



# MEASURING ECONOMIC INSECURITY IN RICH AND POOR NATIONS

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## 3 QUESTIONS + CONTEXT

- **Why** measure economic insecurity?
  - Social Welfare Function or Human Rights ?
  
- **How** should we measure Economic Security in affluent nations ?
  - IEWB Index of Economic Security: Trends
  - Canada, Denmark, Germany & U.S.: 1980-2009
  
- **Can** Economic Security be measured comparably in poor nations?
  - Levels –2008; Brazil, Mexico, Vietnam, South Africa
  - 70 countries on which full data
  
- **Theme:** Imperfect data forces compromises
  - but still worth doing

# WHY MEASURE ECONOMIC (IN)SECURITY?

1. Worrying about the future subtracts from enjoyment of the present
  - Measurement of economic (in)security should be part of measurement of economic well-being
2. Risk averse individuals insure and/or change behaviour to mitigate costs of uninsured hazards
  - Measures of economic (in)security predict behaviour
    - both public & private
  - Welfare State is largely about risk mitigation
  - Risk aversion explains some aspects of slow development
3. Economic Security = Human Right
  - Public & Private Risk Mitigation much less available for citizens of poor nations – i.e. most of humanity
    - Poorer and Riskier lives for most people

# UNITED NATIONS' UNIVERSAL DECLARATION OF HUMAN RIGHTS (1948)

- “Everyone, as a member of society, has a right to social security.”
  - Article 22
  
- “Everyone has the right to a standard of living adequate for the health and well being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.”
  - Article 25

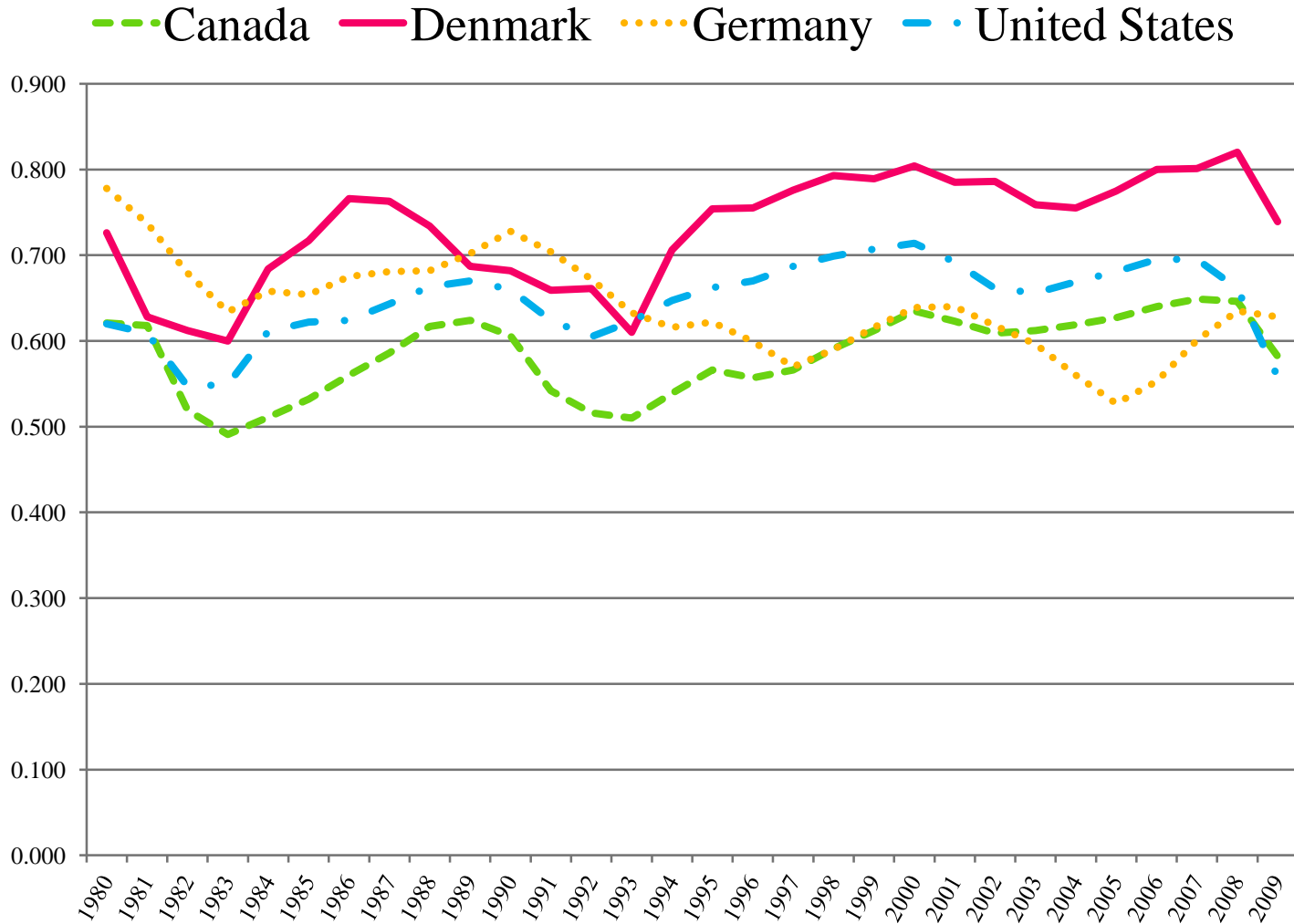
## WHAT'S 'INSECURITY' ?

