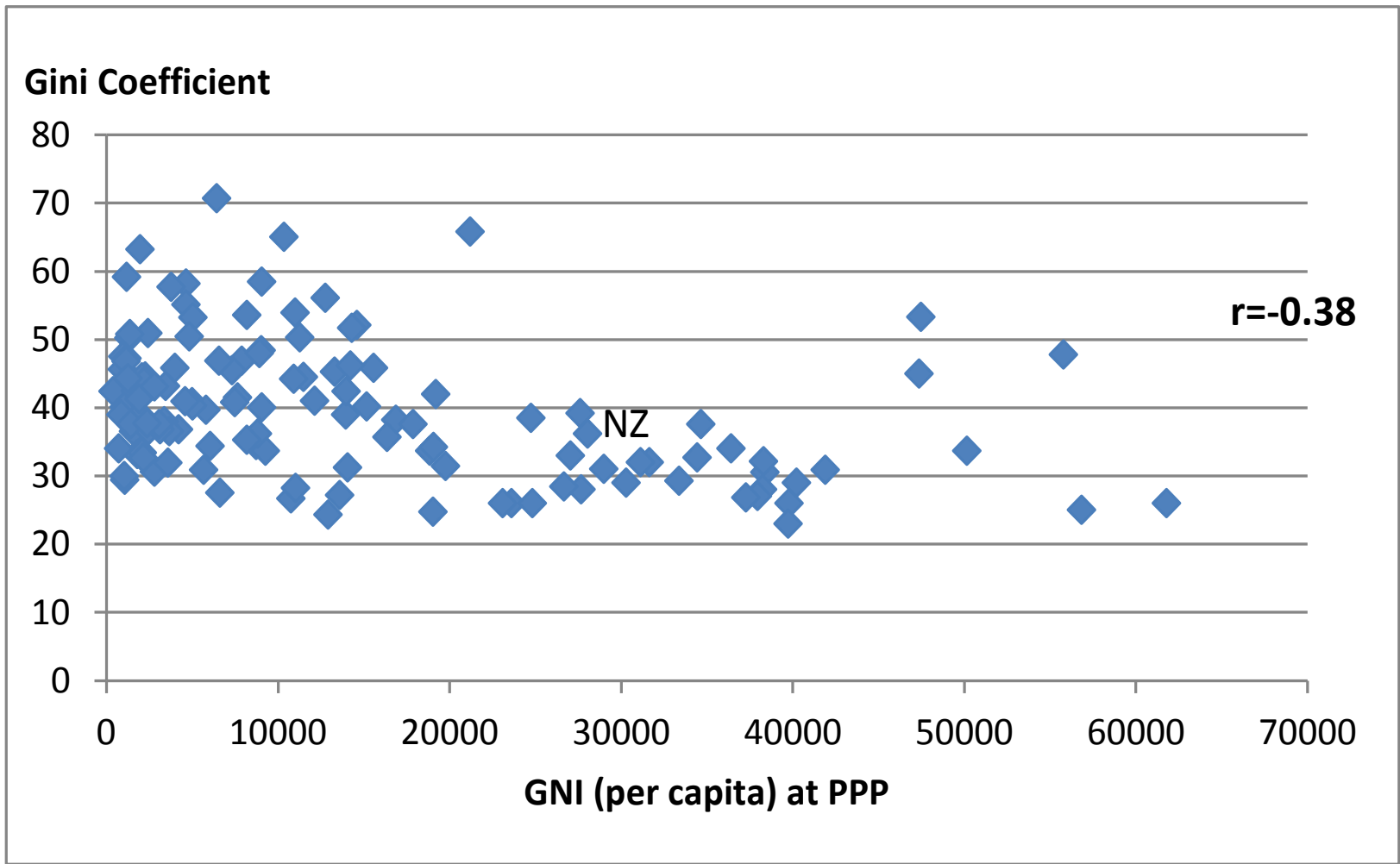
Life Satisfaction, standard deviation (WVS)

