

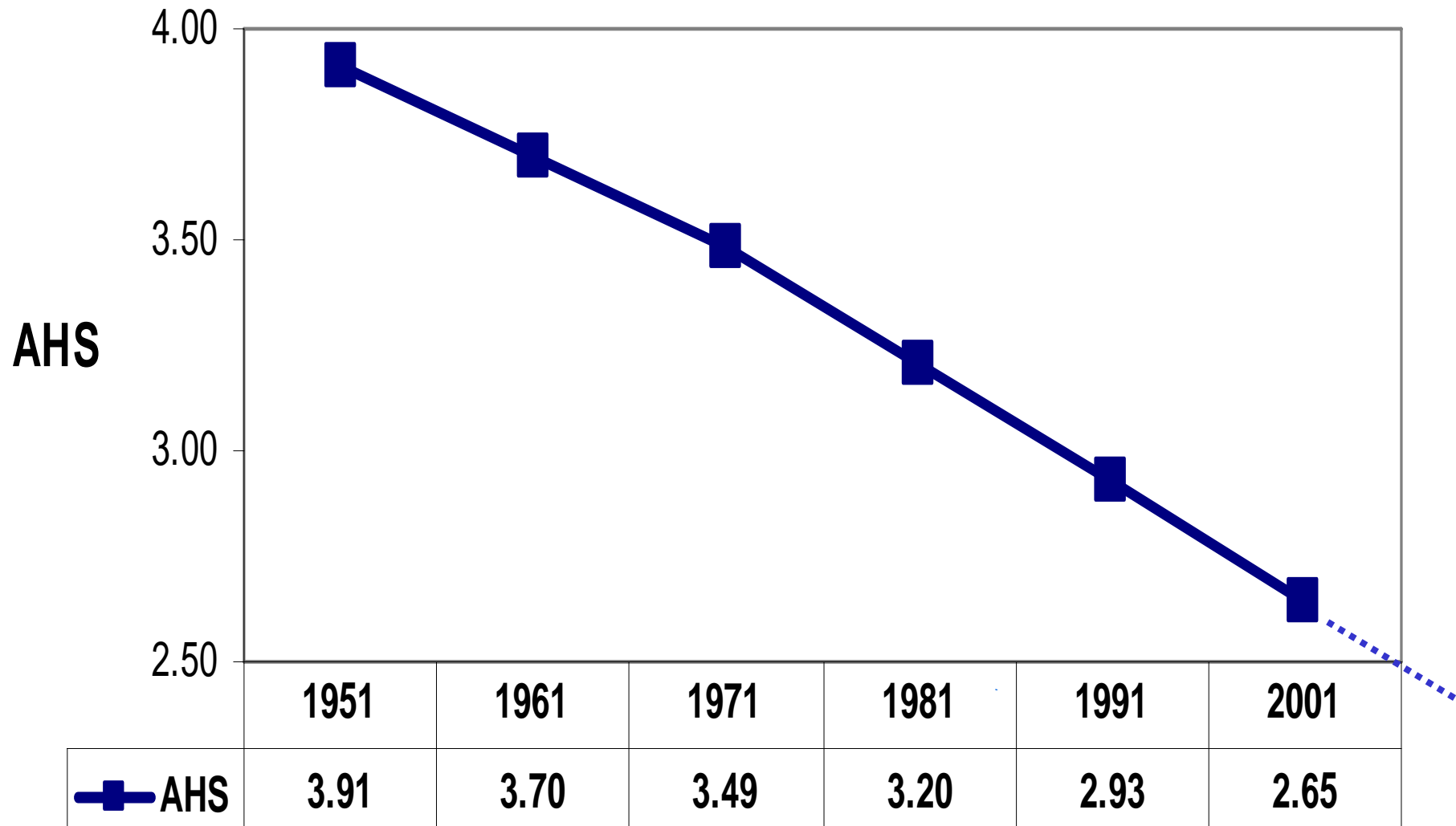
Development of Household Projections in Northern Ireland

November 2005



David Marshall

Average Household Size in Northern Ireland (1951-2001)



Project forward AHS

AHS in the future = f(AHS trend now)