- “the anxiety produced by a lack of economic safety – i.e. by an inability to obtain protection against subjectively significant potential economic losses”
  - Osberg (1998); Bossert & D’Ambrosio (2009)
  
- “Named Risks” approach for Economic Security
  - UN Universal Declaration of Human Rights (1948: Article 25)
  - **unemployment, sickness, widowhood, old age**
  - Hazards – not volatility – are focus of public policy
    - Constitutional “Rights” imply which hazards matter for public policy
      - Democratic process => legitimacy, unlike random academic opinion
    - Population of concern = all citizens (potentially)
  
- Linear Scaling:
  - Normalized to Unit Interval
    - $(1.05 * \text{Max} - \text{value}) / ((\text{Max} - \text{Min}) * 1.1)$

# “SECURITY IN THE EVENT OF UNEMPLOYMENT”

- Risk of income loss due to unemployment
  - Original: Expected value concept
    - = Prob (unemployment) x UI replacement rate
  - Probability (Unemployment) much more important for Subjective Well-Being than replacement rate
    - Non-monetary costs + Expectation (wage loss)
    - New weighting =  $0.8 * (\text{Unemp}) + 0.2 * (\text{replacement})$
  - Weighted by % population aged 15-64
- Compound risk = Prob (event) \* Prob (Not Insured)

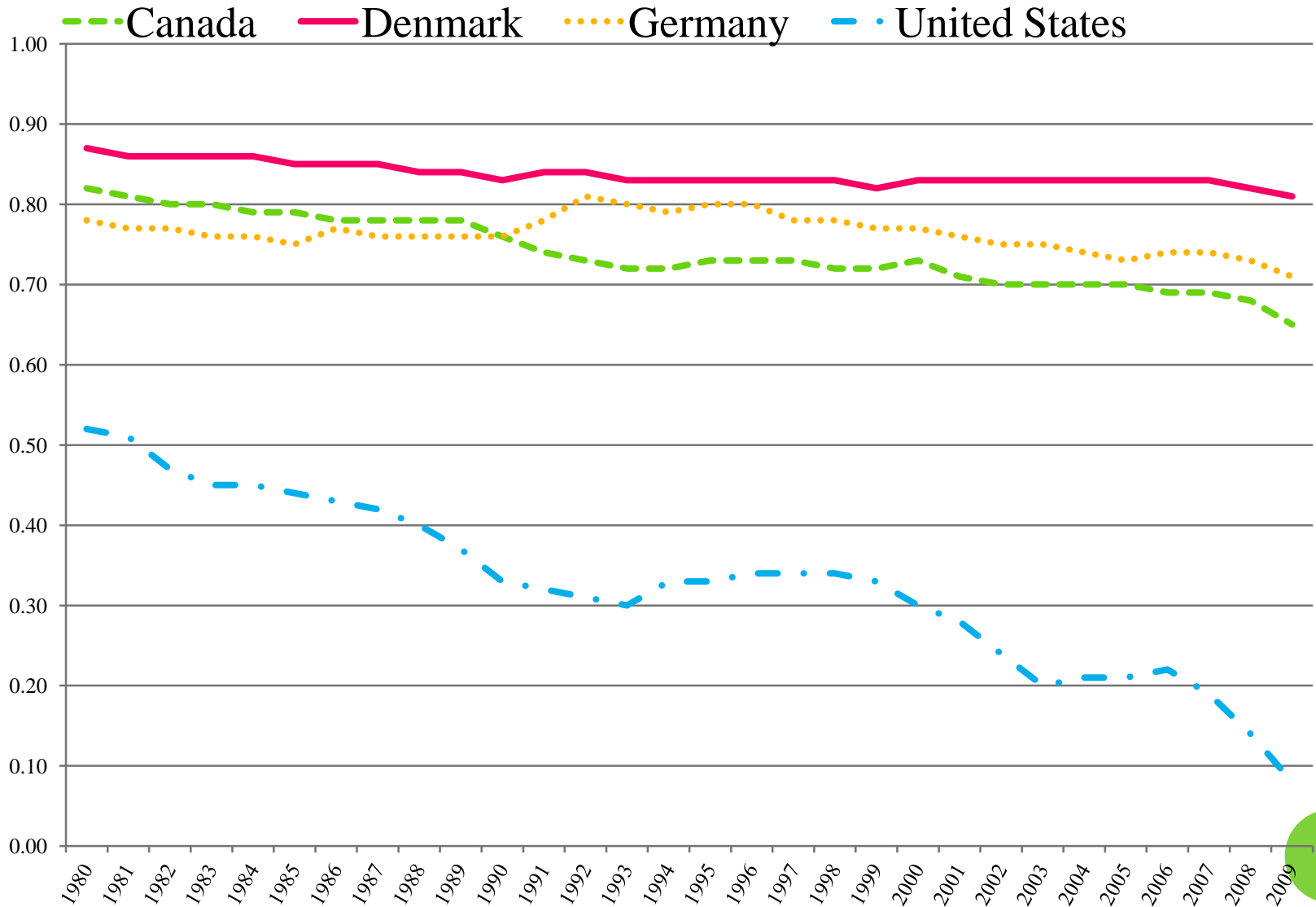
# TRENDS IN SECURITY FROM UNEMPLOYMENT, 1980-2009



# *“SECURITY IN THE EVENT OF ..SICKNESS”*

- Risk of financial costs of illness
  - Uninsured out of pocket medical expenses as % disposable income
- Public Health Insurance is major determinant
  - But co-pay, imperfect coverage & trends to uninsured therapies (e.g. drugs) imply significant trends
  - US – only affluent nation with high % uncovered
- Loss of earnings implied by illness
  - Important risk not now captured by IEWB

