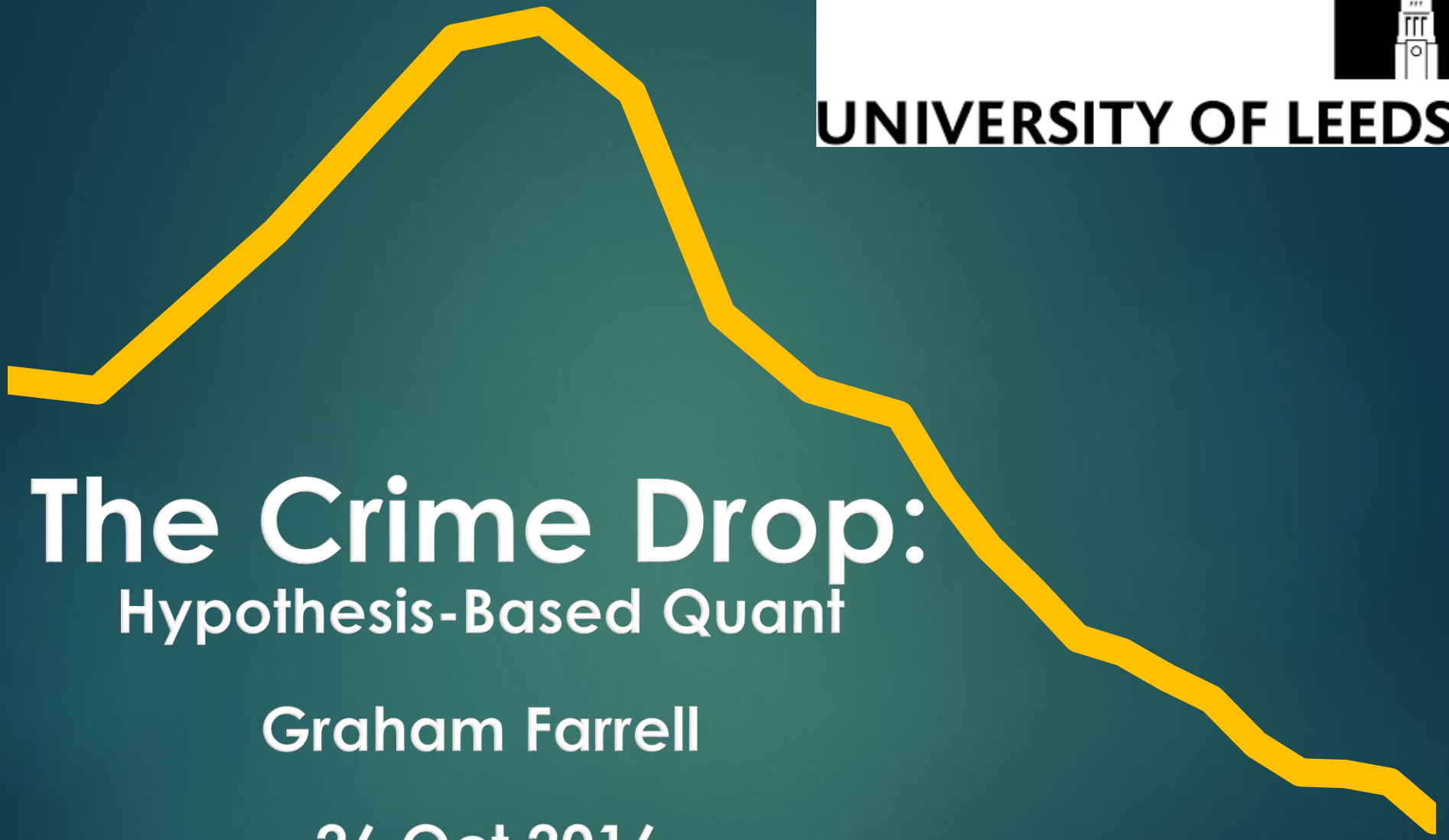


UNIVERSITY OF LEEDS

The Crime Drop:

