

# Net Wealth of New Zealanders:

---

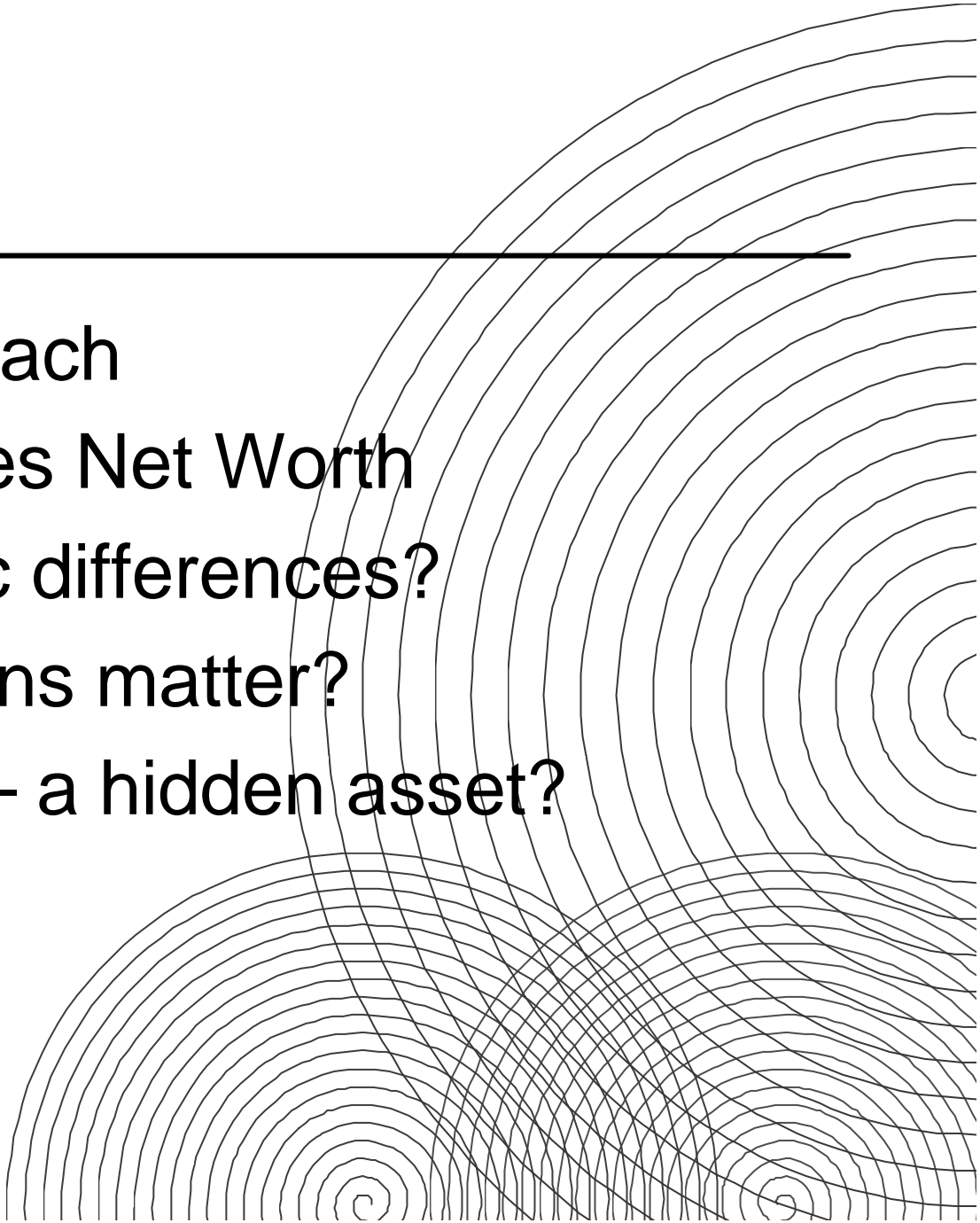
## **An Overview based on the HSS**

*John K Gibson  
&  
Grant M Scobie*

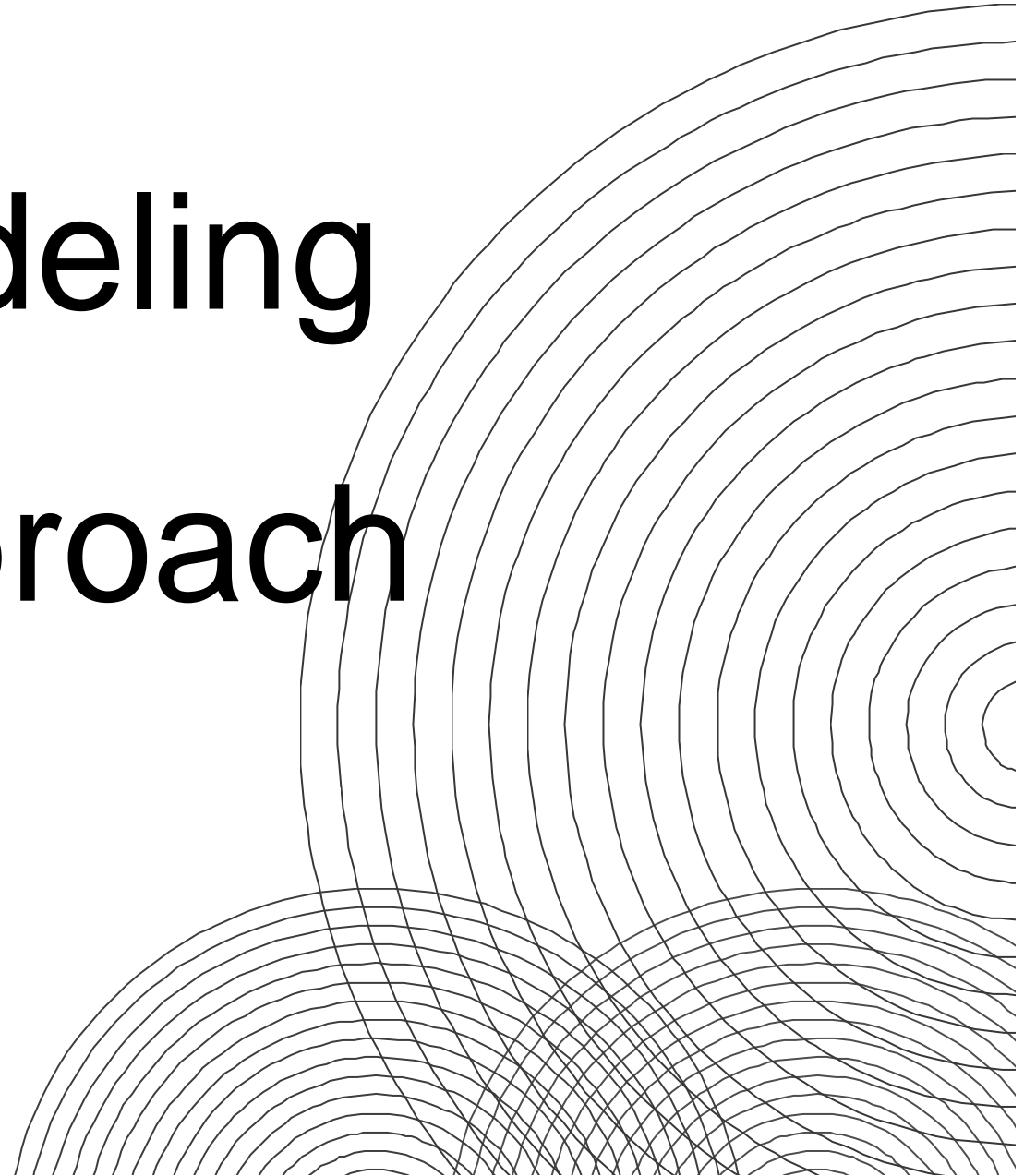
A Symposium on Wealth and Retirement  
Office of the Retirement Commissioner  
Wellington  
13 June 2003