# Security from Financial Cost of Illness



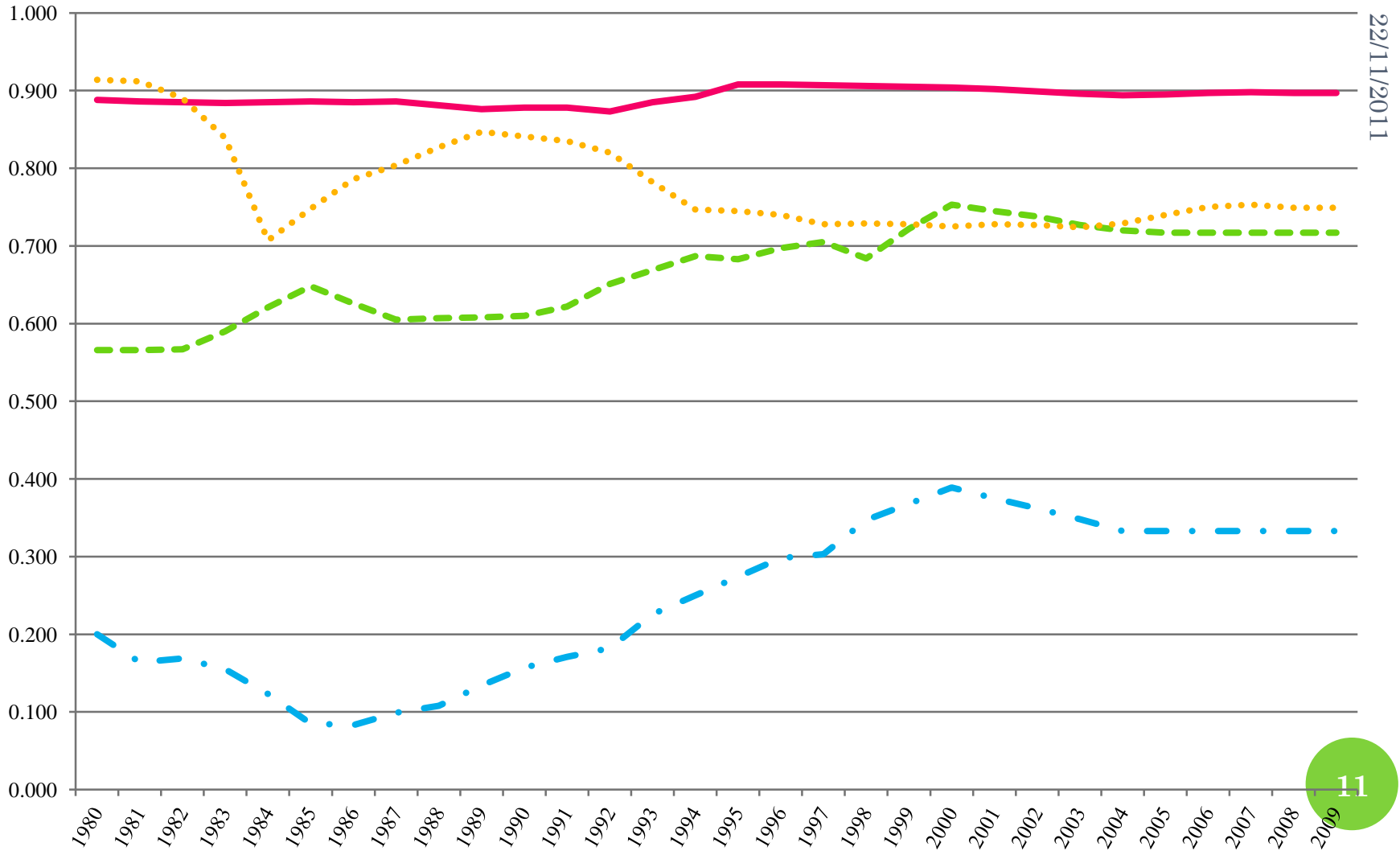
## *“SECURITY IN THE EVENT OF .. WIDOWHOOD”*

- 1948 Context – Sole Breadwinner + WWII Mortality
- Now – divorce/separation => single parent
  - “women and children – one man away from poverty”
    - Transition to Single Parent status – robust poverty predictor
- Risk of female single parent poverty
  - (divorce rate) \* (poverty rate) \* (poverty gap)
    - (poverty rate & gap of single women with children)
    - Divorce: US (4.2) > Denmark(2.7)>German(2.3)>Canada (2.2)
    - Poverty Rate: US (.27)>Canada(.2)>Germany(.15)>Denmark(.07)
- Outlier on all Items = Outlier in aggregate