(i) “Easy” for policy makers to understand / implement

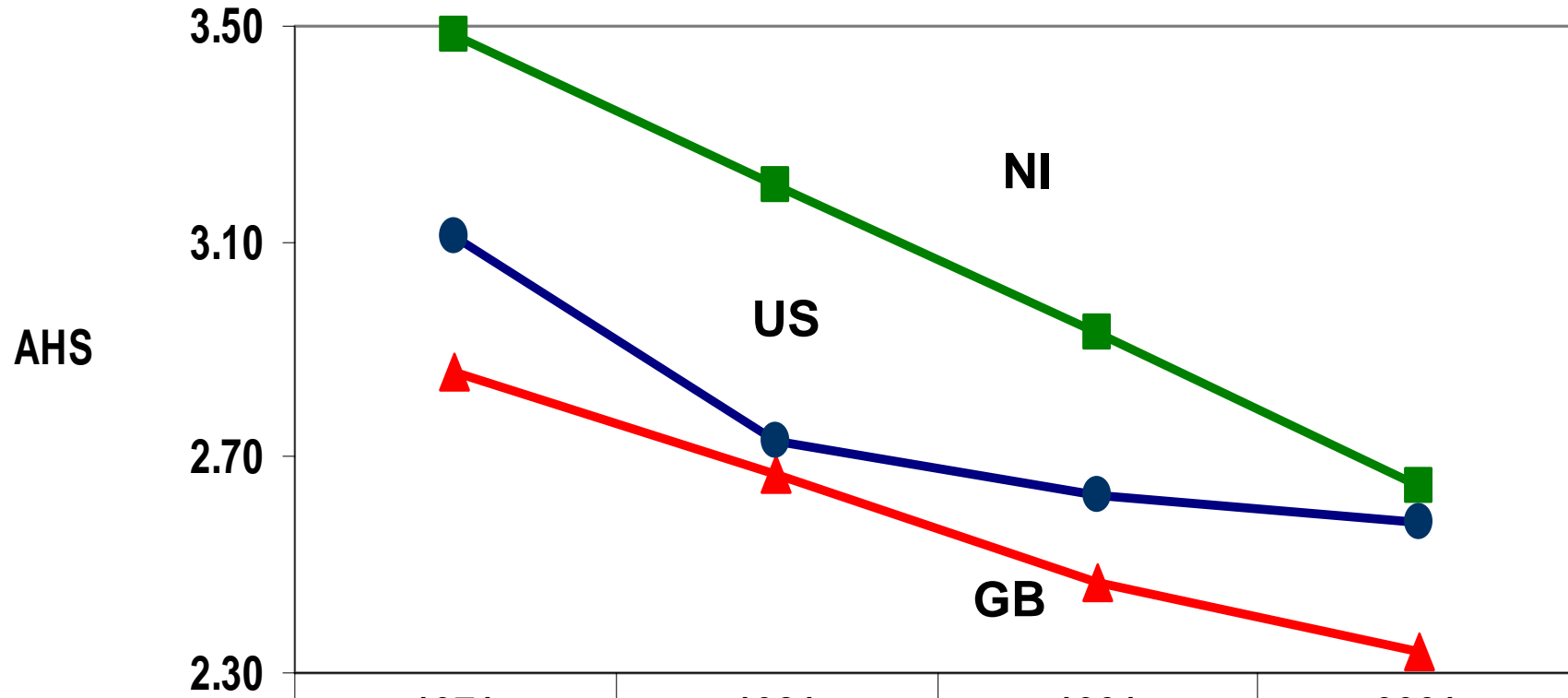
(ii) AHS falls by c0.25 every decade - AHS in 2021 c2.15

(iii) Apply this to future “household” population

Easy - don't need a statistician!

But hold on what is happening in AHS elsewhere

Average Household Size NI, US, GB (1971-2001)