# Outline

---

- Modeling Approach
  - What Determines Net Worth
  - Are there Ethnic differences?
  - Do Student Loans matter?
  - Human capital – a hidden asset?
  - Conclusions
- 
- A decorative background on the right side of the slide consisting of multiple overlapping sets of concentric circles, creating a ripple effect that fades into the white background.

# Modeling Approach



# Modeling approach

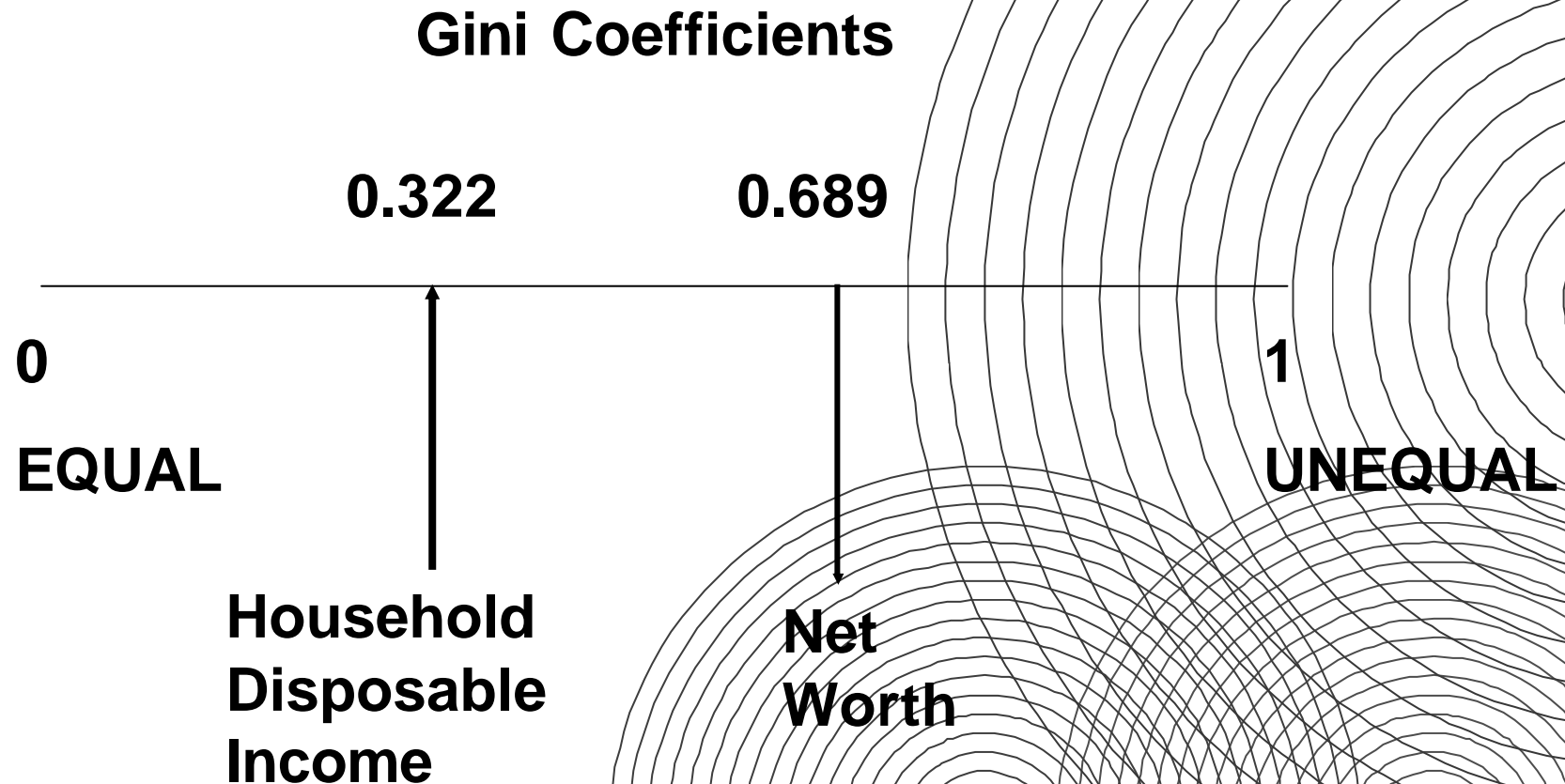
---



- Descriptive regression analysis on the confidential unit record data
- Focus mainly on total net worth, not its components
- Model both the mean and the median

# Inequality in Distribution of Income and Wealth

---



# Maori assets not counted in the total

---

Type of Asset	Median Value	Percentage of all individuals reporting holding this asset (%)
Property	\$139,000	36.7
Pension	\$12,000	11.6
Business	\$30,000	4.4
Bank deposits	\$1,200	89.0
Trusts	\$101,700	1.4
*Maori assets	\$15,000	2.8

# Separate models for couples and non-partnered individuals

---

- Couples have different characteristics
  - Mean net worth of couples (\$320,000) three times as large as for individuals
  - With observed characteristics held constant, *per capita* net worth of couples +\$44,000
- Couples allow different modeling choices
  - Characteristics of partners may matter
  - Intra-household (bargaining) analysis

# Sample Size

---

**n = 5,374**

**2,392  
Individuals**

**2,982  
Couples**

# Distribution of Net Worth

---

Level of Net Worth	% of individuals	% of couples
Negative	23	8
\$0 - \$20,000	34	10
\$20,001 - \$100,000	16	18
\$100,001 - \$500,000	23	45
\$500,001 and more	4	19
Total	100	100