# Security from Single Parent Poverty: 1980-2009

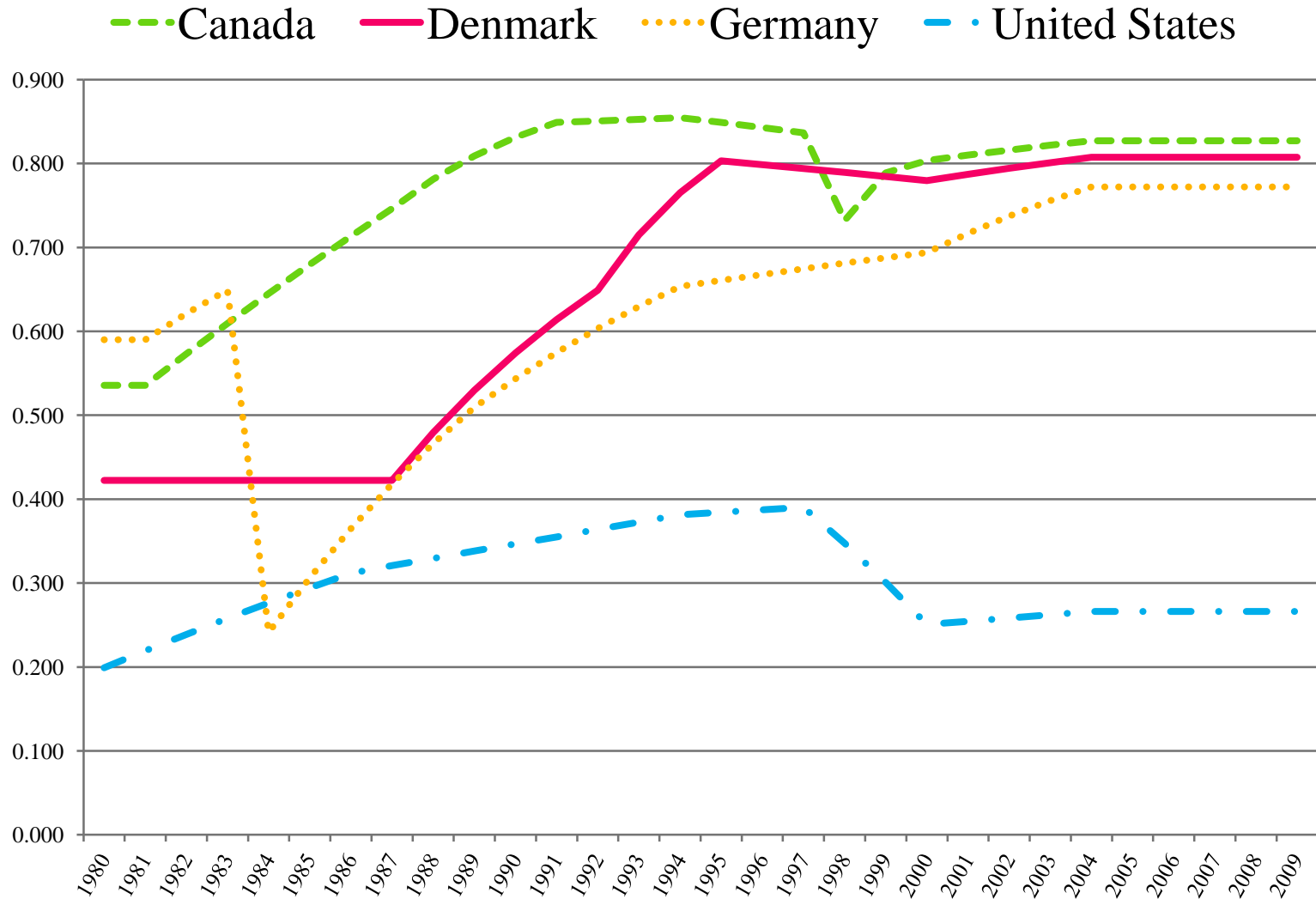
—•— Canada    — Denmark    ••• Germany    —•— United States



# “SECURITY IN THE EVENT OF ...OLD AGE”

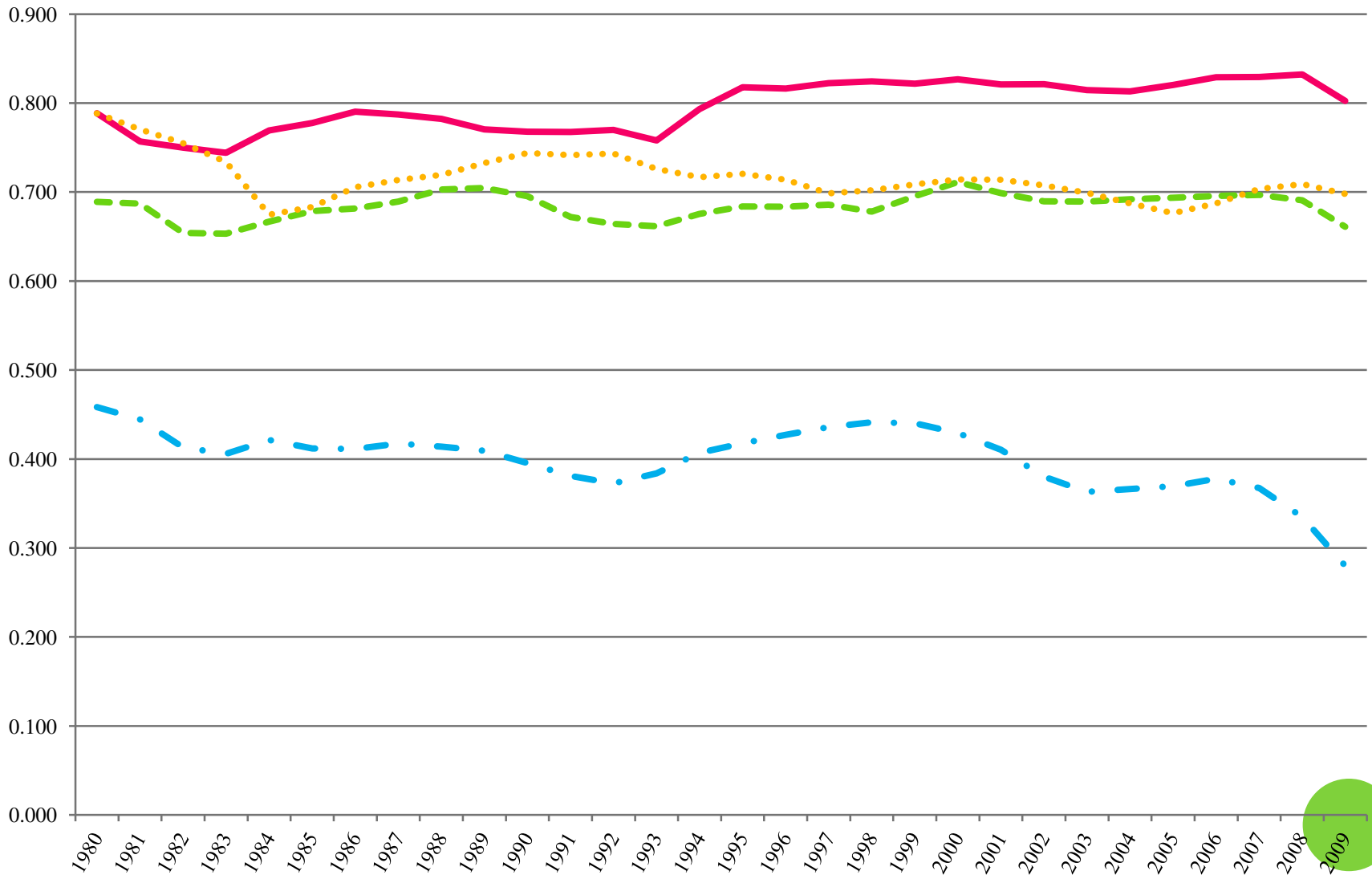
- Risk of poverty in old age \* depth elderly poverty
  - Weighted by % population aged 45-64
  - (re-weighting to 100 % population makes little difference)
- Rich country “spike” in income distribution of elderly
  - Few elderly have substantial non-housing wealth
  - Most depend on public pension
    - Many get same income because comes from same (public) source & is calculated by the same formula
      - Minimum often close to poverty line
      - Revisions imply fluctuations in real value