Hypothesis-Based Quant

Graham Farrell

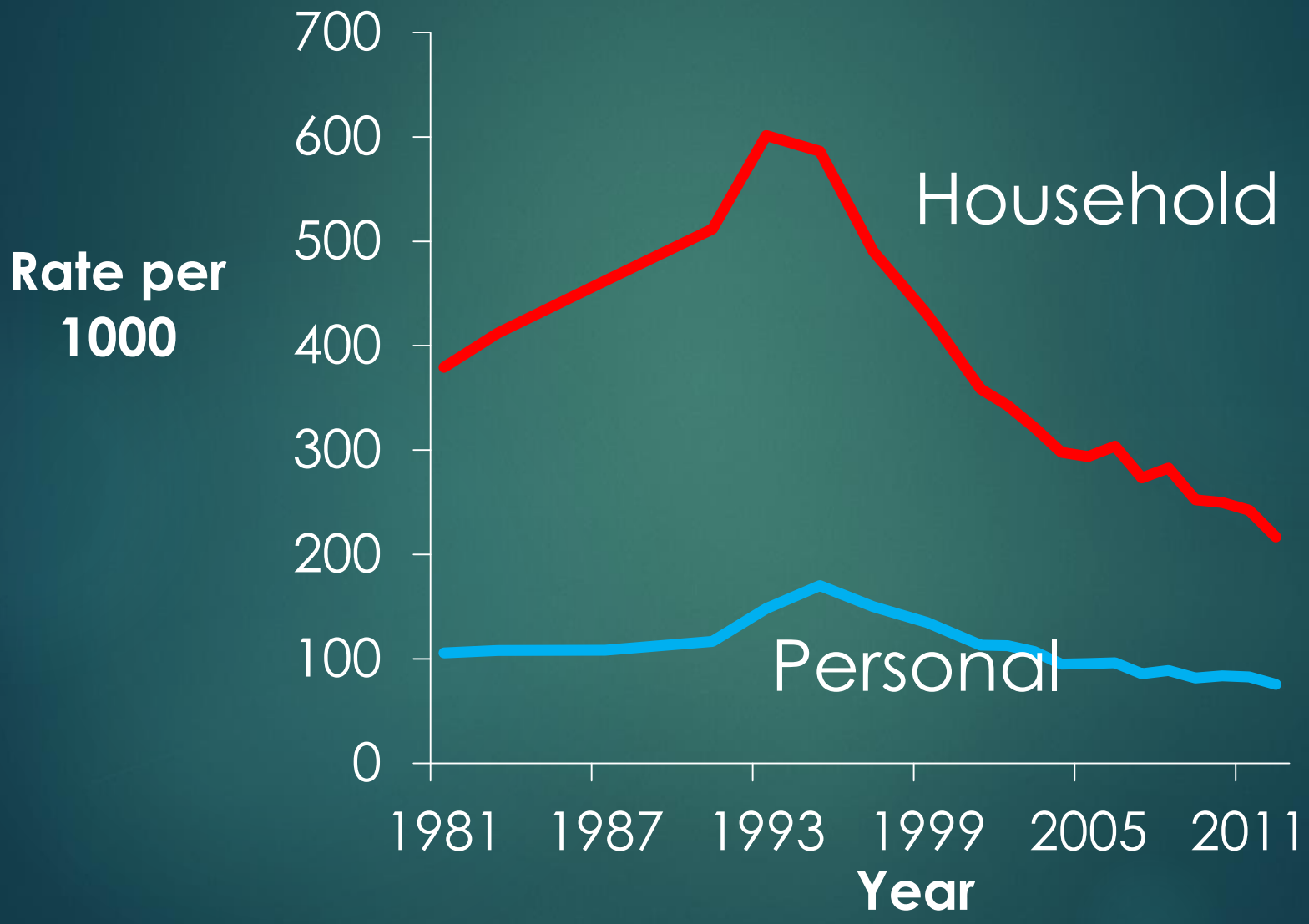
26 Oct 2016

Overview

- Basic quants
- Trends, bits ‘n pieces
- Data signatures
- Drawing conclusions

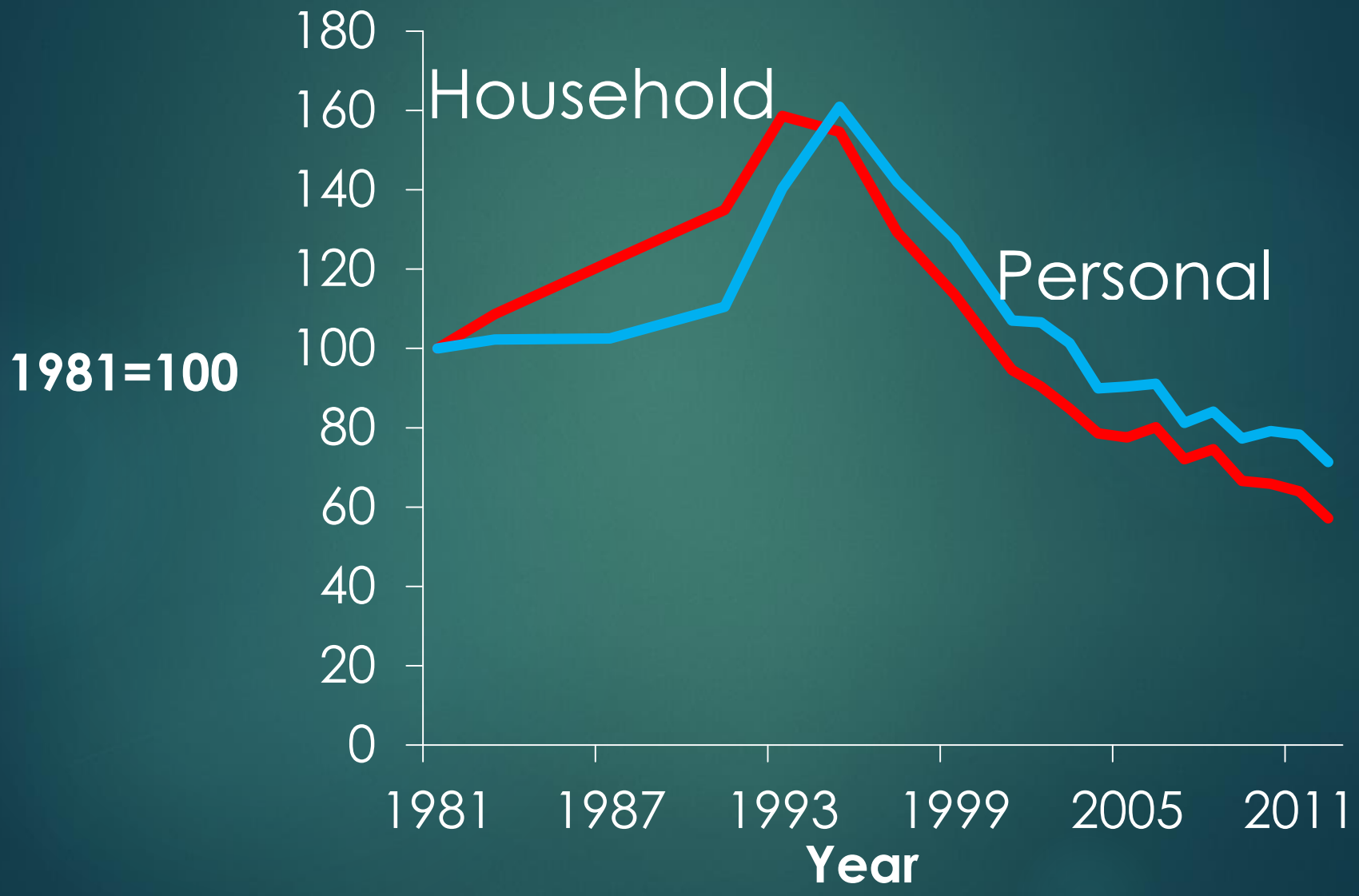
England and Wales

(CSEW)