# Structure of the multivariate models

---

## **Core Variables**

- **Age**
- **Gender + Marital status**
- **Ethnicity + Migrant status**
- **Education**
- **Location**
- **Inheritances**
- **Income level + main source**

# Structure of the models

---

## Core Variables

- Age
- Gender + Marital status
- Ethnicity + Migrant status
- Education
- Location
- Inheritances
- Income level + main source

+

## Portfolio Variables

- Age first buy property
- % of NW in shares
- % of NW in property

# Structure of the models

---

## Core Variables

- Age
- Gender + Marital status
- Ethnicity + Migrant status
- Education
- Location
- Inheritances
- Income level + main source

+

## Labour Force Variables

- Full-time, part-time
- unemployed
- non-participant

# Structure of the models

---

## Core Variables

- Age
- Gender + Marital status
- Ethnicity + Migrant status
- Education
- Location
- Inheritances
- Income level + main source

## Occupation Variables

- + • Indicators for 1-digit occupation classes

# Structure of the models

---

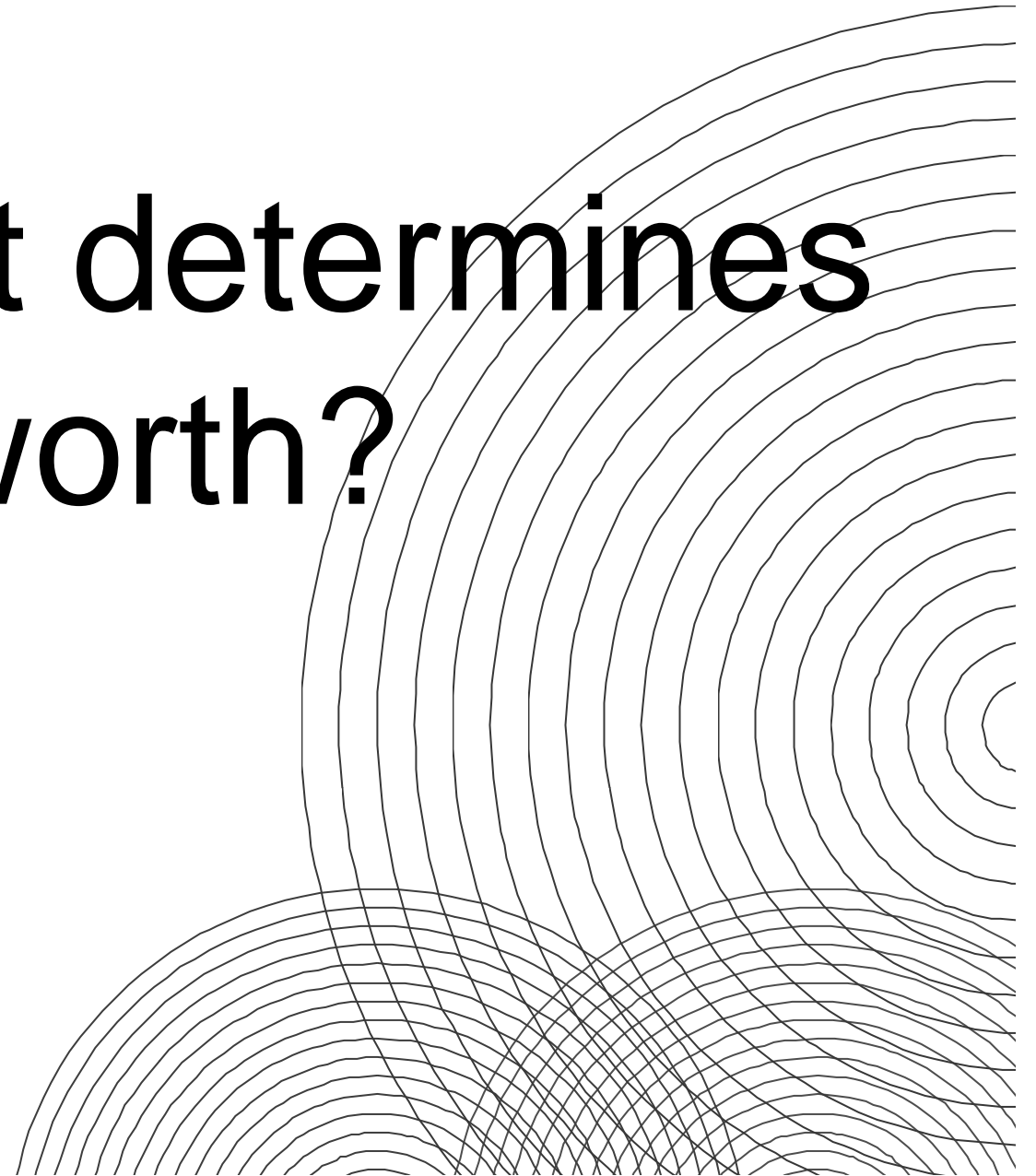
## Core Variables

- Age
- Gender + Marital status
- Ethnicity + Migrant status
- Education
- Location
- Inheritances
- Income level + main source