# Security from Poverty in Old Age



# The IEWB Index of Economic Security

Canada Denmark Germany United States



# HOW TO MEASURE ECONOMIC SECURITY IN POOR NATIONS?

- Hugely different economic context
- Much more limited statistical data

BUT

- Fundamentally similar human needs & rights
- Rapidly improving statistical data
  
- Important because:
  - Most of world's population
  - Poorer + More Insecure = Much less Well-Being
  - Social Protection is a key problem in development
  
  - Urbanization + Mobility + Modernism + Demography  
→ Erosion of extended family & old risk-pooling modes

# RISK OF LOSS OF LIVELIHOOD

- Risk of 'Unemployment'
  - 1948: UN signatories = industrialized nations
  - Loss of paid job = loss of livelihood
    - Unemployment Insurance replaces ?
  
- Poor Nations – e.g. sub-Saharan Africa
  - Paid Jobs in formal sector = minority of Labour Force
  - Unemployment Insurance = Social Assistance = 0
  - Job Loss a major hazard in urban areas
  
  - Much of labour force in agriculture
  - Risk of crop failure is main hazard
  
  - Index of Livelihood Security =  $P_E * I_E + P_A * I_A$

Security from Loss of Livelihood		Brazil	Germany	United States	Vietnam
Unemployment Rate	A	8.3	7.7	9.3	2.4
Scaled Unemployment Rate	B = Scaled from A	0.765	0.782	0.737	0.932
Replacement Rate (%)	C	0.0	23.7	13.6	0.0
Scaled GRR	D = Scaled from C	0.000	0.451	0.258	0.000
Index of Security from Unemployment	$E = (0.8*B) + (0.2*D)$	0.612	0.716	0.641	0.746
Per Cent Agricultural Employment	F	19.3	2.2	1.4	57.9
FAO Food Production Index Per Cent Deviation from Trend, 2007	G	43.2	0.0	1.0	36.5
Index of Agricultural Deviation	H = Scaled from G	0.405	0.652	0.647	0.444
Index of Livelihood Security	$I = H*(F/100)+E*(1-(F/100))$	0.572	0.714	0.641	0.571

## ECONOMIC RISK OF 'ILLNESS'?

- Over-burdened public system + Private payment + nil insurance → out of pocket costs are big worry
- Out of pocket costs as % of income after tax may indicate level of risk in affluent nations
- BUT – food before medicine
  - In poor nations, median household spends much of income on food
- Out of pocket health care costs as % of non-food spending = better measure of health care cost risk exposure

<b>Security from Health Care Costs</b>		<b><u>Brazil</u></b>	<b><u>Germany</u></b>	<b><u>United States</u></b>	<b><u>Vietnam</u></b>
Per Capita Total Health Spending (\$)	A	875	3,922	7,164	201
Private Expenditures on Health as % Total on health (2008)	B	56.0	22.0	52.2	61.5
Out of Pocket expenditure on health as % private expenditure on health	C	57.1	53.9	24.4	90.2
Out of Pocket on health as % Total on health Spending	$D = 100 * (B/100) * (C/100)$	32.0	11.9	12.7	55.5
GDP per capita PPP US Current \$	E	10,416	37,352	47,131	2,791
Out of Pocket on health as % GDP per Capita	$F = (A * (D/100) / E) * 100$	2.69	1.25	1.94	3.99
Food as % of Household Spending	G	20.8	20.0	13.6	50.1
Out of Pocket Health Costs as % of Income After Food Spending	$H = (F / (100 - G)) * 100$	3.389	1.556	2.242	8.004
Index of Security from Cost of Illness	$I = \text{Scaled from } H$	0.808	0.912	0.873	0.546