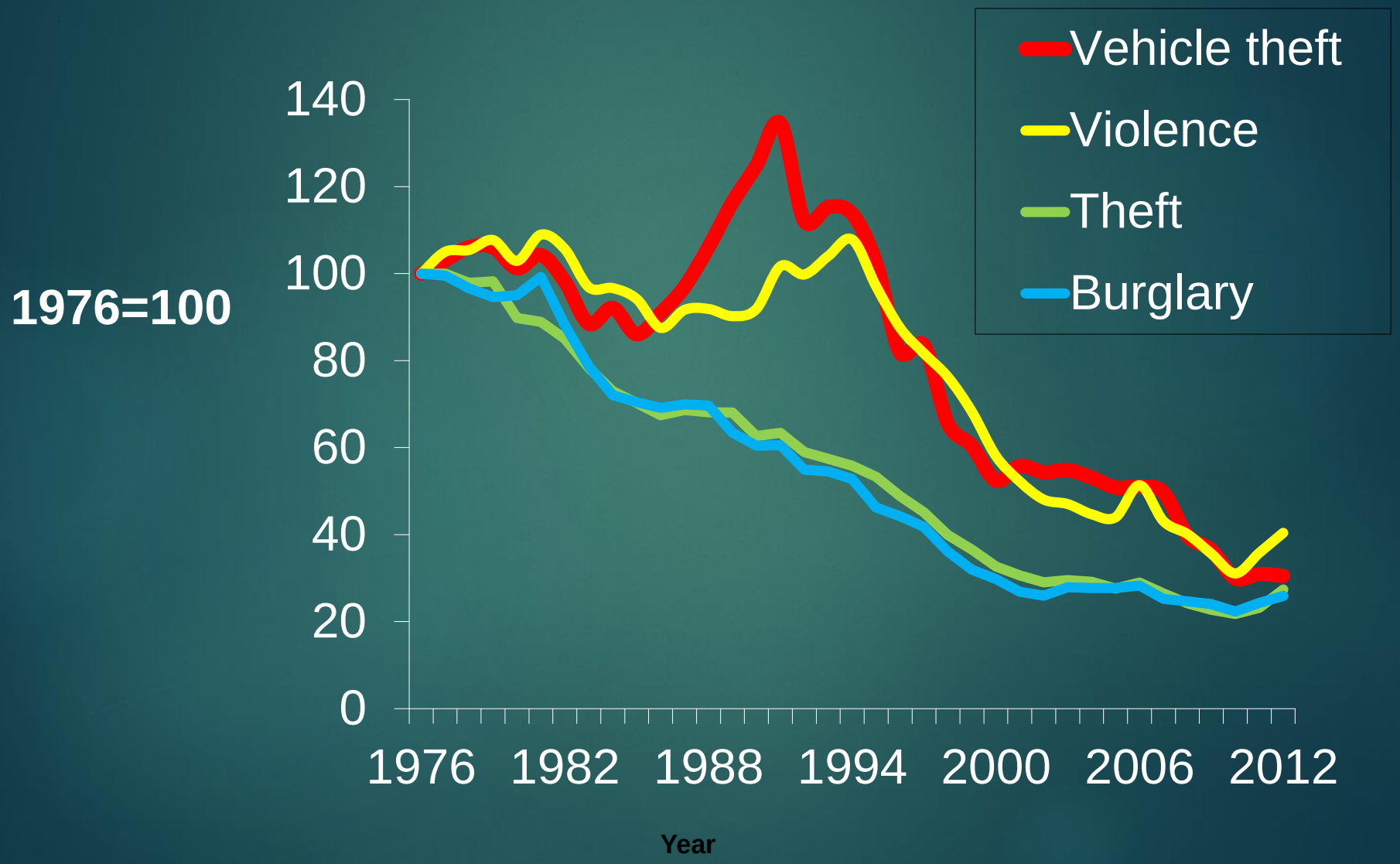
England and Wales

(CSEW)



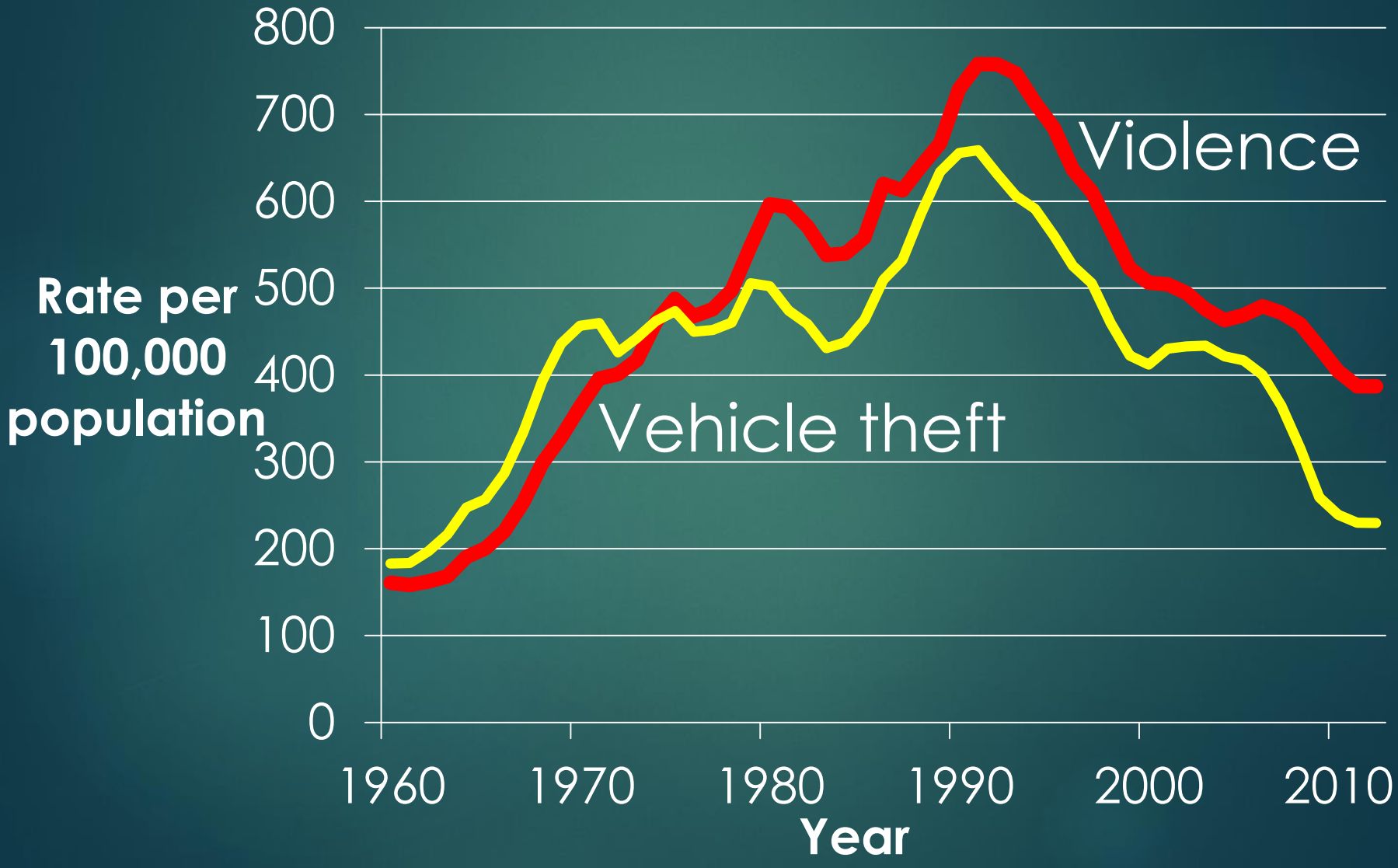
United States 1976-2012

(NCVS)



United States 1960-2012

(UCR)



International crime drop – not a coincidence

- United Kingdom
- United States
- Canada
- New Zealand
- Australia
- Netherlands
- France
- Rest of Europe

The Security Hypothesis

Crime fell due to

- Security improvements widely implemented
  - 'Avalanche of security'
- These produce ***data signatures*** consistent with how they reduce crime
- With a *diffusion of benefits*; and without displacement