## Fertility Variables

- total number of kids
- + • children at home
- years since last child

**What determines  
net worth?**



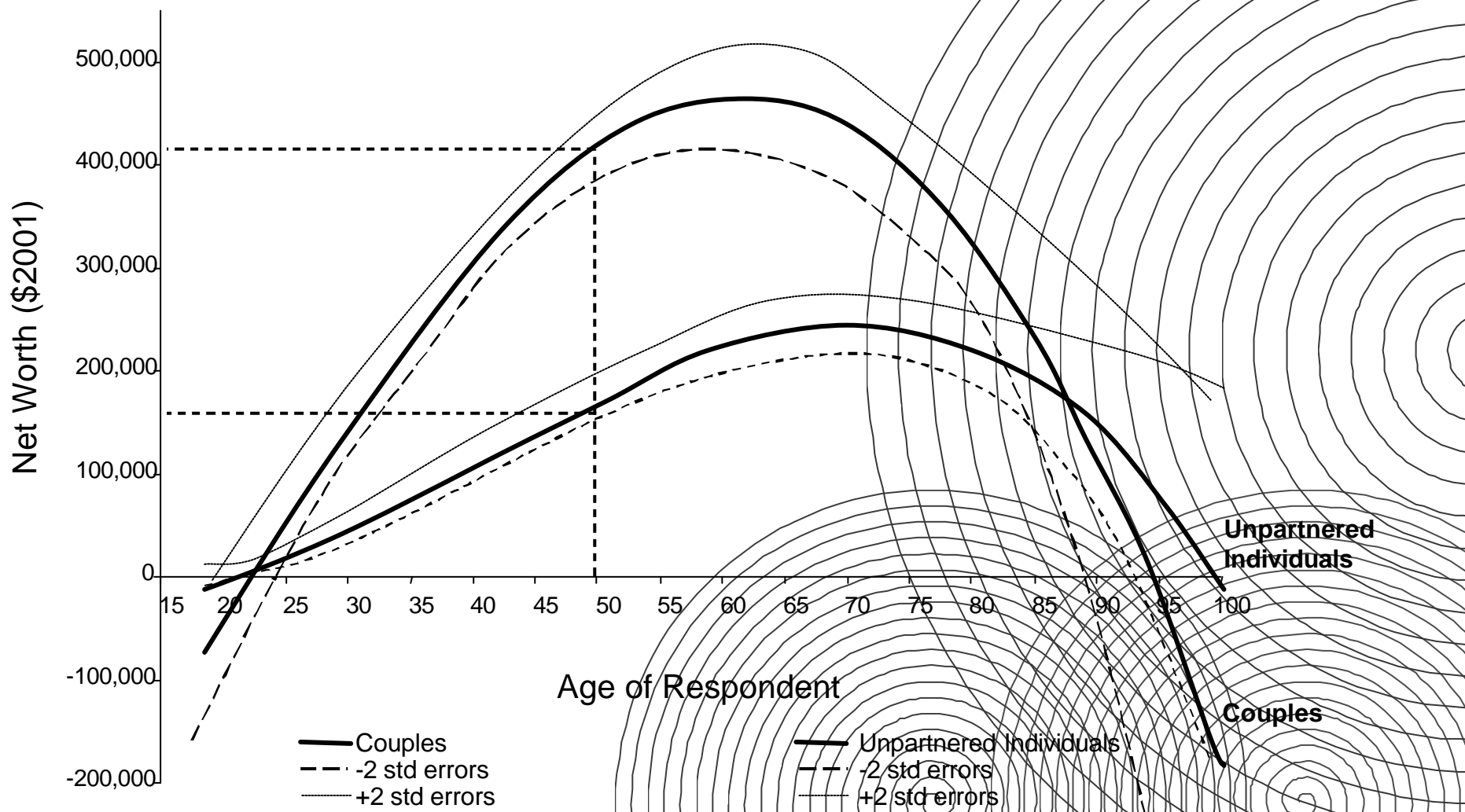
# What matters for the net worth of non-partnered individuals?

---

## Core variables

- Age\*\*\*
- Income sources (self-employment and investment) and levels
- Inheritances ( $\approx$  60 cents per \$1)
- Location (rural)
- Secondary schooling (not post-sec'dary)
- Asian ethnicity

# Net worth of individuals and couples by age (no other covariates)



# What matters for the net worth of couples?

---

## Core variables

- Same variables as for individuals (except Asian ethnicity)
- PLUS
  - Marital status
  - Maori ethnicity (only if both partners are)
  - Migrant status

# Other influences on net worth

---

## Portfolio variables

- Age first bought property matters for both couples and individuals
- Composition (shares +ve, property -ve) important for couples

## Labour force variables

- Years employed (+ve, for individuals), unemployment (-ve, for couples)

## Occupational & fertility variables

- Little clear effect

# Intra-household (bargaining) model for couples

---

- Women  $\approx$  3yrs younger and have longer life expectancy than male partners
  - ➔ greater incentives for retirement provision?
- Contrary to overseas, proxies for women's bargaining power (age gap, schooling gap, inheritance gap) lower net worth
  - Rational response to effect of NZ Super raising women's relative retirement income?

**Are there ethnic  
differences?**



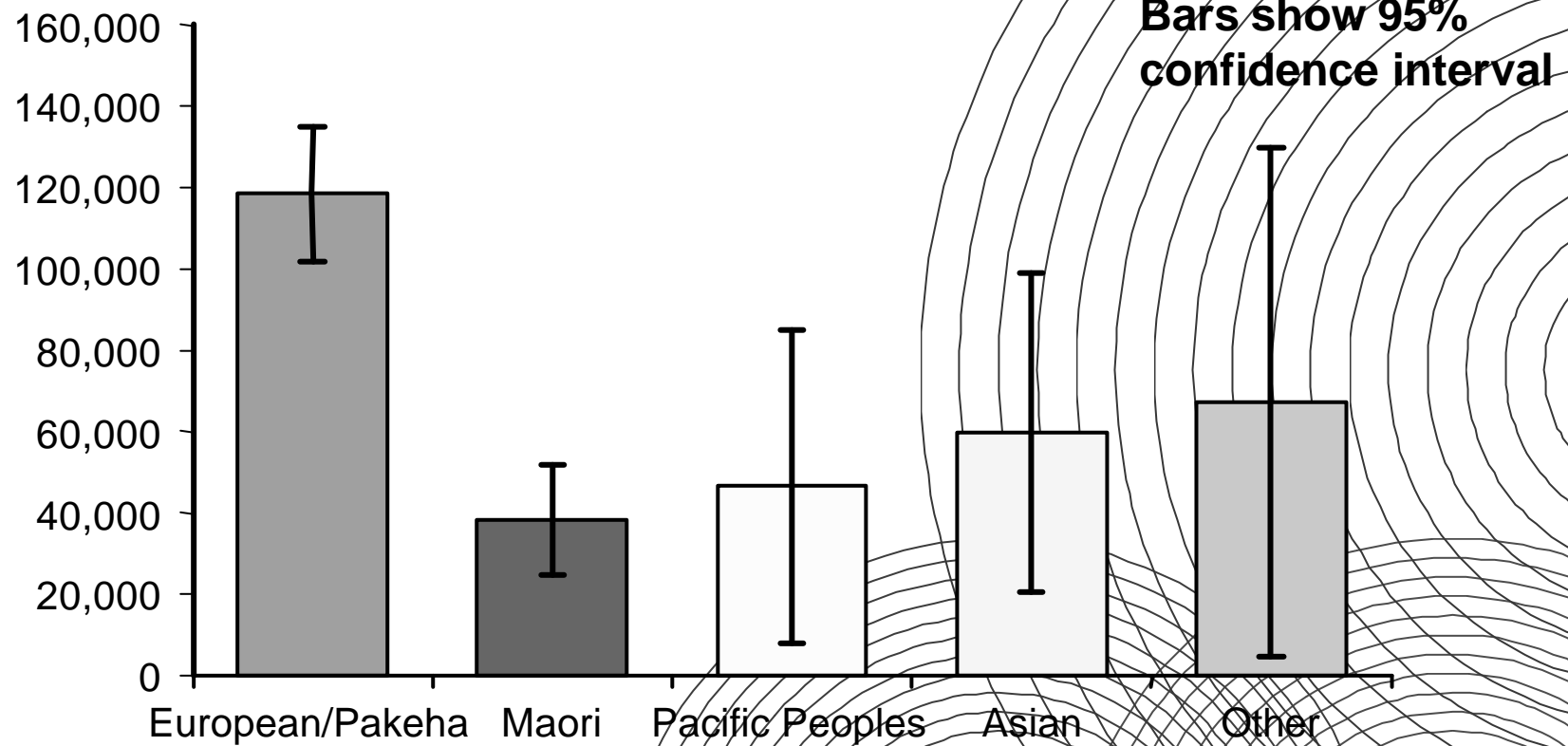
# Are there ethnic differences?