# SECURITY FROM RISK OF 'WIDOWHOOD'?

- Most Gendered of UN Basic Human Rights
- Individual incomes pooled within households BUT women typically retain child care responsibilities if male earnings lost

Household Composition Risk + Individual Income Risk → Insecurity of Household Income

- Substantial adult male mortality
  - AIDS + Autos +..+ .. → High Male Mortality
- Divorce/Separation also significant

=Prob (divorce+widow)\*rate(single parent poverty)\*poverty gap

- But low male earnings imply less change in poverty probability
- NOTE: widowhood in rich nations also matters

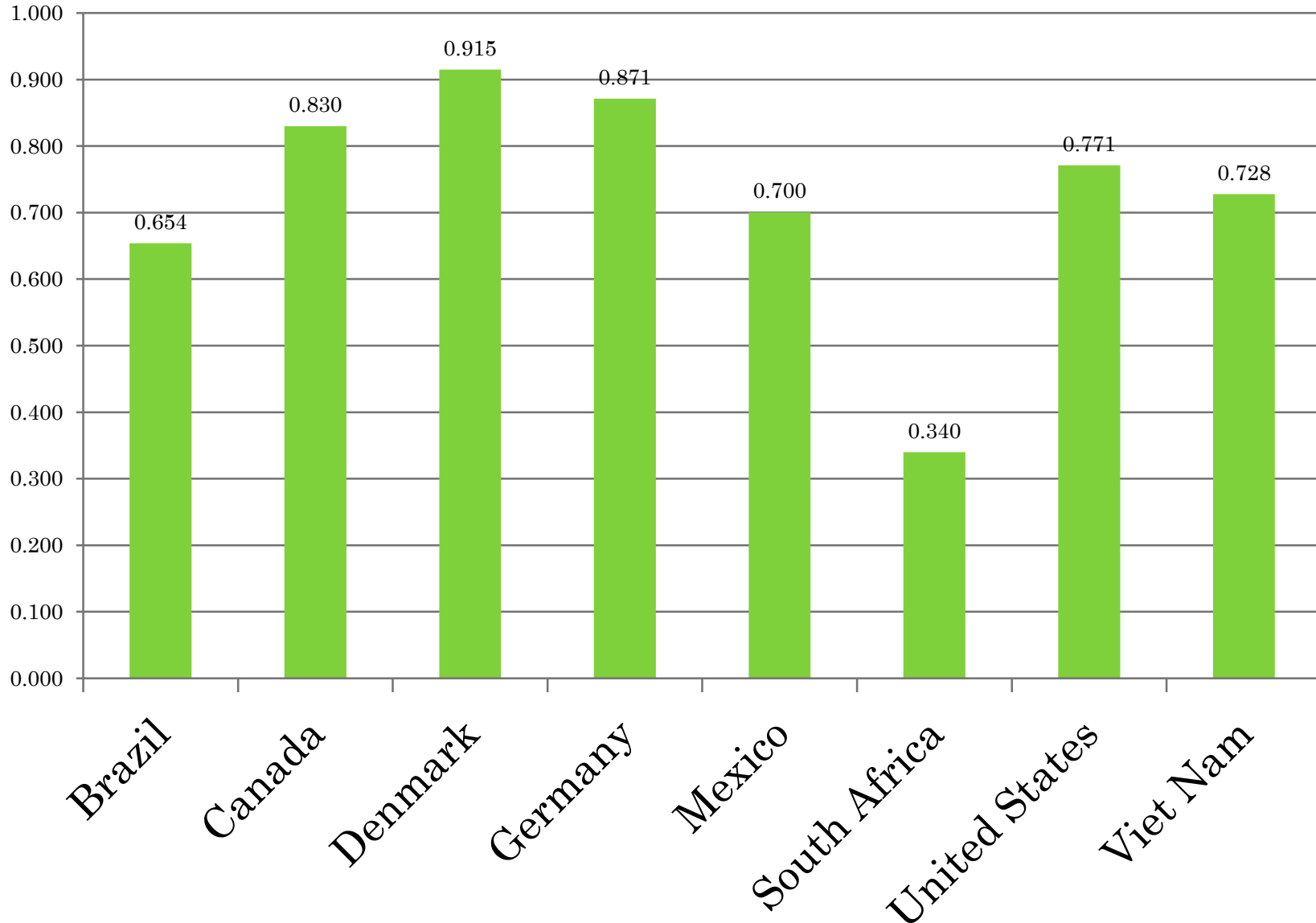
Index of Security from Widowhood		Brazil	Germany	United States	Vietnam
Annual Divorce Rate per 1,000	A	0.87	2.34	3.70	0.21
Annualized Adult Male Mortality Rate	B	4.56	2.20	2.98	3.84
Annual Hazard (Divorce + Widowhood)	$C = A + B$	5.43	4.54	6.68	4.06
Poverty Rate	F	42.89	14.85	27.07	25.08
Poverty Gap	G	44.49	25.01	36.99	22.17
Risk of Single Parent Poverty	$H = C * F * G / 1000$	10.35	1.69	6.69	2.26
Index of Security from Widowhood	I = Scaled from H	0.77	0.96	0.85	0.95

# SECURITY IN OLD AGE?

- Risk of Poverty in Old Age
  - Anxiety about future ← locally relevant concept of poverty
    - $Z = \max[Z_A, Z_R]$ .
      - $Z_A$  = \$2 per day PPP “absolute” poverty line
      - $Z_R$  = “relative” poverty line =  $\frac{1}{2}$  mean income
  - Poor nations
    - If few of elderly get pension income, few can stop working
      - “Retirement” not normal life stage
    - If most elderly live in extended families, and pool income & expenditure with non-elderly
      - Implication: Poverty among elderly similar to non-elderly