Clarke's Avalanche of Security

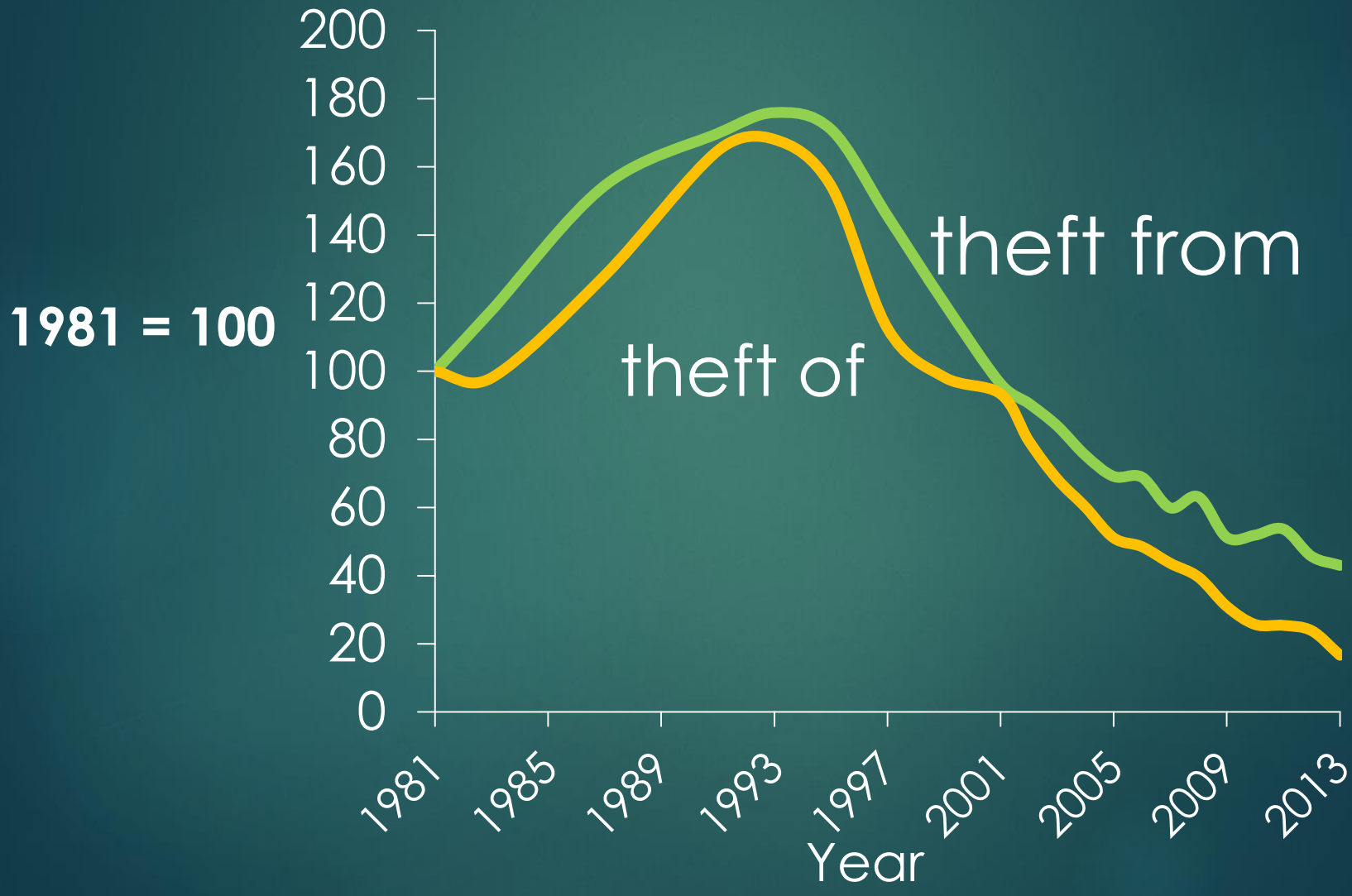
- So many types of security in all areas of public and private life

- Entertainment districts
- Housing
- Transportation
- Businesses
- Retail

Car Crime

Vehicle crime

(CSEW)



The story of car crime

From mid-1980s – high security door deadlocks, then electronic immobilisers

Gradual spread

- high risk popular cars first
- e-immobilisers not mandated on new until 1998

Produced stages of crime decline and continued improvement

Car theft peak

How easy was that?

"The tool that was usually carried was a screwdriver ... used to open a car door by inserting it into the car lock and twisting . . . 'Quicker than a key' according to one of the offenders, aged 17 . . . Fords and Vauxhalls were most popular because they were 'easier to get into and get away' . . . All stated that they were not just after any car, but sporty fast cars.

(Spencer 1992, p.15)

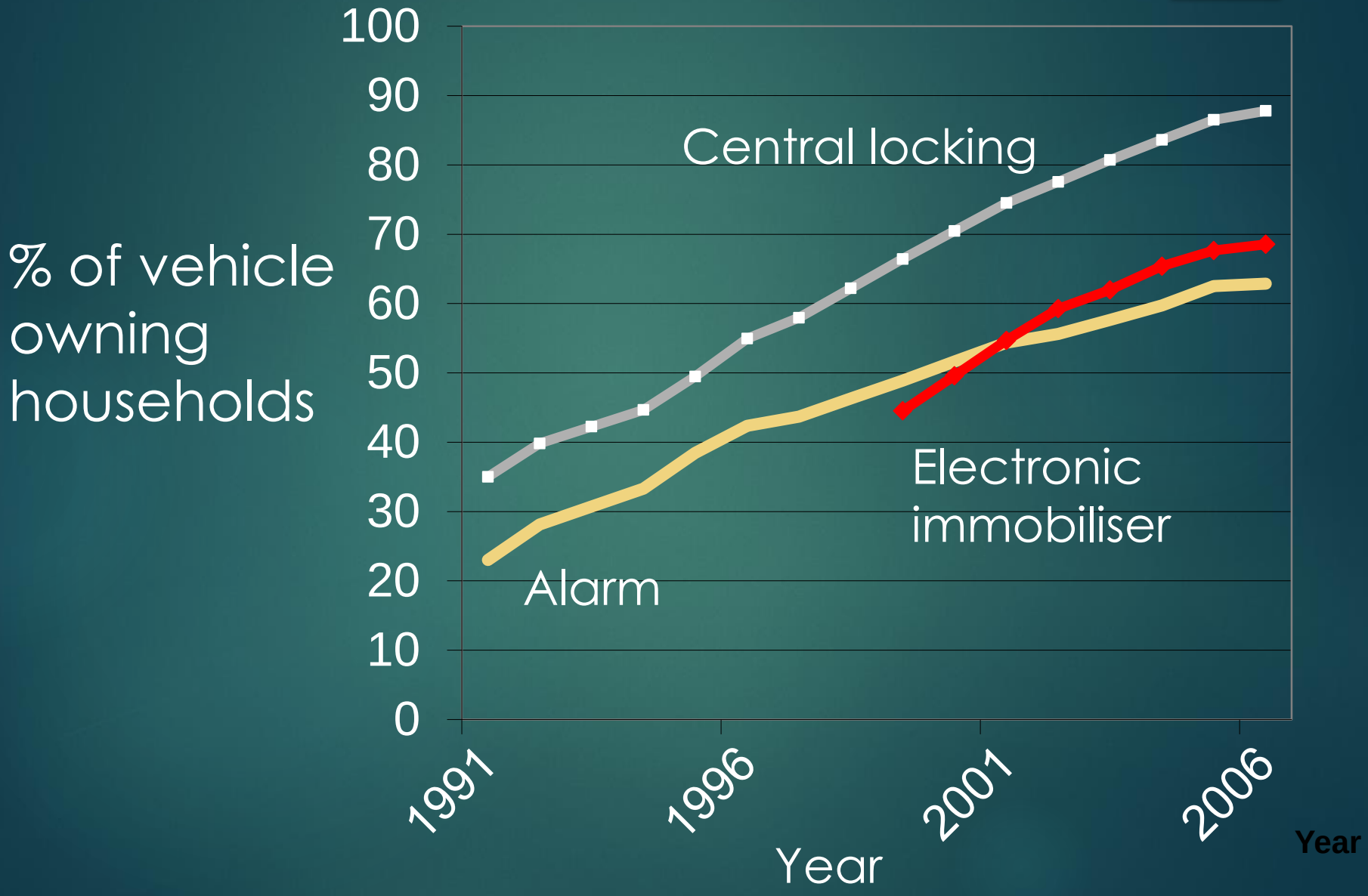
- A few popular models accounted for a disproportionate amount of car crime

  - "…manufacturers … made improvements to the security of popular models" (Houghton 1992)
  - "… the Escort Mk3 introduced security improvements in 1986." (Houghton 1992; 12)

- Ford Escort Mark III was 50% more popular than any other car on the road
- With security, Escort Mk III thefts fell 65% by 1990
- Model this