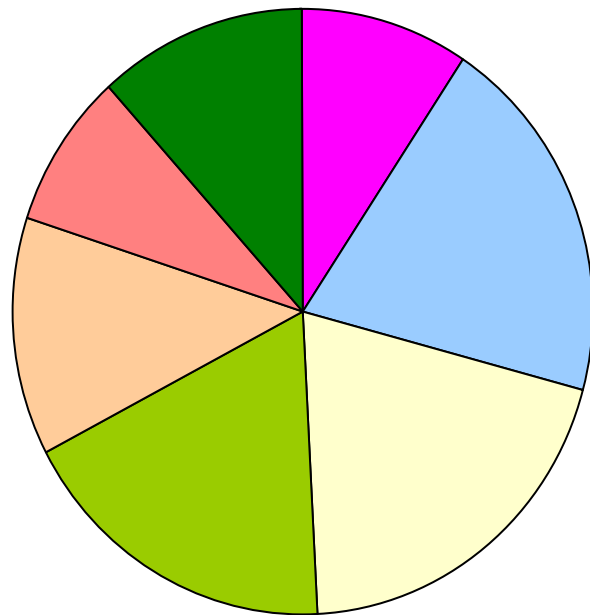
	1971	1981	1991	2001
NI	3.49	3.20	2.93	2.65
GB	2.86	2.67	2.47	2.34
USA	3.11	2.73	2.63	2.58

What is happening?

- **Age distribution**
- **Birth rates**
- **Not just future numbers - need more information (household size)**
- **May need a statistician!**

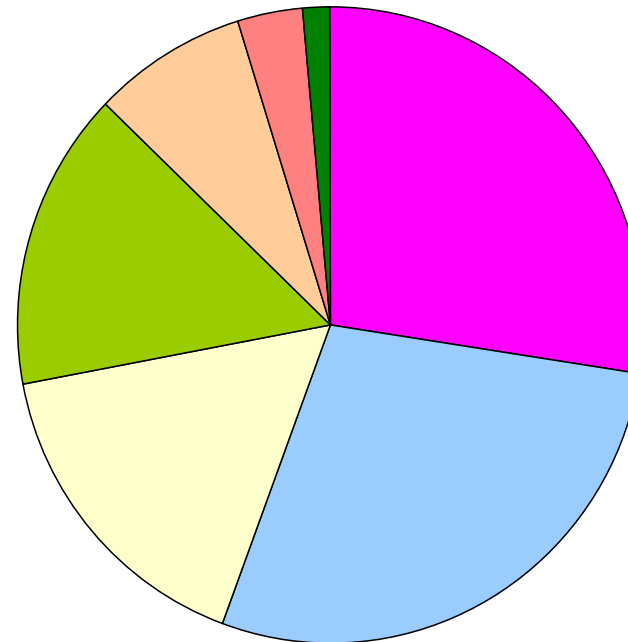
Households by Size (NI): 1951 - 2001

1951

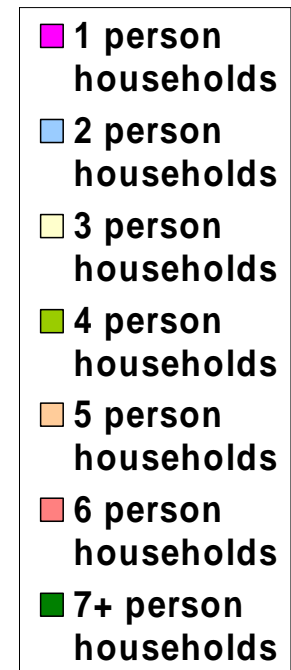


338,000

2001



627,000



Use of Different Methodologies

Project Forward AHS

- Northern Ireland - historically used linear regression
- Across the world - small area household projections

Project Forward “Head of Household”

- England & Wales – ODPM
- Scotland – Scottish Executive
- USA – Census Bureau

Demographic Transition/Propensity based methods

- Japan – Household transition rates
- New Zealand – Stats NZ

Option A. Headship based models

Headship methods typically project forward based on characteristics of “Head of Household” (HoH):

Typical HoH characteristics:

- age,
- gender,
- marital / co-habitational status

Issues:

Social change/ definition of HoH

Model is data hungry

Need a statistician !!

Option B: Demographic Transition models

Demographic rates of individual transition:

- leaving home;
 - first marriage;
 - remarriage;
 - divorce;
 - death of spouse, etc.
-
- Then used in the calculation of household formation
 - Household formation directly related to demography

Issues:

Definitely need a statistician !!