Index of Security in Old Age		Brazil	Germany	United States	Vietnam
Poverty Rate	A	42.9	14.9	27.1	25.1
Poverty Gap	B	44.5	25.0	37.0	22.2
Poverty Intensity	$C = A*B/100$	19.08	3.71	10.01	5.56
Index of Security in Old Age	$D = \text{Scaled from } C$	0.470	0.897	0.722	0.846

## IEWB Index of Economic Security Equal Weights



# ECONOMIC SECURITY AMONG RICH AND POOR

- Economic Security
  - Component of Economic Well-Being
  - Predicts risk-avoidance & loss mitigation behaviour
    - Development impacts huge for least well-off
  - Causal role in health
    - Obesity – 26% gap in rich nations – index explains 12%
    - Mental Health impacts in poor nations
- Income and Security – correlated but not same
  - Substantial variation among rich & poor countries
  - Social Protection in the development process – a key problem for poor nations
- Data for 70 countries now– will improve with time!

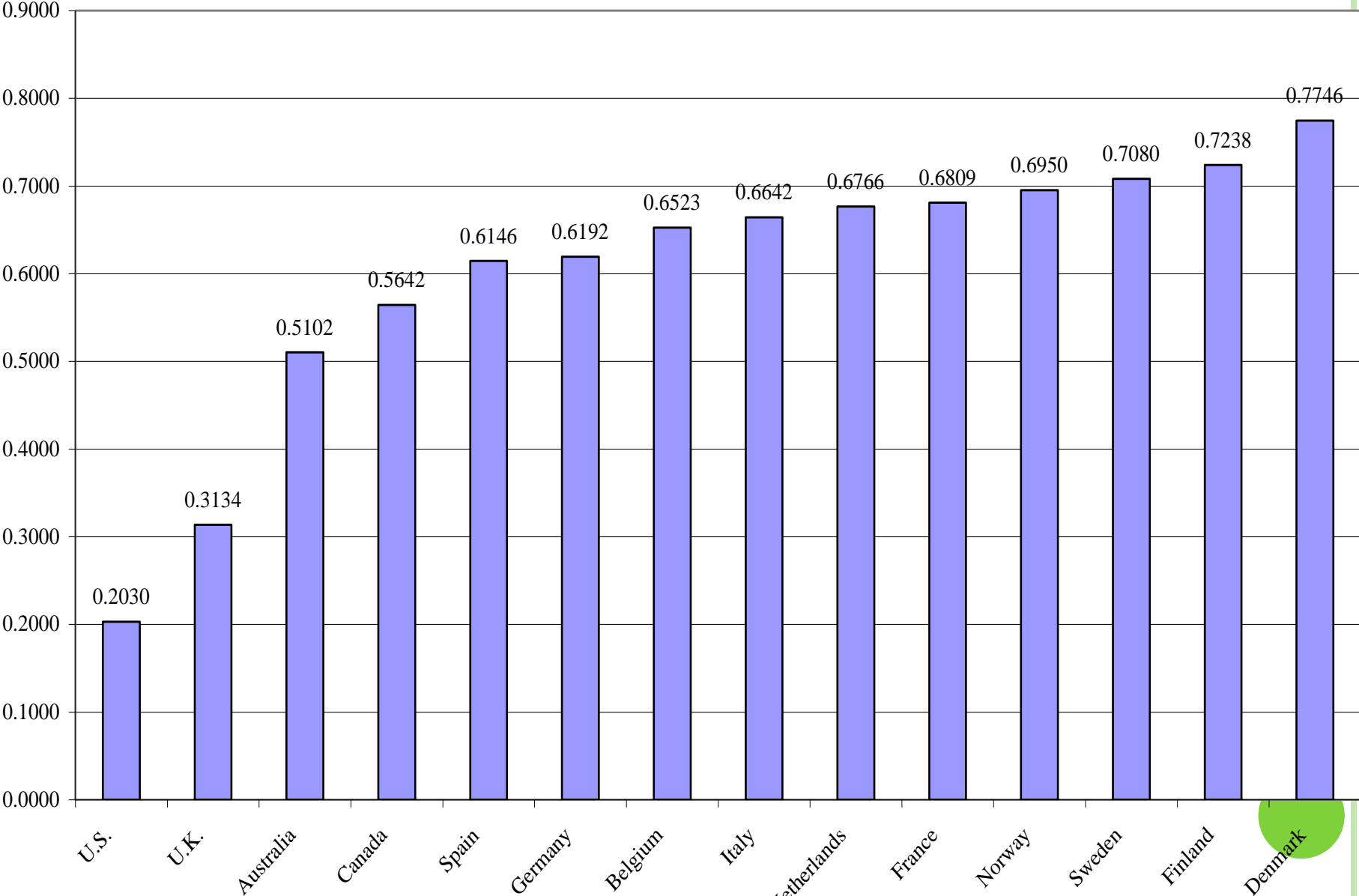
- See [www.csls.ca](http://www.csls.ca)
- Data for 14 OECD nations 1980-2009 available at:  
<http://www.csls.ca/iwbtool.asp>.
- Data for 70 countries in 2008 available at:  
[www.csls.ca/data/eirpn2011.asp](http://www.csls.ca/data/eirpn2011.asp)

# “ECONOMIC SECURITY”

- Risk of income loss due to unemployment
  - changes in employment rate x UI coverage x UI replacement rate
- Risk of financial loss due to illness
  - Uninsured medical expenses as % disposable income
- Risk of single parent poverty
  - poverty rate & gap for single women with children
  - divorce rate of legally married couples
- Risk of poverty in old age
  - chance x depth of elderly poverty