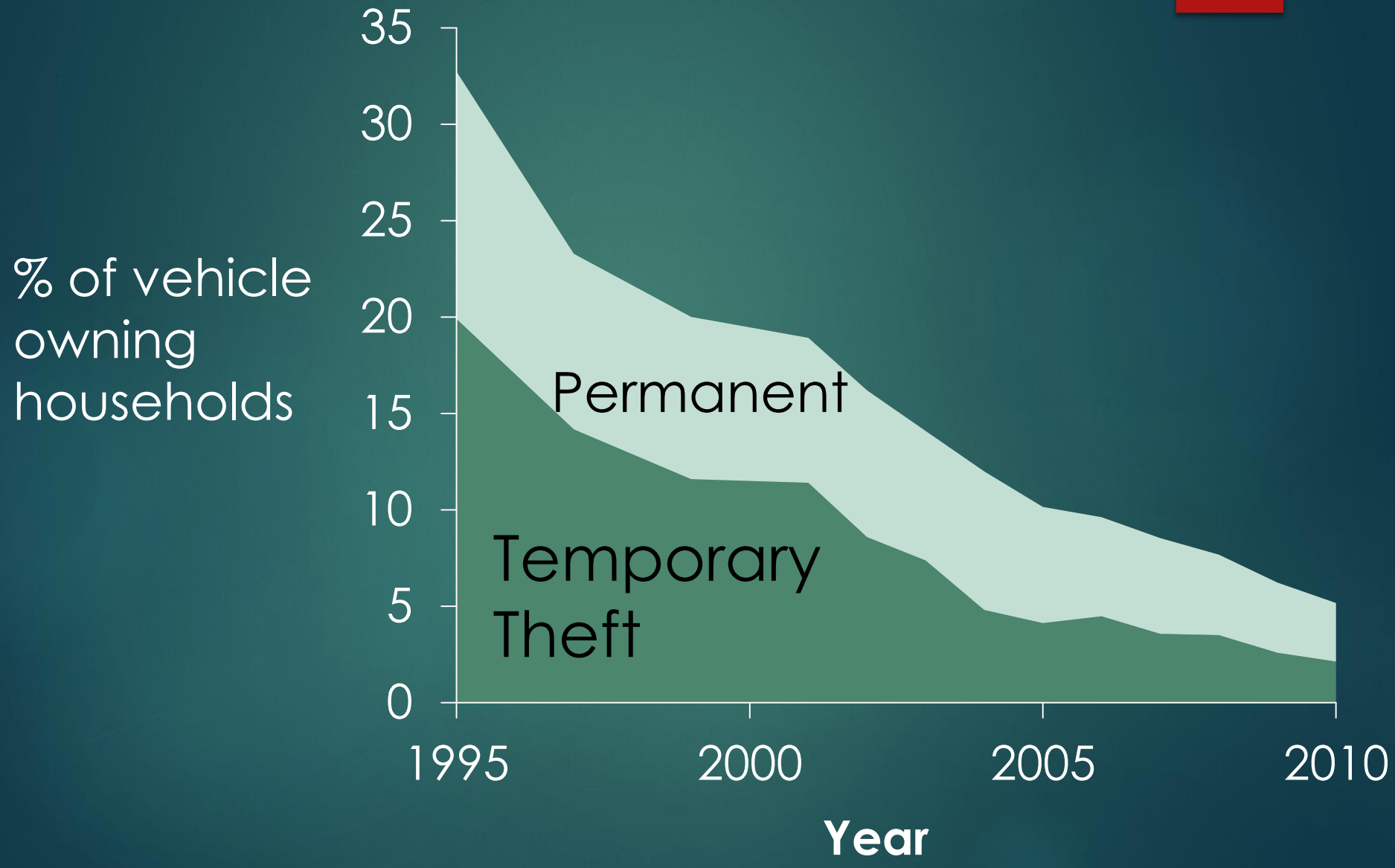
Car security levels

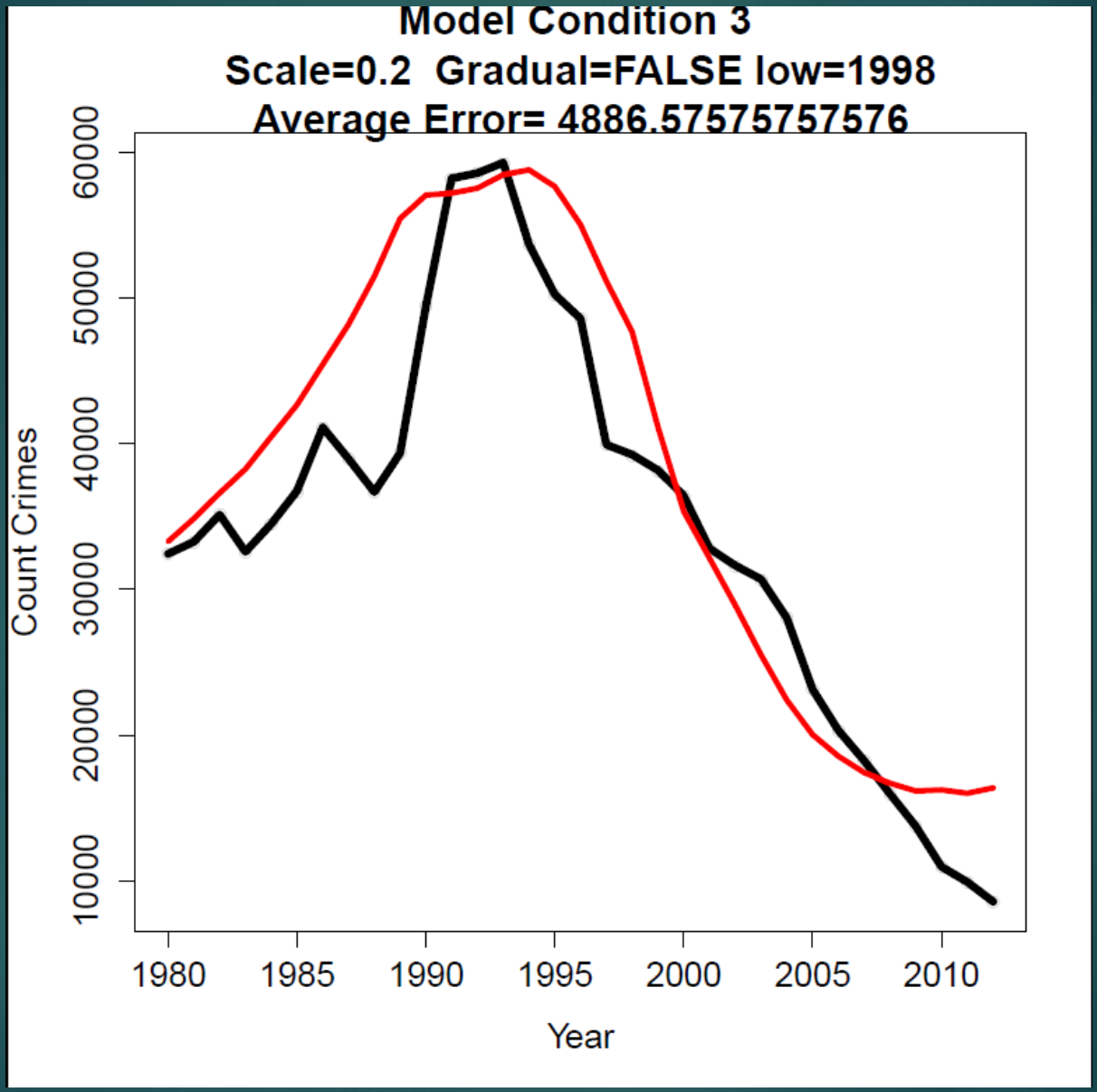
Source: CSEW



Joyriding fell more

Source: CSEW




Model Condition 3
Scale=0.2 Gradual=FALSE low=1998
Average Error= 4886.57575757576
Count Crimes
10000
20000
30000
40000
50000
60000
1980
1985
1990
1995
2000
2005
2010
Year