Model is extremely data hungry – data not available in NI

Final hybrid model in Northern Ireland

Use all household members

Propensity by age/gender/HH type to be in an X person HH; (New Zealand)

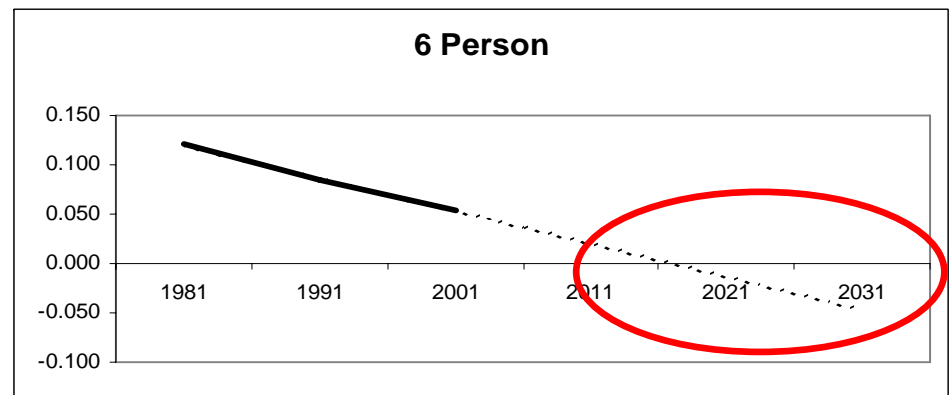
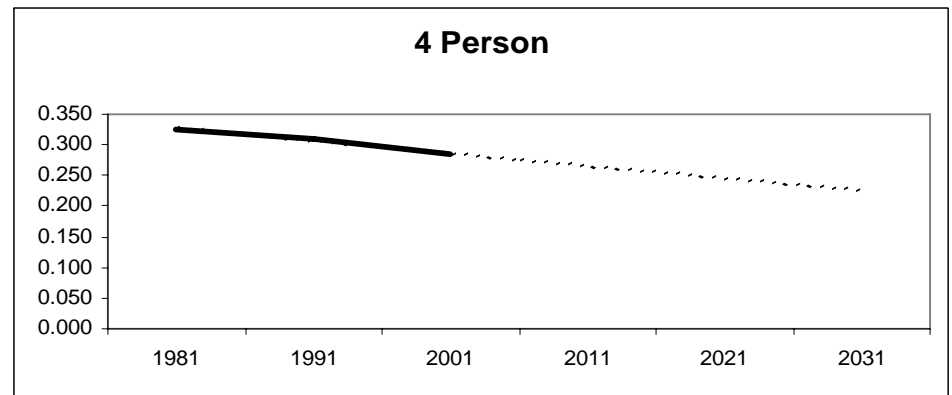
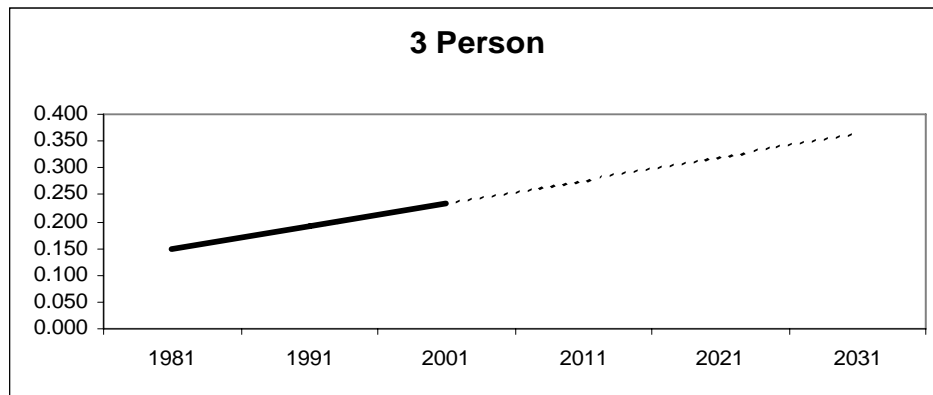
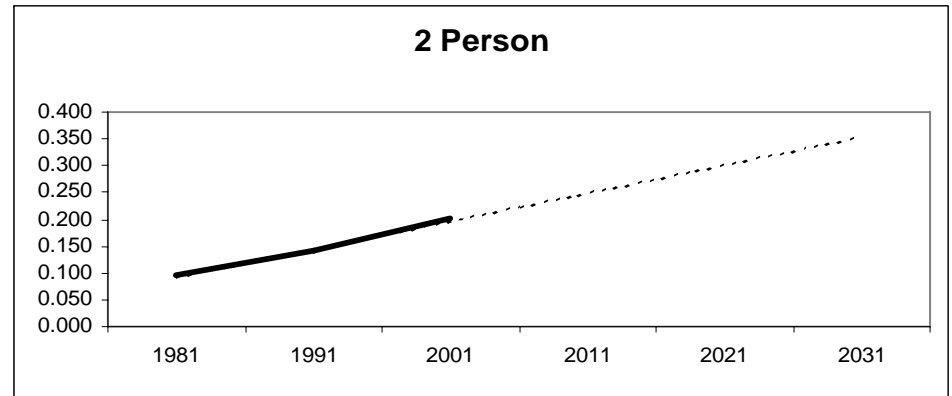
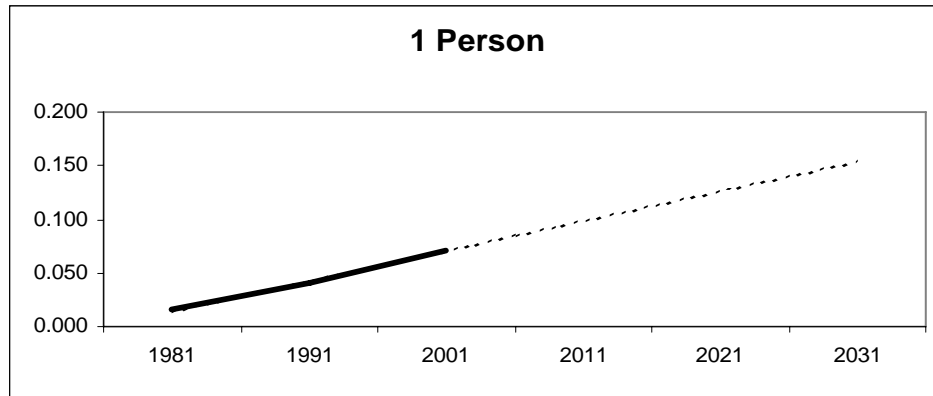
Project Propensities into the future;