---



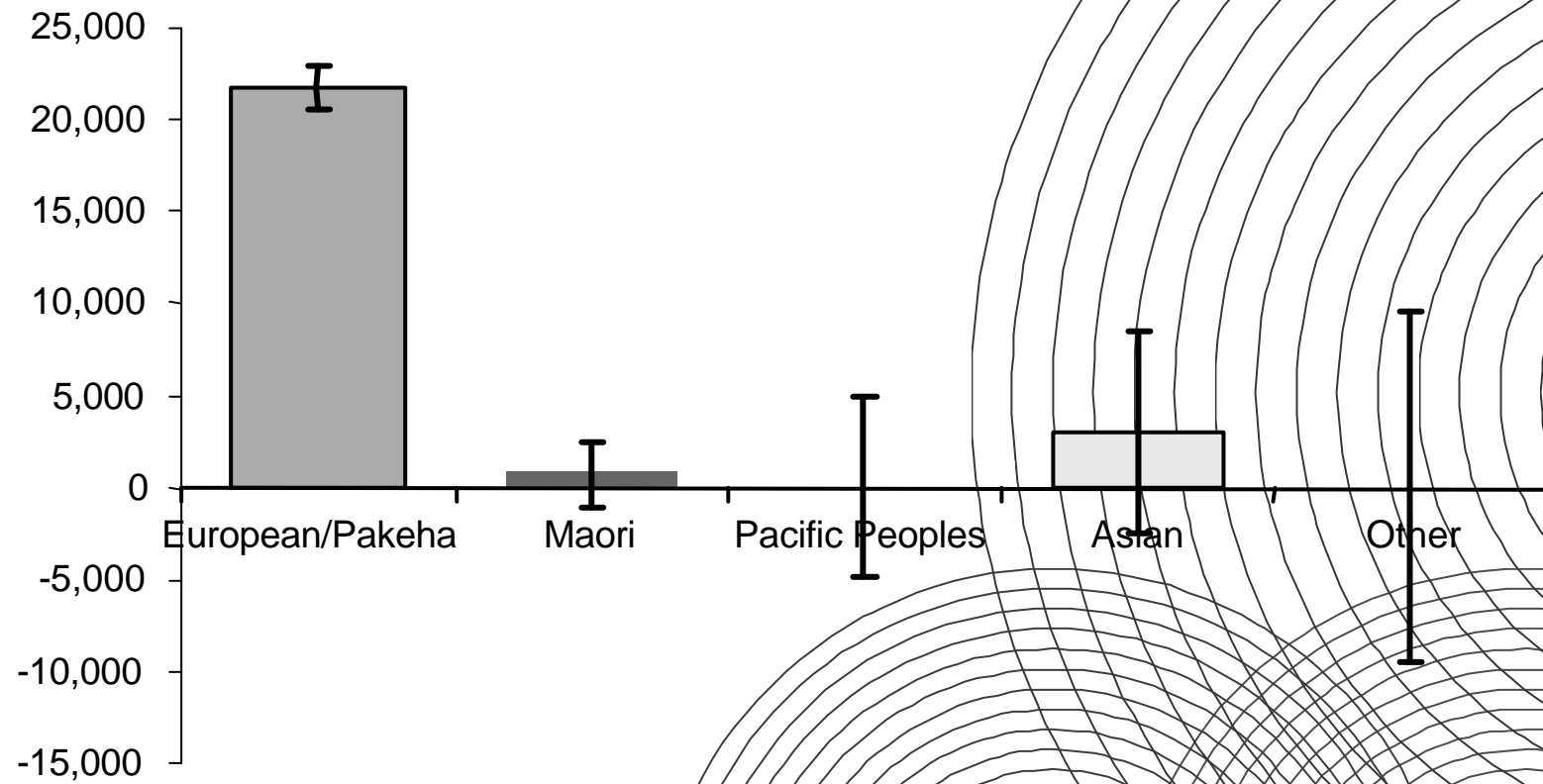
- Unconditional mean and median net worth show large differences between ethnic groups
- Do these persist after allowing for other factors (age, income, etc)?

# Unpartnered Individuals: Mean Net Worth



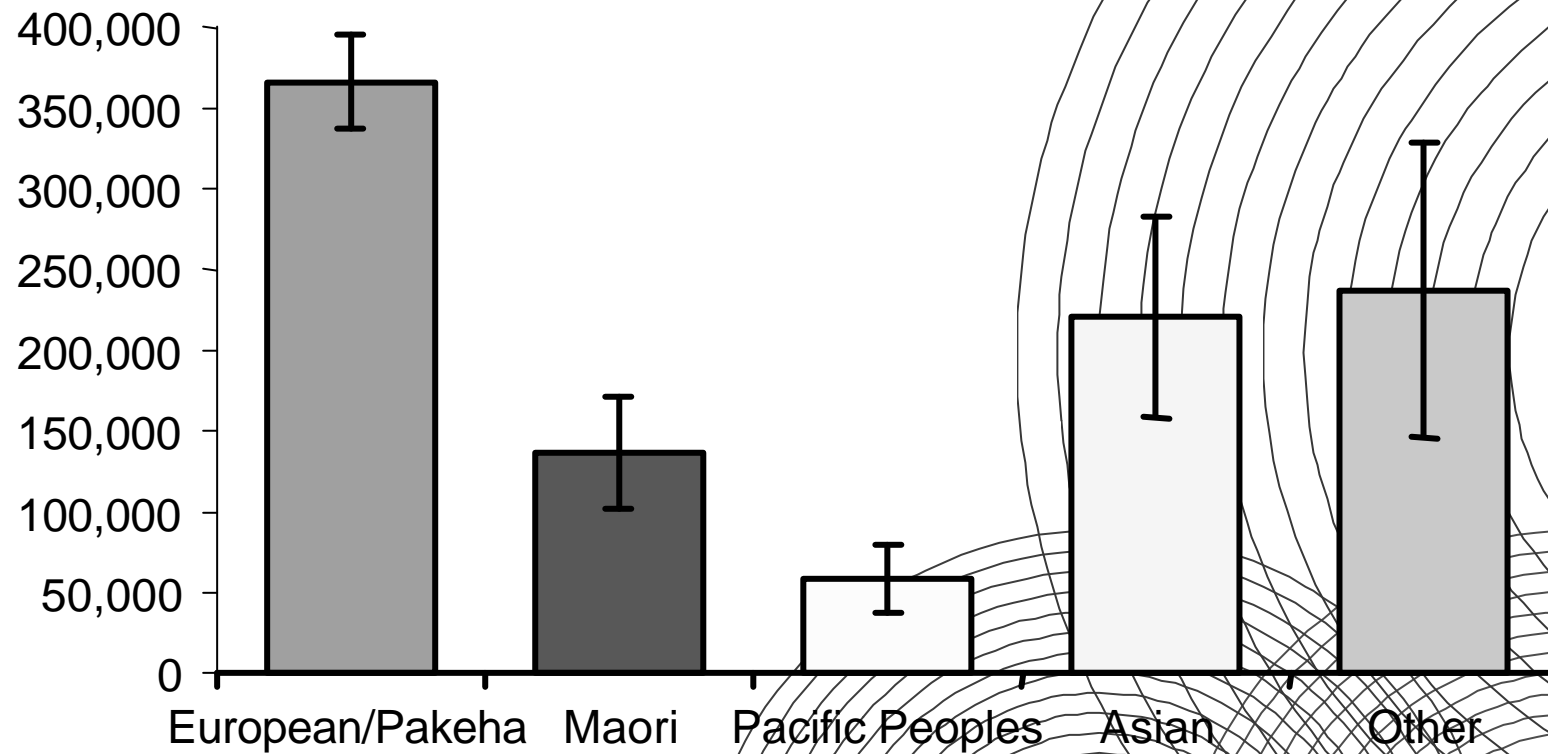
# Unpartnered Individuals: Median Net Worth