Data signatures

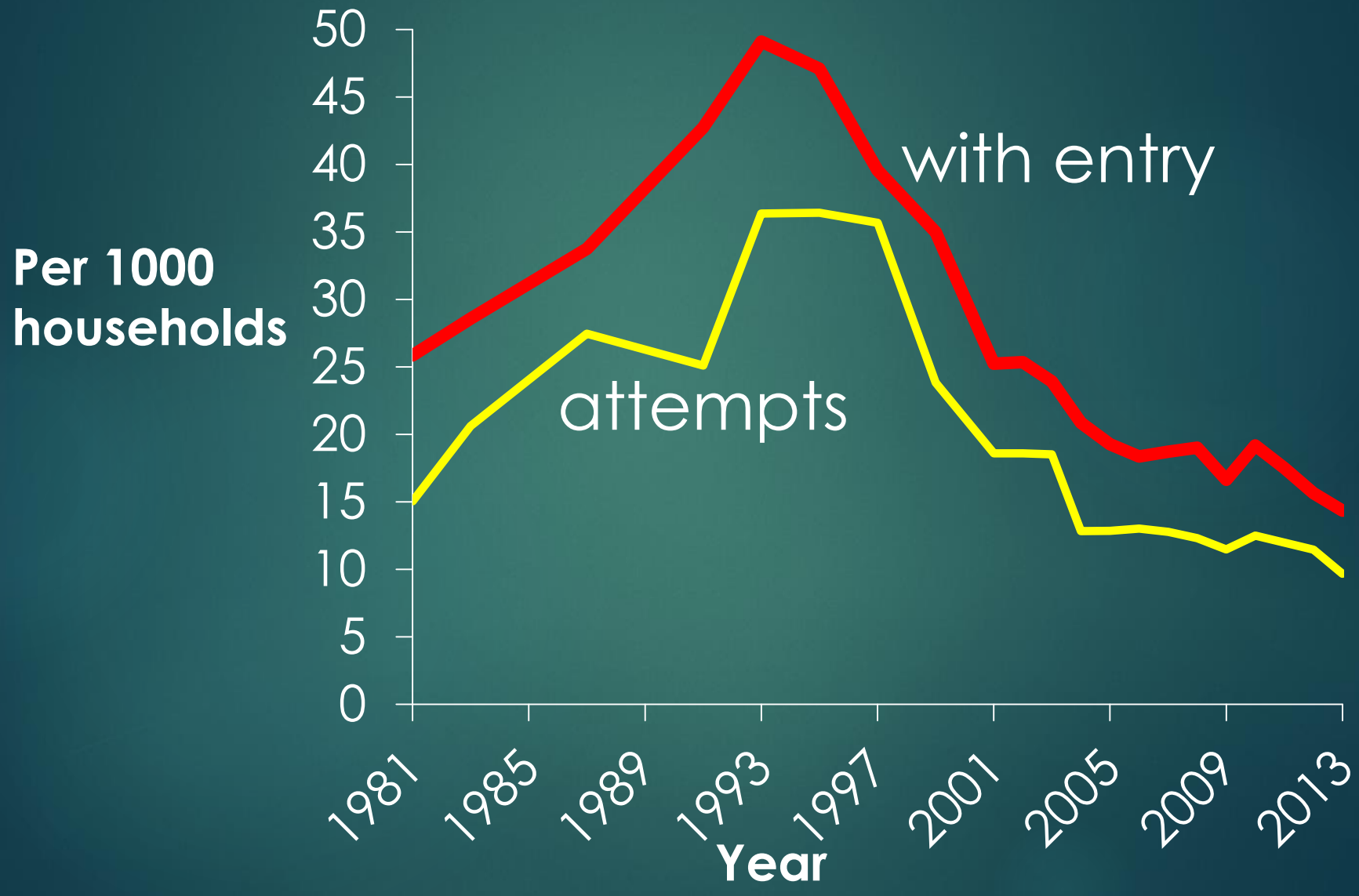
- Timing – spread of security
- Initial focus – popular high risk vehicles first
- Joyriding fell more
- Door forcing fell
- Security device quality
- Device combinations
- Stolen cars became older
- Agent based simulation model

- Natural experiments in Australia and Canada

- Similar findings for Australia, Germany, Netherlands, United States

Burglary

Burglary


Per 1000 households
50
45
40
35
30
25
20
15
10
5
0
with entry
attempts
1981
1985
1989
1993
1997
2001
2005
2009
2013
Year