r=-0.43

NZ

GNI (per capita) at PPP
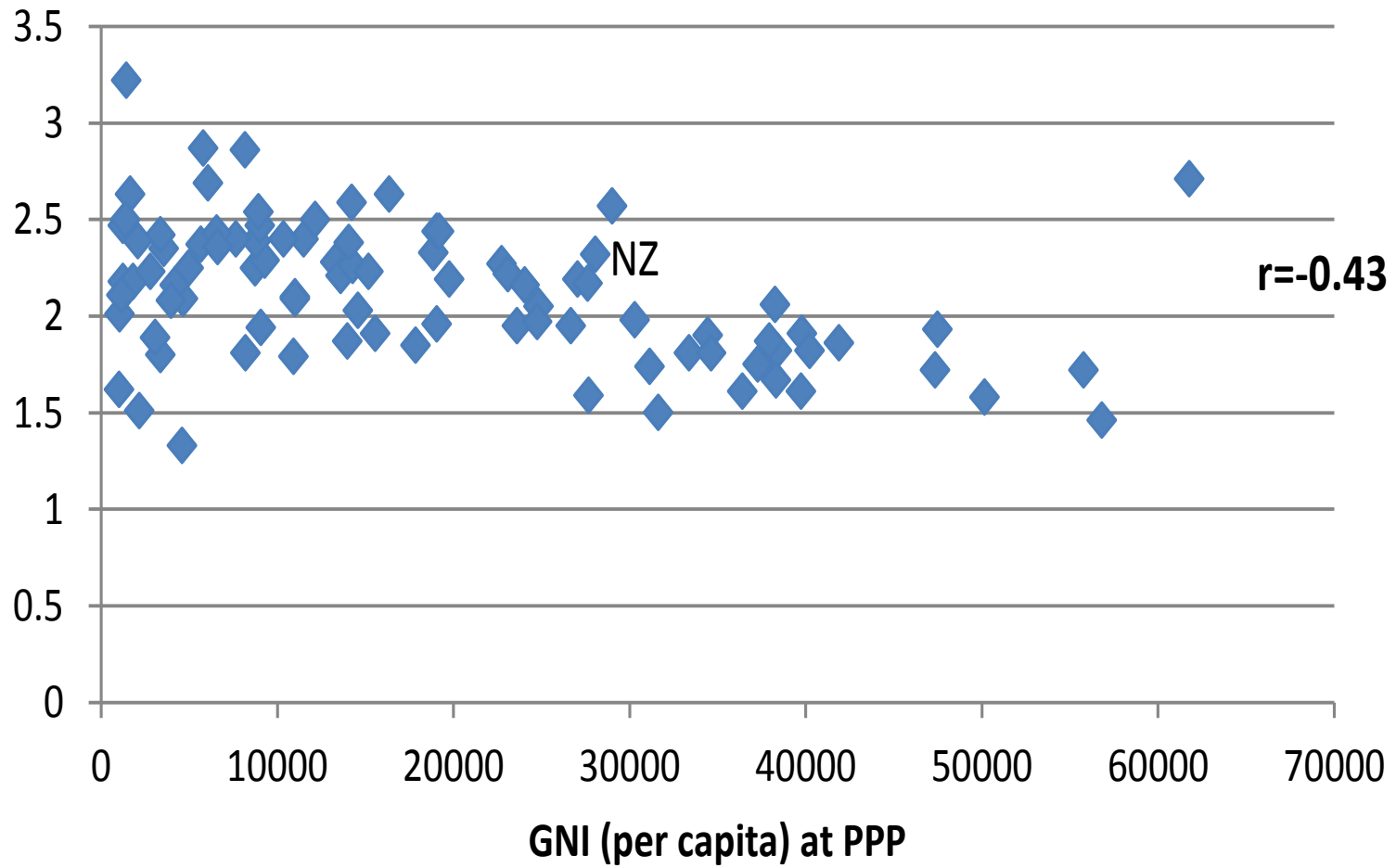
International migration results

- Paper then examines international <u>net migration</u> determinants for 24 early OECD countries over 45 years

- Tests if variables explain *NetMigration/Population* over & above *GNI(pc),* which has a significant (+ve) effect
  - with country, time & other controls added

- Only variable that does so consistently is *LifeSatisfaction*
  - though some evidence that *LS-Sdev* has a –ve effect

Internal Migration

- Glaeser et al find some people migrate to unhappy places
  - Benjamin et al find LS more important for rich than poor
  - Both conclude that LS is a subset of utility, but is not utility