Assumptions:

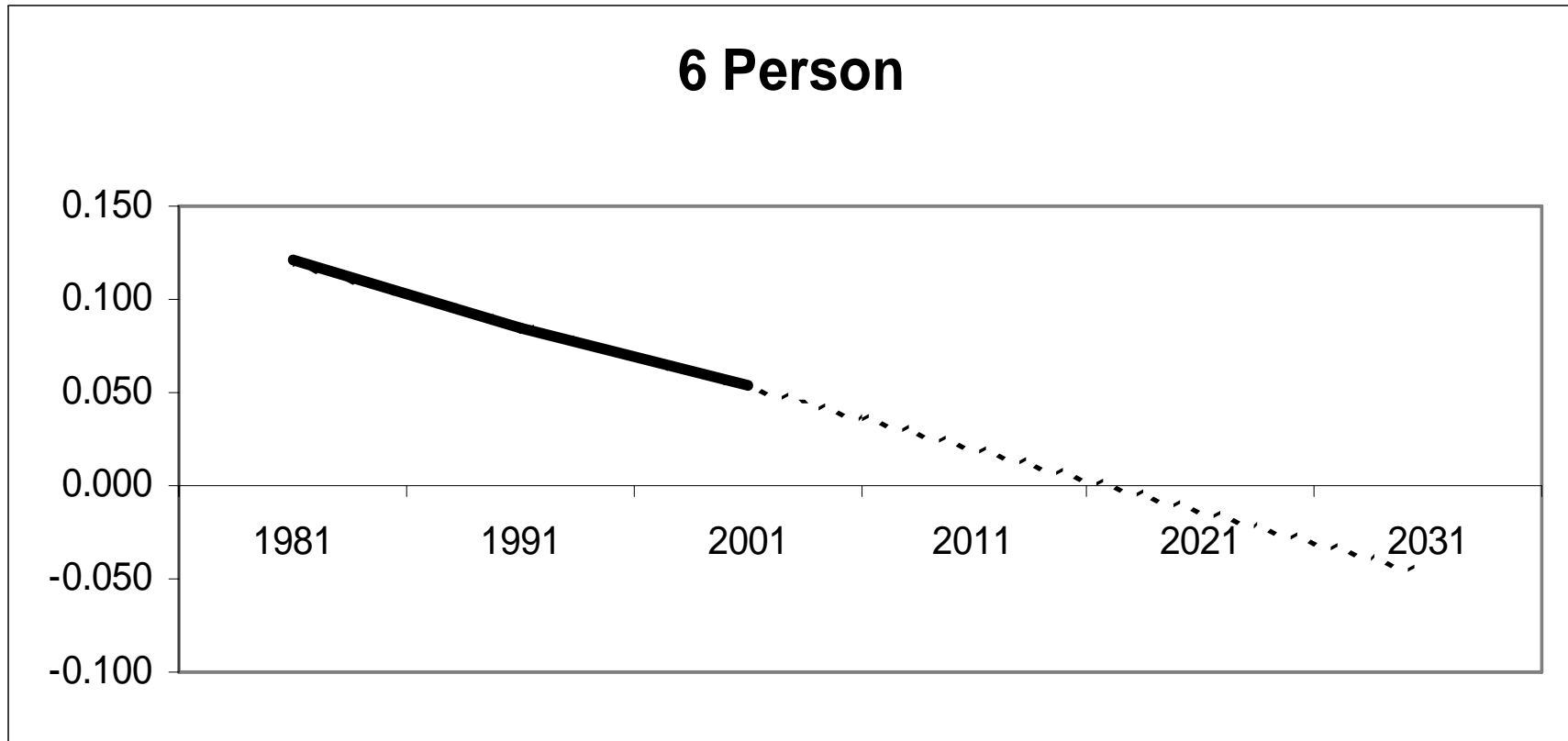
Projected HH population

Modelling forward method - Scotland