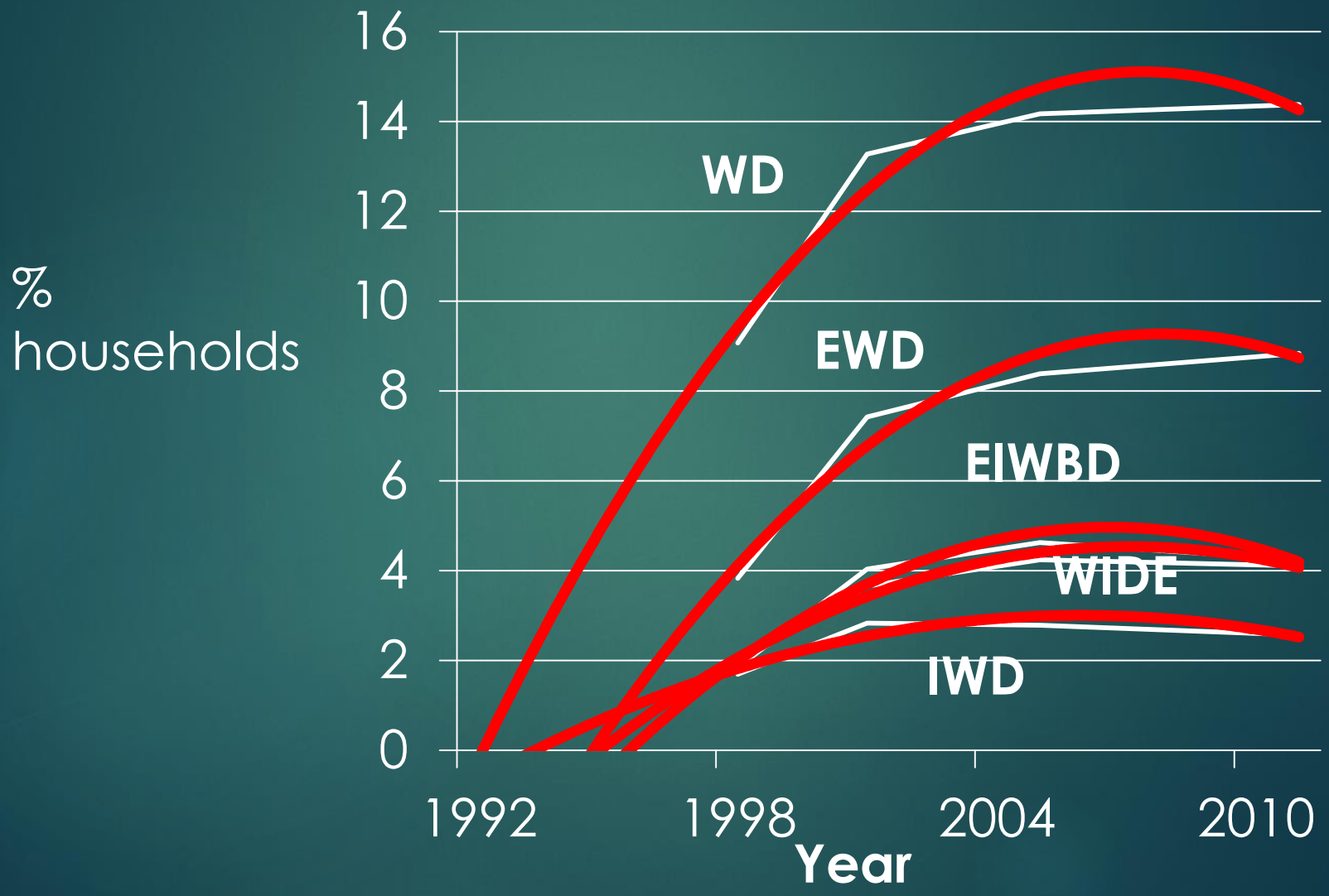
The story of burglary

- Decline in households without security
- Rapid rise in use of multiple security devices
- Causing forced entry to decline

- Via spread of double-glazing and home improvements (AC in US)