---

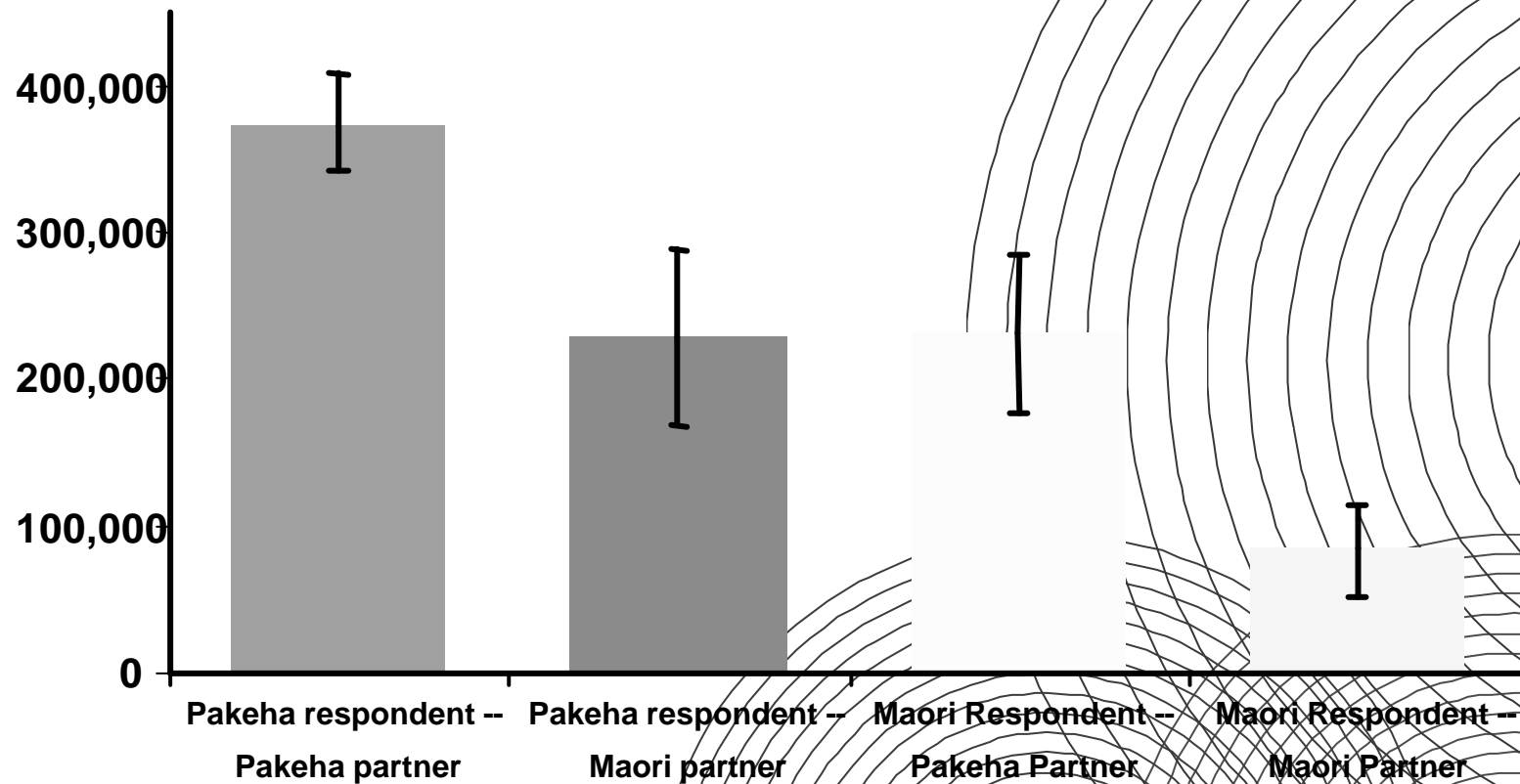


# Couples: Mean Net Worth by Ethnicity of the Respondent

---



# Pakeha and Maori Couples: Mean Net Worth



# Testing for Maori-Pakeha differences: individuals

---

$$NW^p = \mathbf{b}_0 + \sum_i \mathbf{b}_i^p X_i^p + u$$

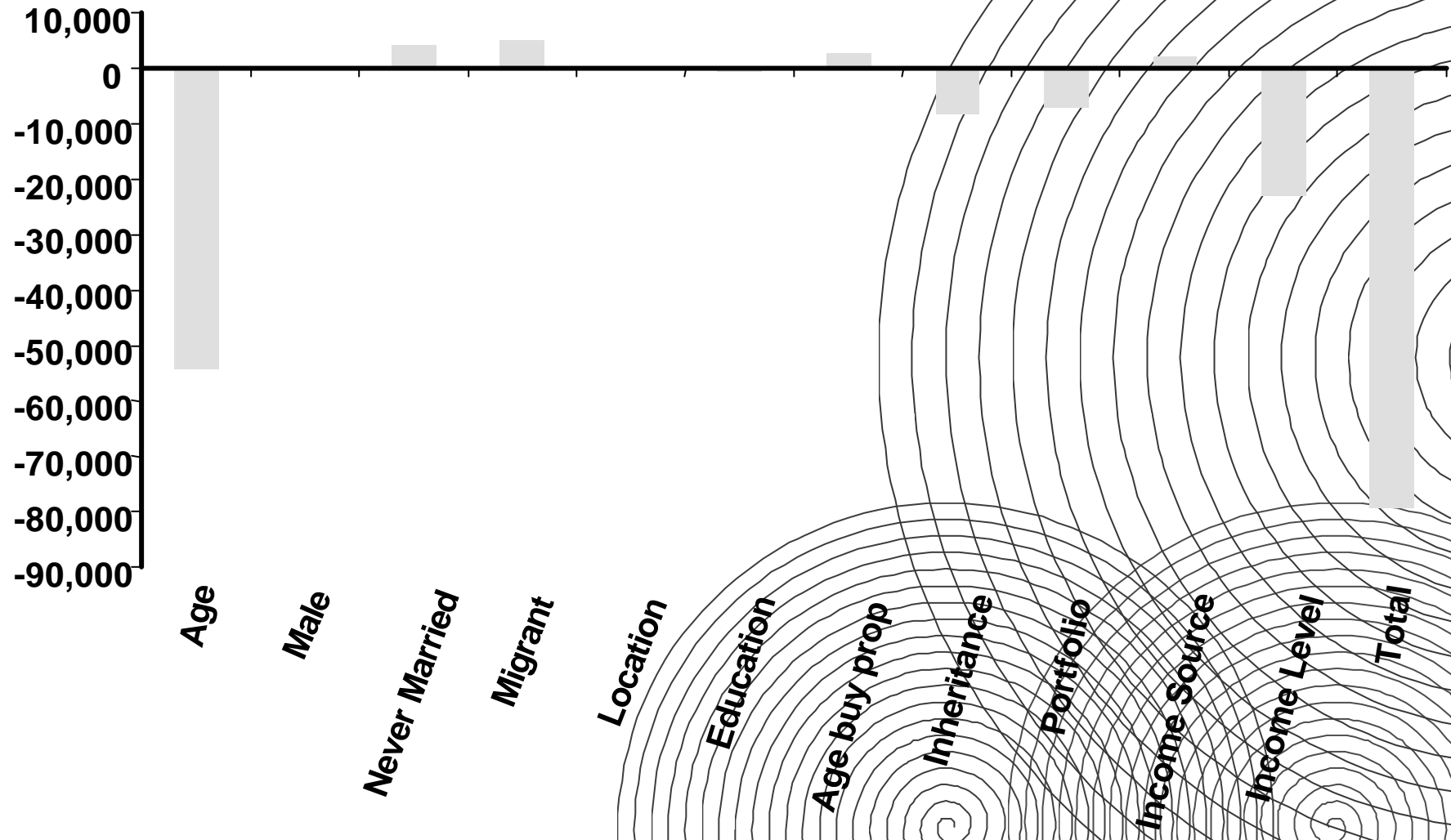
$$[\hat{NW}^p - \hat{NW}^m] = \hat{\mathbf{b}}_0 + \sum_i \hat{\mathbf{b}}_i^p (X_i^p - X_i^m)$$