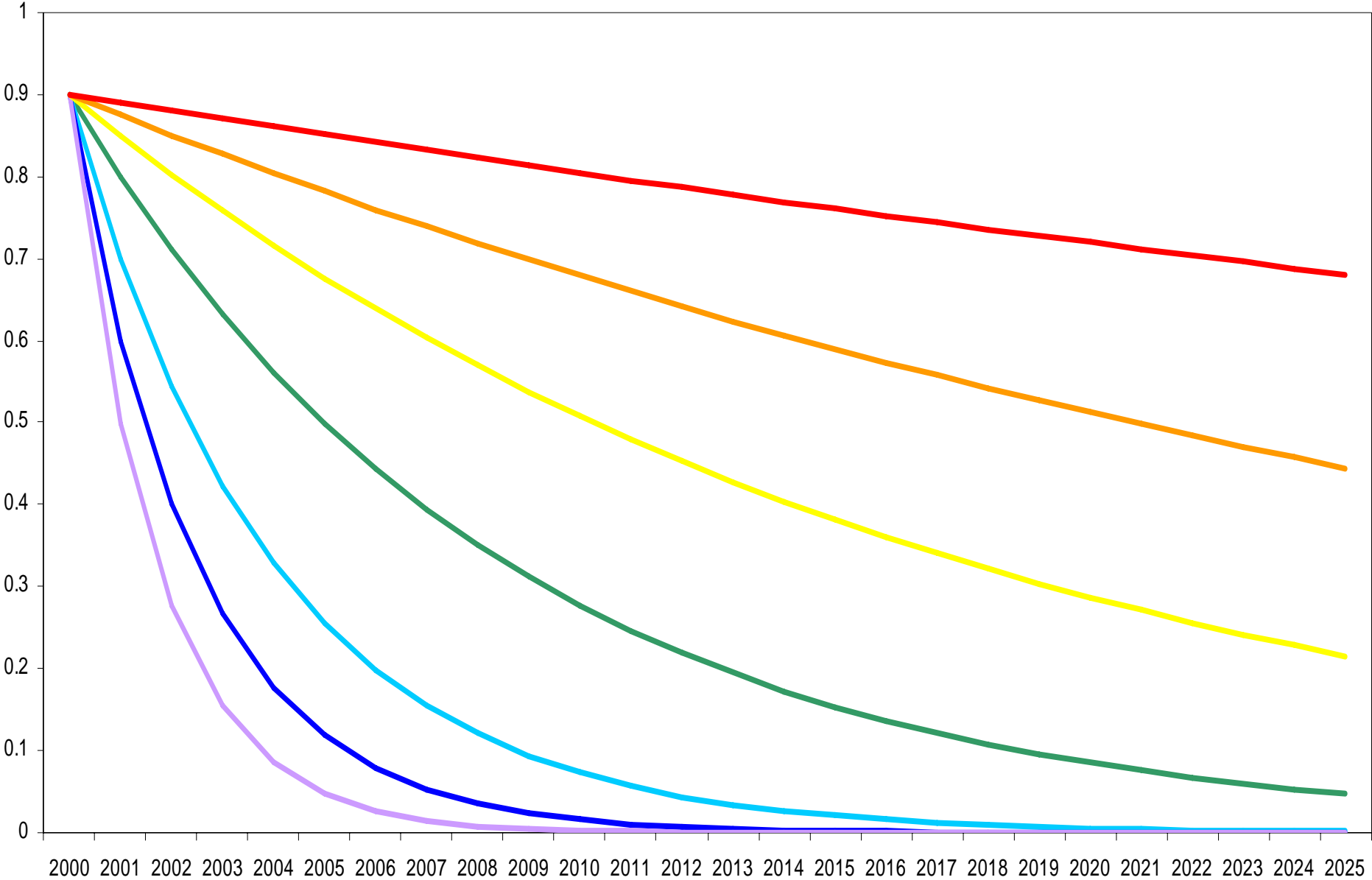
NI Household Membership Probabilities for Females Aged 30-34