- But both studies ignore life cycle issues
  - Grimes & Ormsby (in progress) assume people maximise <u>life-time utility</u> (not utility each period)
  - May migrate to unhappy places when young or old alleviating the life-time budget constraint while raising lifetime LS
  - Preliminary results indicate LS more important than income for internal migration decisions (in Australia)
  - But only for the well educated

Australian Regional Income vs LS (Well-being), 2001: HILDA Data

wave 1
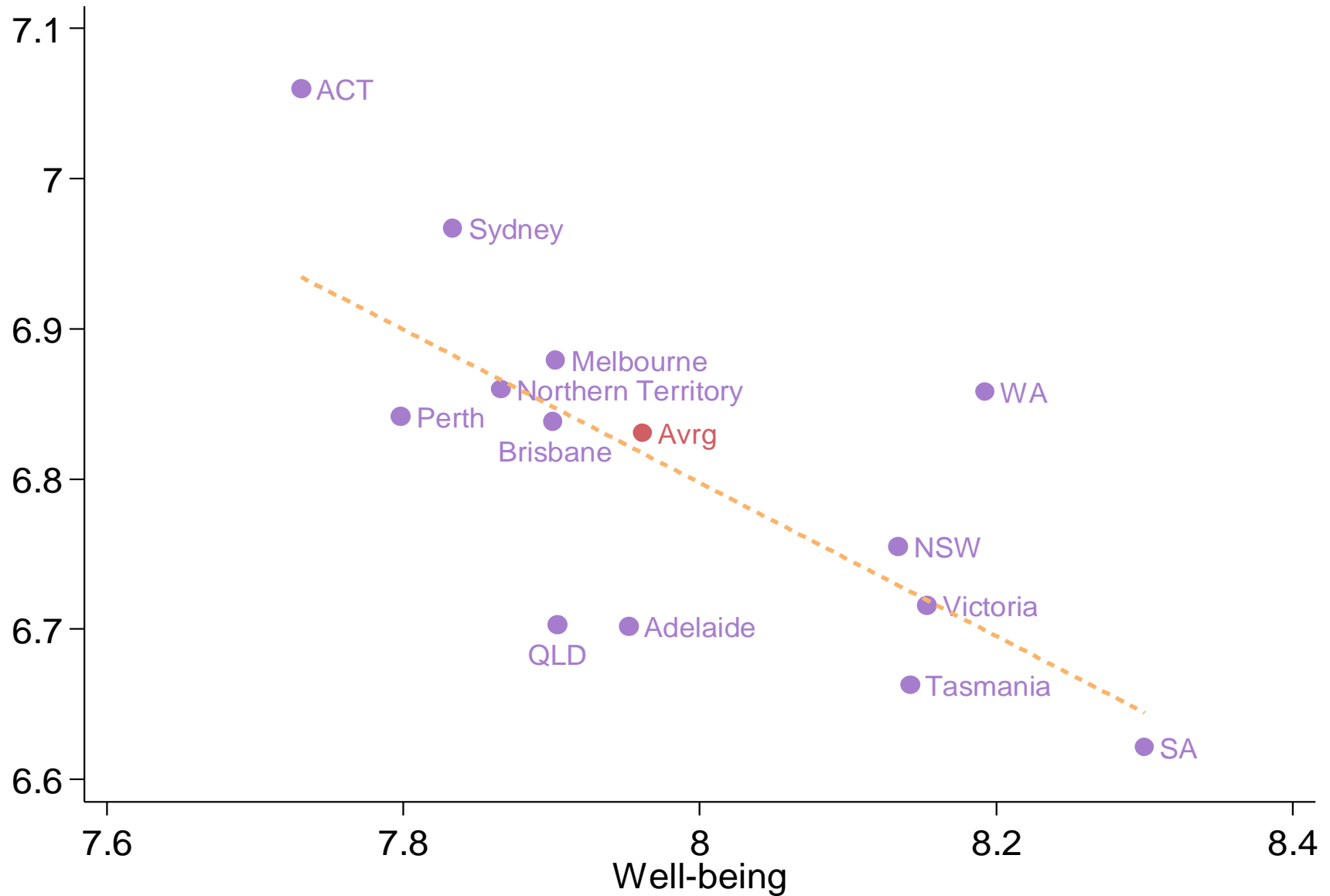
Wellbeing and Public Policy

- **Revealed preference** (migration) shows people take decisions based on life satisfaction & not just income

- **Relative positions** (especially incomes) matter

- But so do **absolute incomes** (given other countries' incomes)

- So policy must seek both to **raise average living standards** and to **reduce inequality**

- NZ performs consistently poorly on **inequality**

And we are not all the same!