\$78,300

From  
unconditional  
estimates

\$80,200

# Factors explaining Maori-Pakeha differences in net worth: individuals



# Testing for Maori-Pakeha net worth differences: couples

---

- Mean characteristics explain 83% of Maori-Maori vs Pakeha-Pakeha difference

$$[\hat{N}W^p - \hat{N}W^m] = \hat{b}_0 + \sum_i \hat{b}_i^p (X_i^p - X_i^m)$$

\$238,300

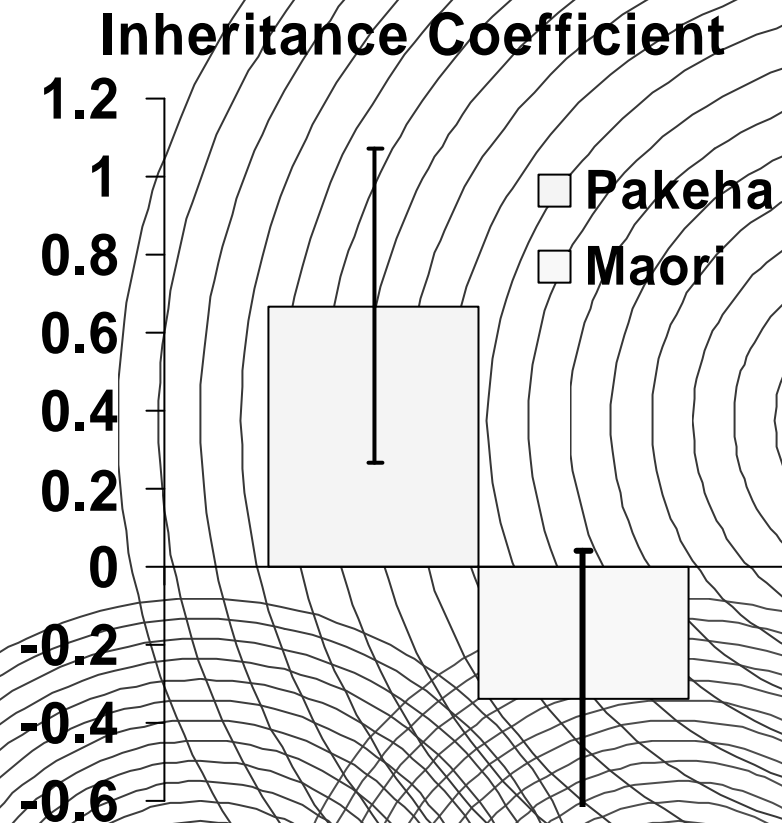
From  
unconditional  
estimates