% households without security
18
16
14
12
10
8
6
4
2
0
1991
2001
2006
2011
Year

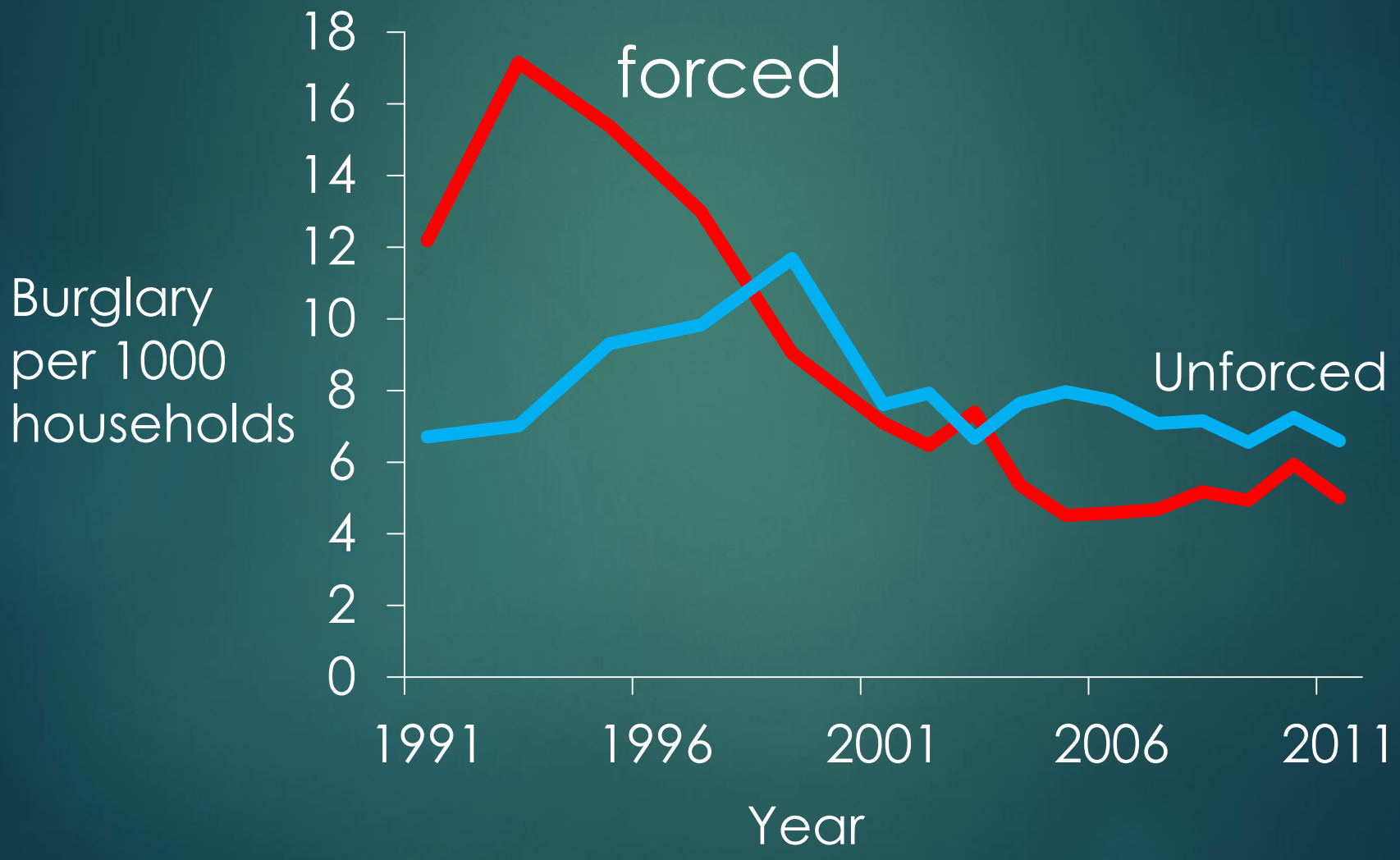
Effective security combinations



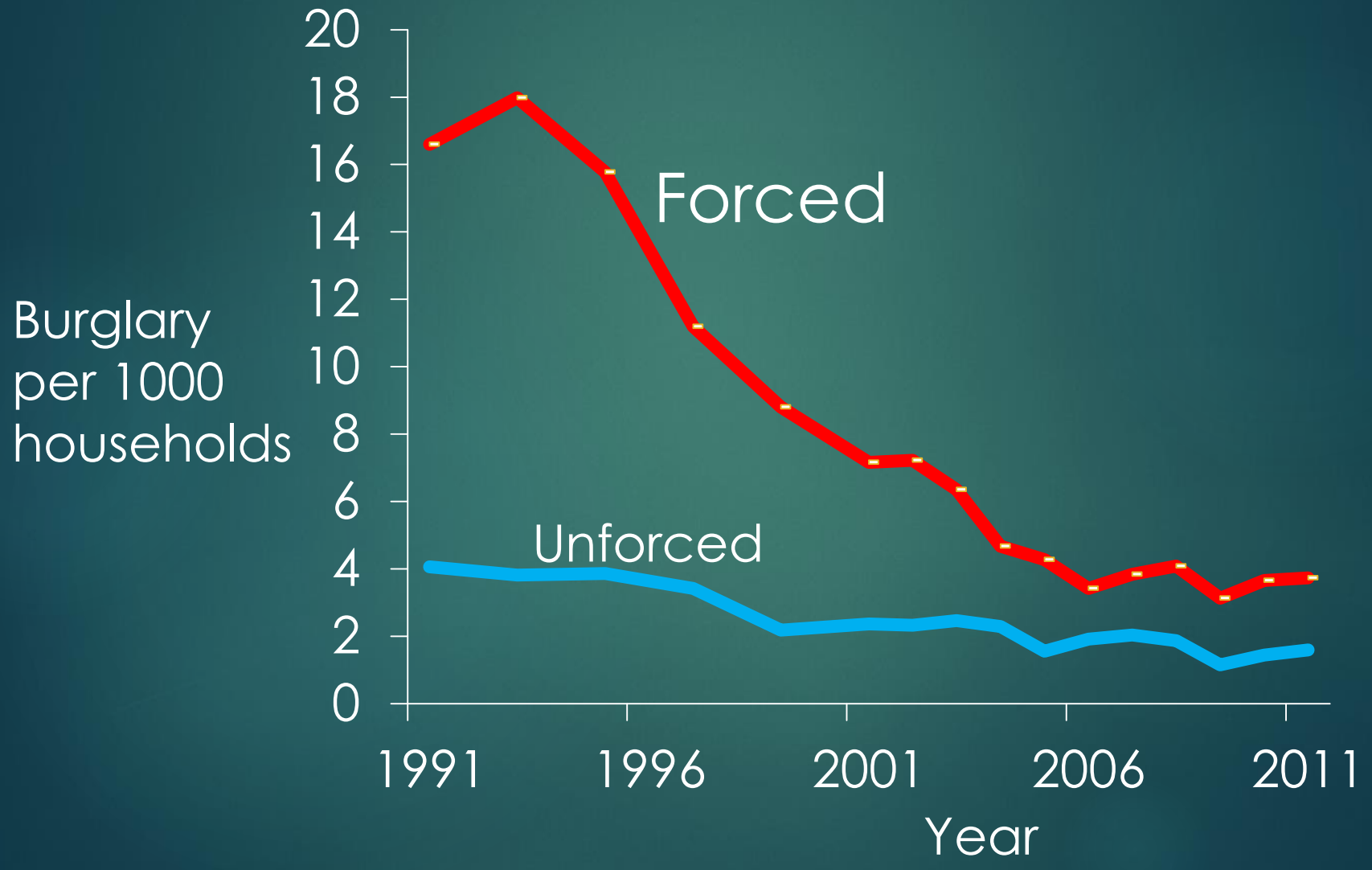
Means of entry

- Forced
  - Remove or break window or door frame, panel or glass – security overcome
- Unforced
  - Use key; push past; deception – no security overcome

Doors


forced
Unforced
Burglary per 1000 households
18
16
14
12
10
8
6
4
2
0
1991
1996
2001
2006
2011
Year

Windows

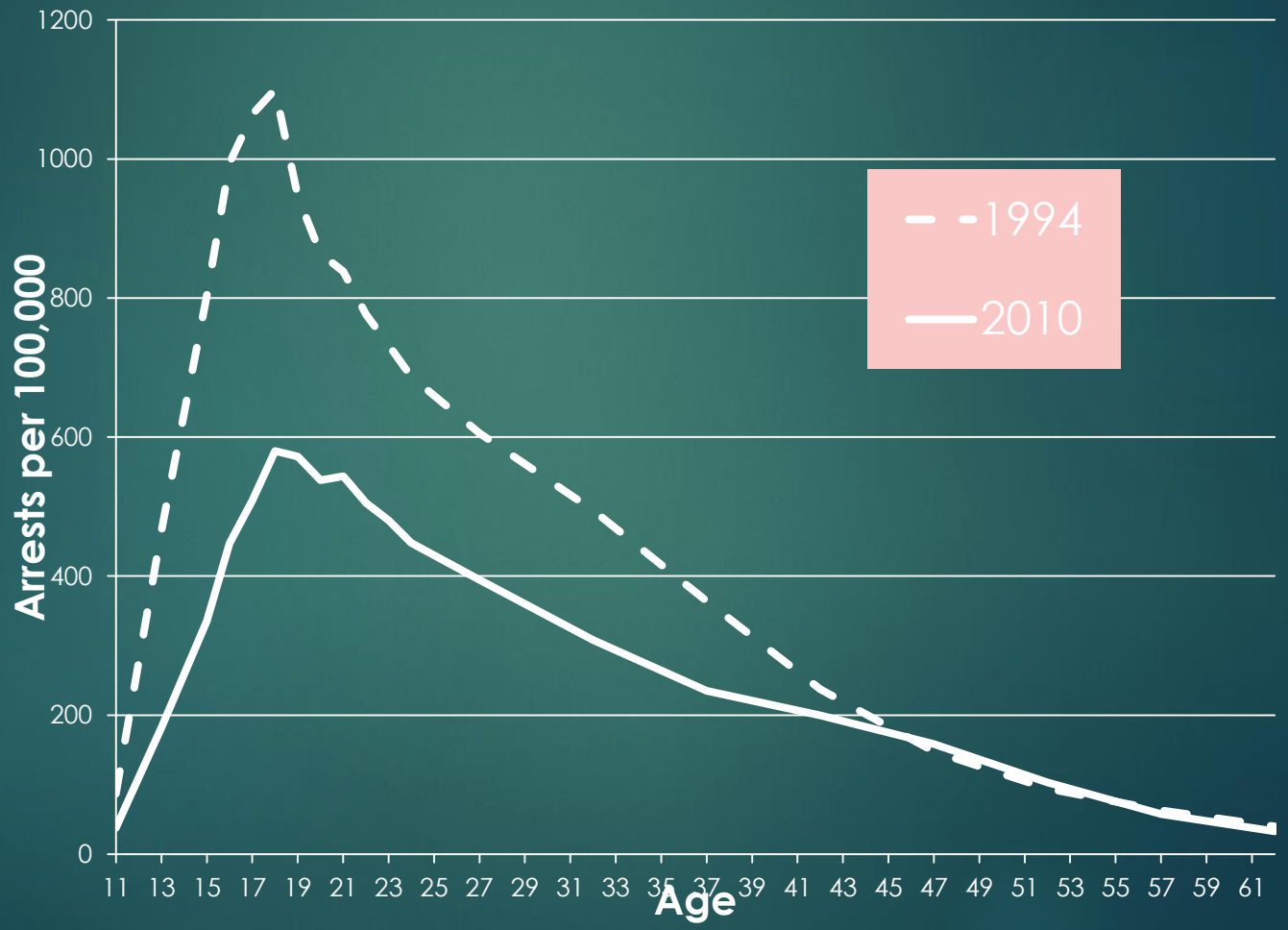

Burglary per 1000 households
20
18
16
14
12
10
8
6
4
2
0
Forced
Unforced
1991
1996
2001
2006
2011
Year

Age and crime and security

NEARLY DONE! NEARLY DONE!

Violent crime drop: young offenders

Age-specific arrest rates (United States; BJS)



CONCLUSION

Quant data signatures

- Basic analysis
- Triangulation from different crimes, times, places, and analytic angles
- What's its statistical significance?

Substantive

- Most crime ‘rational’, preventable
- Most criminological theory largely irrelevant

- Policy – security
  - prevent cyber-crime, e-fraud, ID-theft, terrorism, emerging crimes

- This is evidence-based problem-solving crime science

Thank you for listening

G.Farrell@leeds.ac.uk