- Aggregates hide not only inequality
- They also hide other fundamental differences; e.g.:
  - Gender differences (e.g. Men's vs women's leisure time)
  - Different cultural values; e.g. Grimes, MacCulloch, McKay (Motu WP15-14) find that relative to Māori, Pākehā are:
    - More materialistic
    - Less collectivist
    - Less kinship oriented
    - Less supportive of tradition
- Whose values do we use to form policy & what do these differences in values mean for governance?

Some specifics: 1

- **Taxation:** A dollar's extra tax to the poor is more costly than a dollar's extra tax on the rich

  – Provides a clear basis for progressive taxation

- **Cost benefit analysis:** A dollar's benefit to the poor is worth more than a dollar to the rich

  – What techniques should we adopt to recognise this?

- **Intertemporal issues:** If other countries favour next generation (low discount rate on future benefits), future NZ generations will suffer if we favour current generation (high discount rate on future benefits)

Some specifics: 2

- **Local government:** Strong local role for activities that boost subjective wellbeing of residents
  - E.g. arts & kapa haka festivals: judge by contribution to wellbeing, <u>not</u> economic impact assessments
- **Health:** Strong evidence (Layard, 2011) that mental health issues cause greatest loss in subjective wellbeing
  - But health expenditure is skewed to hospitals while mental health services are under-funded & in disarray
- **Governance:** How should we reflect multiple value systems (especially for indigenous Māori)?

Big 7 factors affecting happiness

- Richard Layard (2011) *Happiness: Lessons from a New Science* (2nd ed., Penguin) summarises the main LS determinants as:

  - **Family relationships**
  - **Financial situation**
  - **Work**
  - **Community & friends**
  - **Health**
  - **Personal freedom**
  - **Personal values**

See also *World Happiness Report* (Helliwell, Layard, Sachs, annually: 2013 onwards, World Bank)

Supplementary Slides

Bobby Kennedy speech:
University of Kansas, March 18, 1968

Even if we act to erase material poverty, there is another greater task, it is to confront the poverty of satisfaction - purpose and dignity - that afflicts us all.

Too much and for too long, we seemed to have surrendered personal excellence and community values in the mere accumulation of material things. Our Gross National Product, now, is over $800 billion dollars a year, but that Gross National Product - if we judge the United States of America by that - that Gross National Product counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage.

It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl.

It counts napalm and counts nuclear warheads and armored cars for the police to fight the riots in our cities. It counts Whitman's rifle and Speck's knife, and the television programs which glorify violence in order to sell toys to our children.

Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials.

It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile.

And it can tell us everything about America except why we are proud that we are Americans.
If this is true here at home, so it is true elsewhere in the world.

OECD Better Life Index (example of recommendation 8)
http://www.oecdbetterlifeindex.org/

Data available for all OECD countries

Enter weights for importance you place on:

[Housing](#)
[Income](#)
[Jobs](#)
[Community](#)
[Education](#)
[Environment](#)
[Civic Engagement](#)
[Health](#)
[Life Satisfaction](#)
[Safety](#)
[Work-Life Balance](#)

. OECD Better Life Index

OECD
Better Life
Index

Thank you!
Your responses have been added to our data
Now compare with other people around the world.

Explore the map   Share your index   Close
Create Your
Better Life Index
Create Your Better Life Index
Rate the topics according to their importance to you

Housing
What is your recipe for a better life — a good education, clean air, nice home, money?
See how your country measures up on the topics important to you.   Help
Start with all topics rated equally   or set your own preferences here.
Community
Education
Environment
Civic Engagement
Health
Life Satisfaction
Safety
Work-Life Balance

Reset   Help

Gender differences
Compare with others
Share your index

How's life?