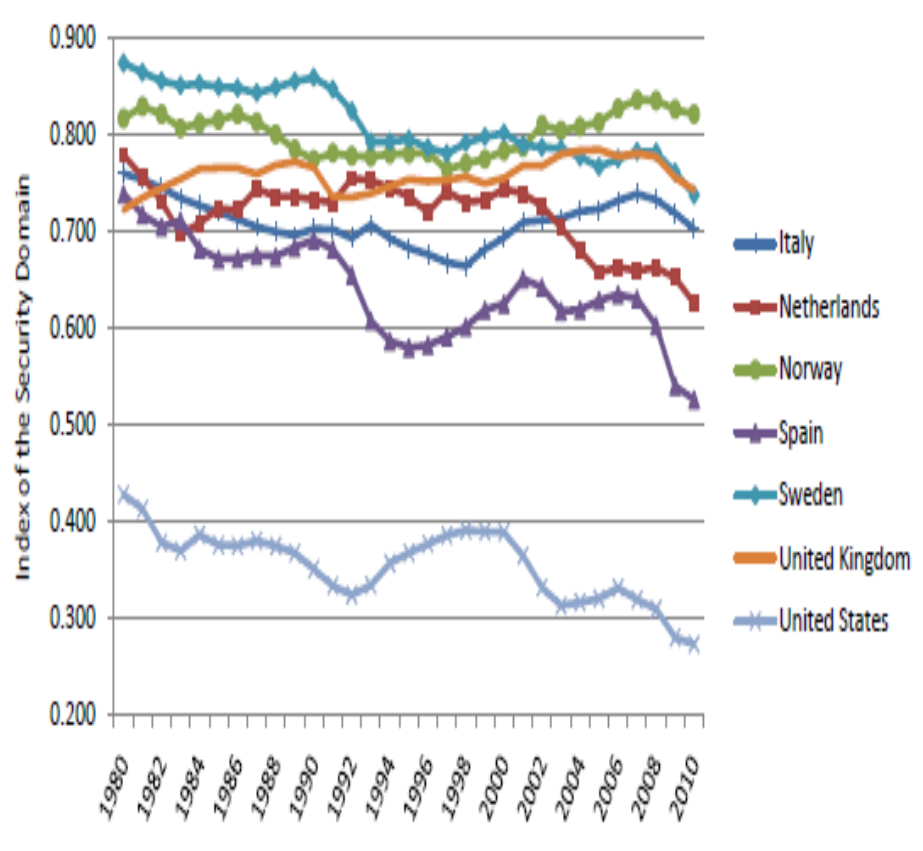
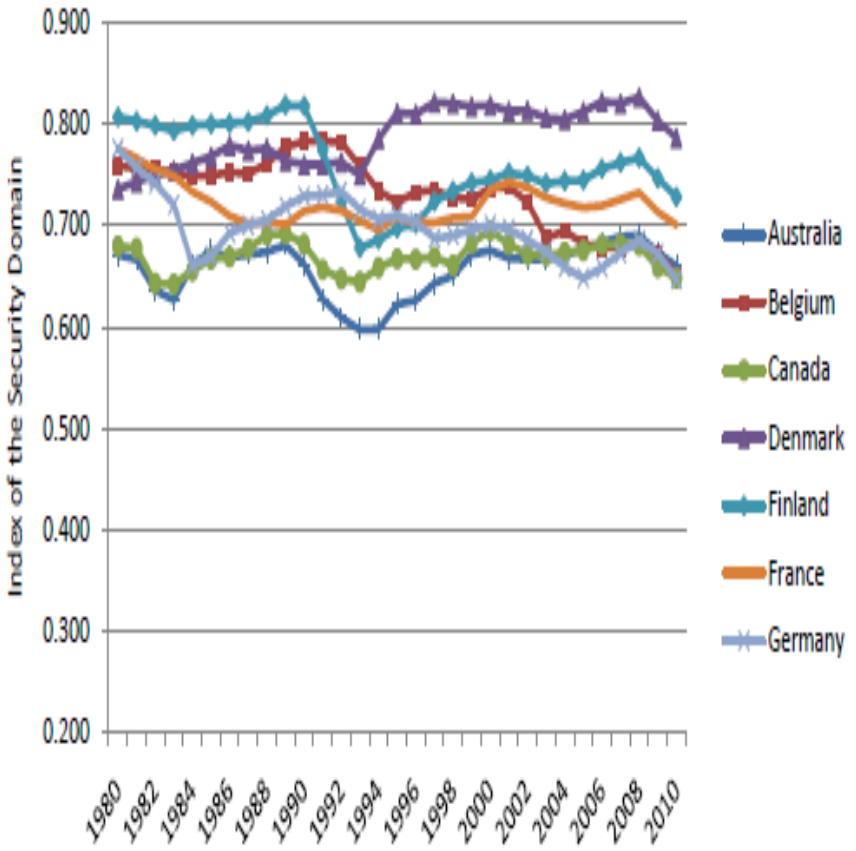


**Chart 7: Index of Economic Security, OECD, 2004**



Source: Table 6.

# Chart 34: Index of the Economic Security Domain, Selected OECD Countries, 1980-2010



# POLICY IMPLICATIONS ?

- Much less gain in economic well-being than in real GDP per capita 1980-2007
- Major reason has been growth in inequality & insecurity
  - Reducing Inequality & Insecurity was the major objective of the welfare state
  - BUT de-emphasized in recent years
- Social Policy Design should aim at *Well-Being*