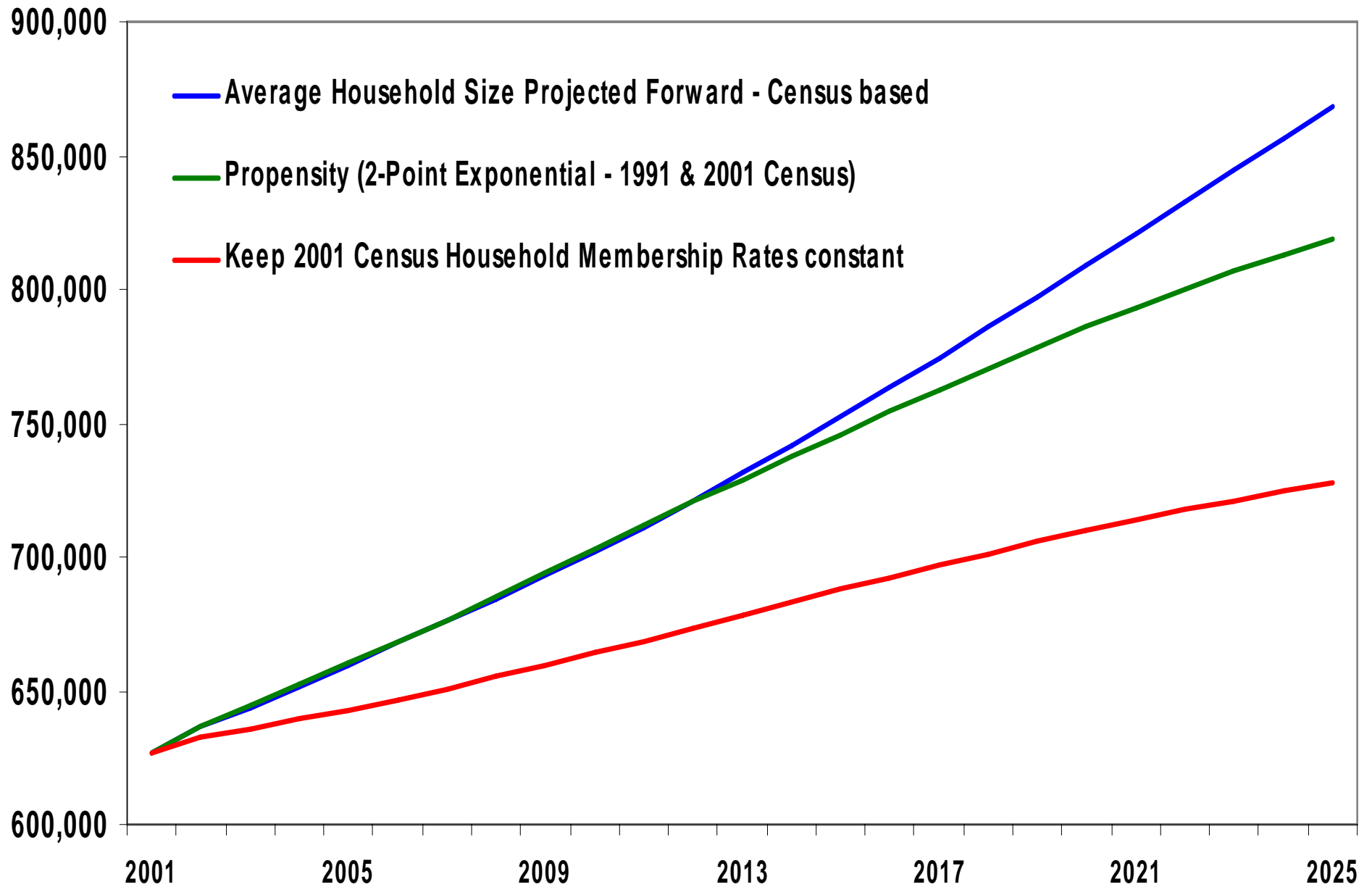
NI Household Membership Probabilities for Females Aged 30-34 (6 Person)