OECD Better Life Index Domains

OECD Better Life Doman	NZ Absolute Rank (/24)	NZ Percentile Rank
Housing	7	29
Income	20	83
Jobs	14	58
Community	8	33
Education	13	54
Environment	4	17
Civic engagement	3	13
Health	1	4
Life satisfaction	7	29
Safety	5	21
Work-life balance	18	75
Equal Weighted Index	8	33

An aside: Global convergence

- Global income and consumption inequality has <u>fallen</u> over recent decades

- Driven primarily be process of <u>convergence</u> of poorer countries to richer countries

International convergence: ΔlnMWI and Lagged lnMWI Levels

2000-2012

R-sq = 0.5906 excl. HKG
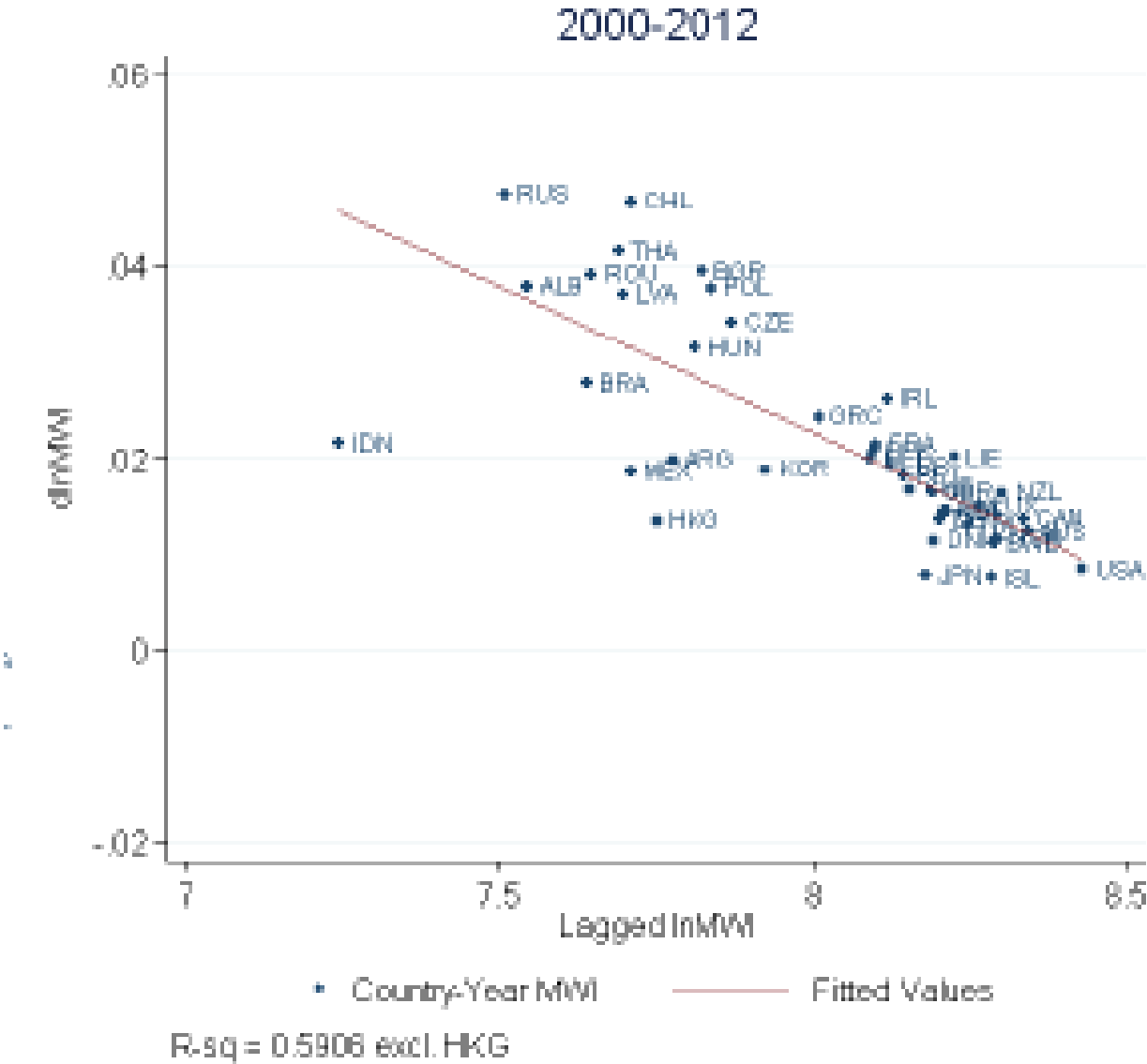
Lorenz Curve
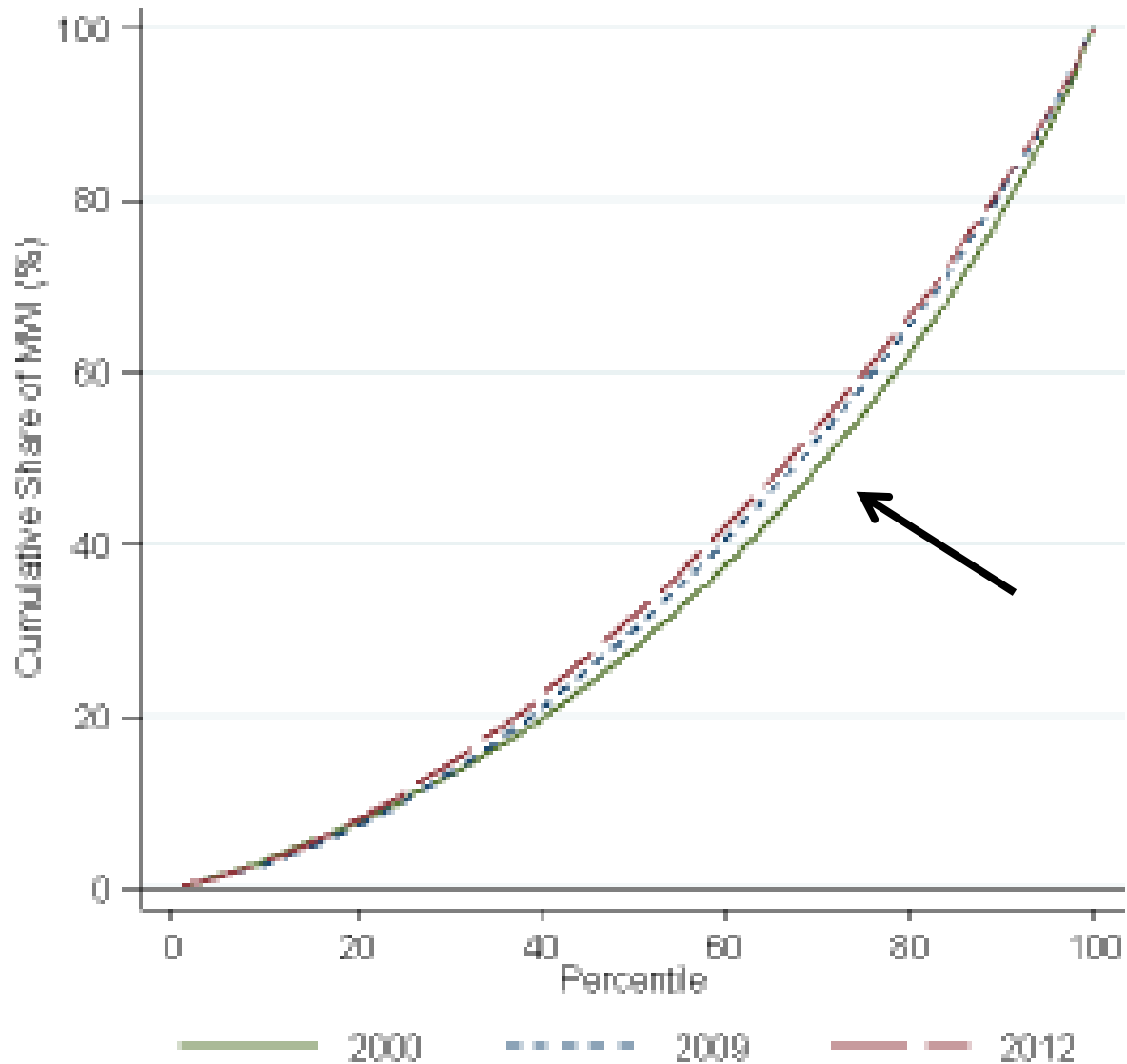## Cumulative share of world (40 country) material possessions

Figure 4. Change in real income between 1988 and 2008 at various percentiles of global income distribution (calculated in 2005 international dollars) (Milanovic)