Exponential Curves for Decreasing Probabilities



Northern Ireland 2002-based HH projections (models)



Model indicates

By 2025

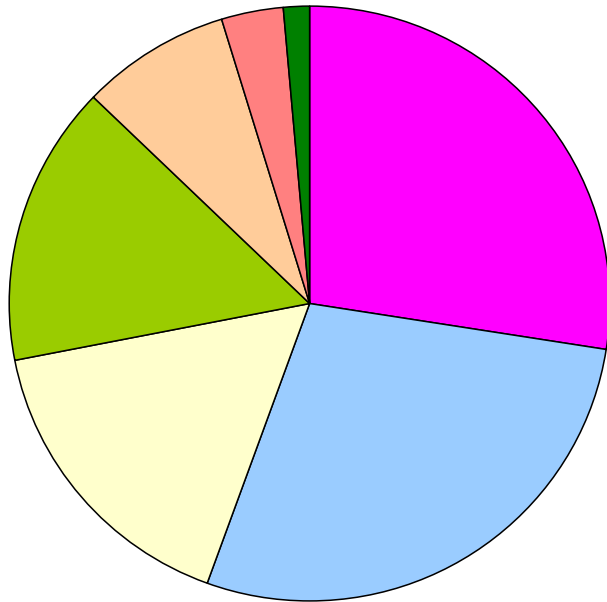
- 1 person HH - Projected increase of 120,000 HHs**
- 2 person HH – Projected increase of 90,000 HHs**
- 4+ person HH – Projected decrease of 40,000 HHs**

- 100,000 HHs from population change**
- 90,000 HHs from change in household formation**

- In total 190,000 extra households needed**

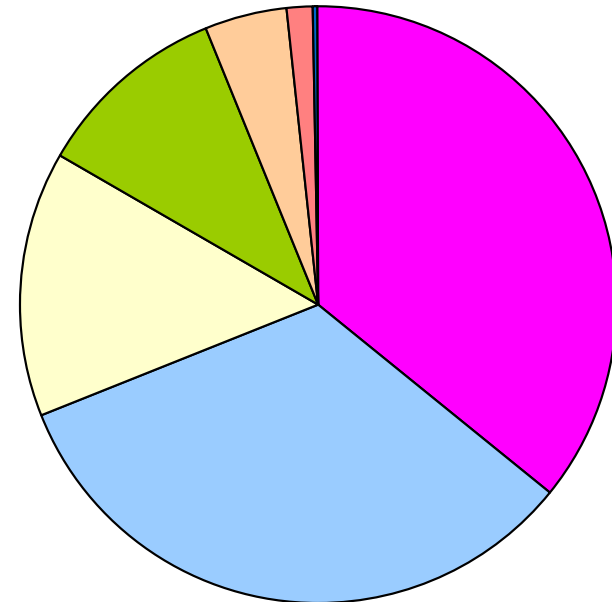
Households by Size (NI): 2001 - 2025

2001



627,000

2025



815,000



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