\$287,200

# Factors explaining Maori-Pakeha differences in net worth of couples

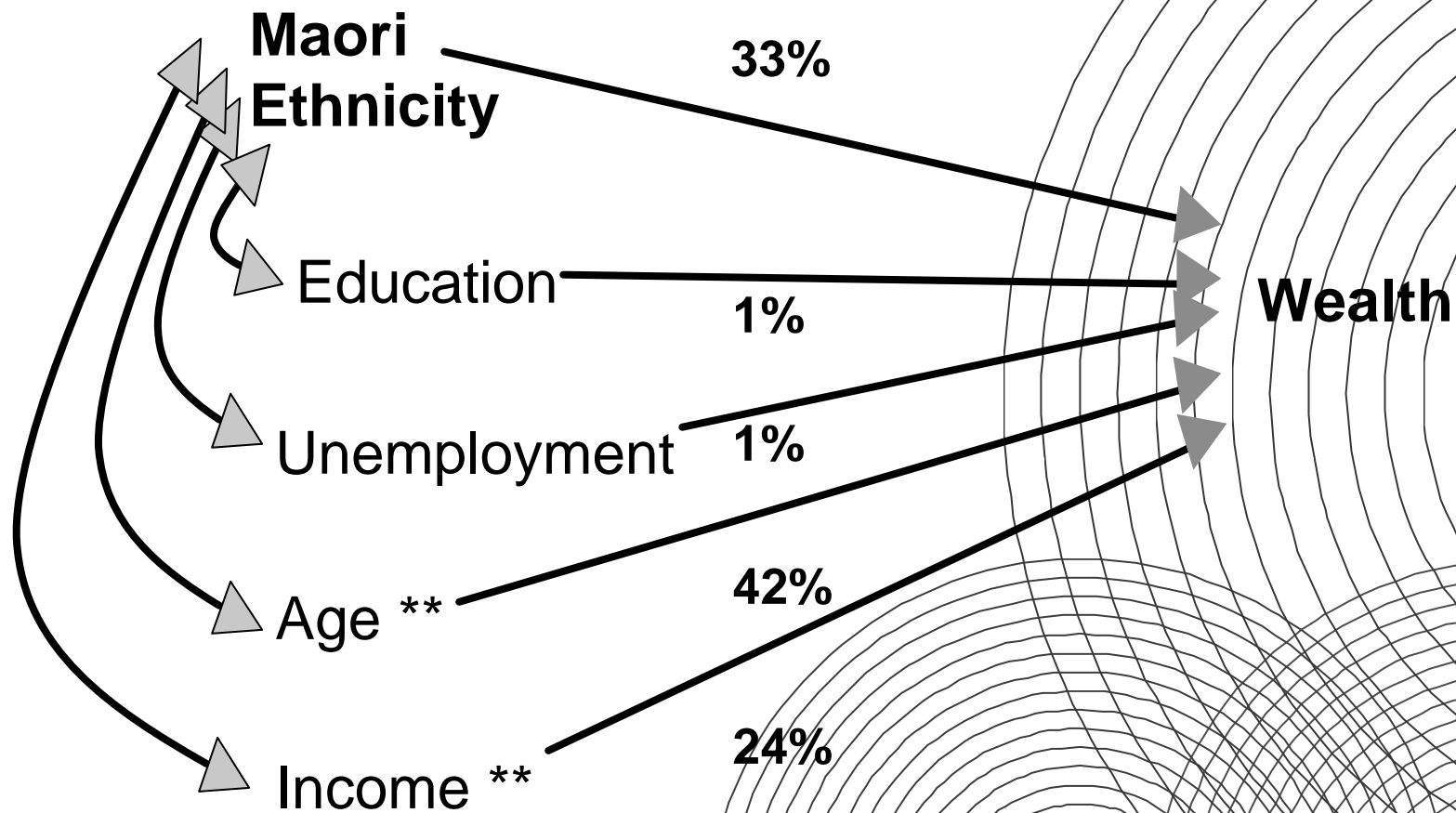
---

- Age and income level still most important
- Education, income sources, inheritance more important than for individuals
- Unexplained difference in response to inheritances

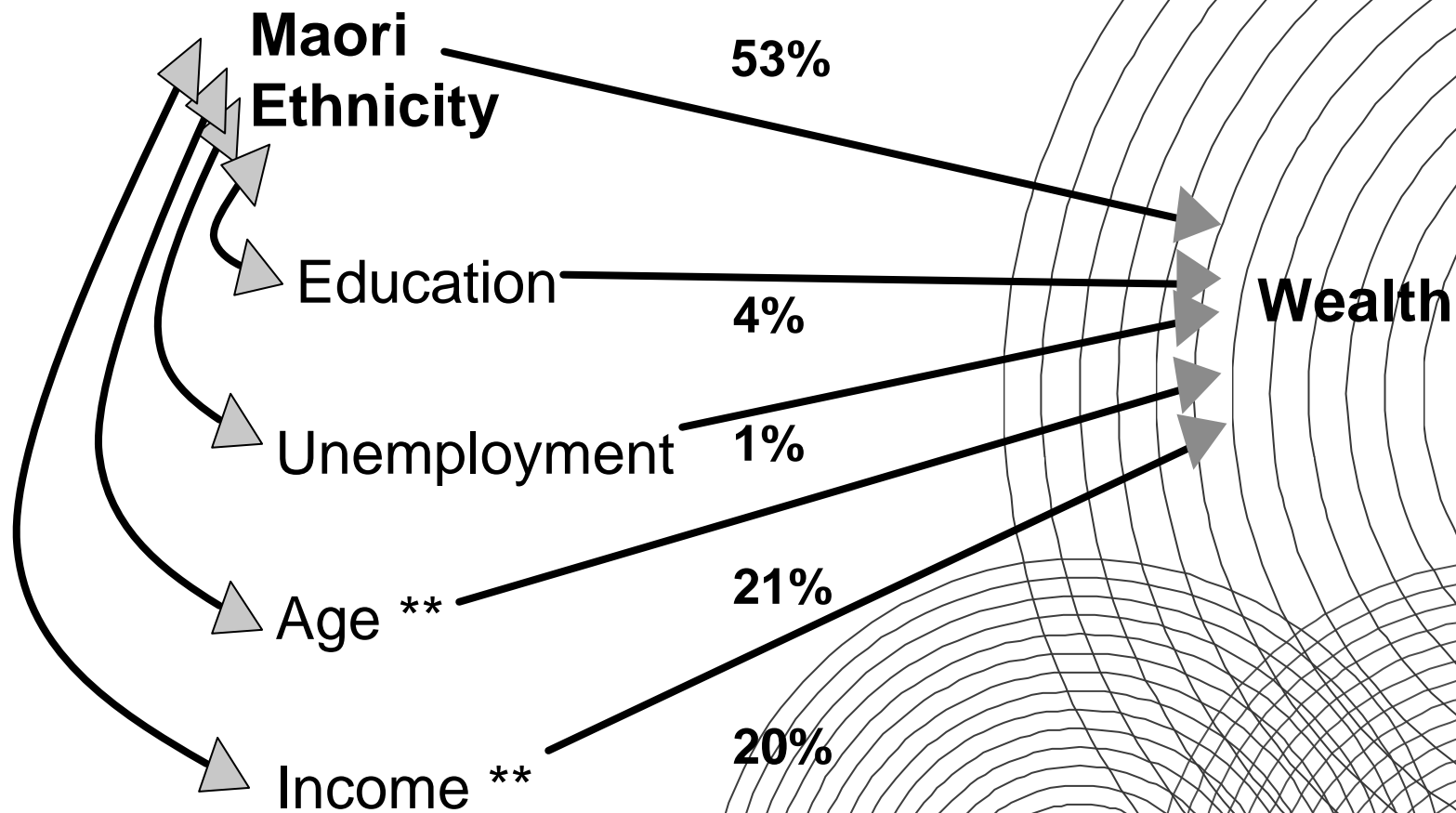


# Direct and indirect effects of ethnicity on net wealth of non-partnered individuals

---

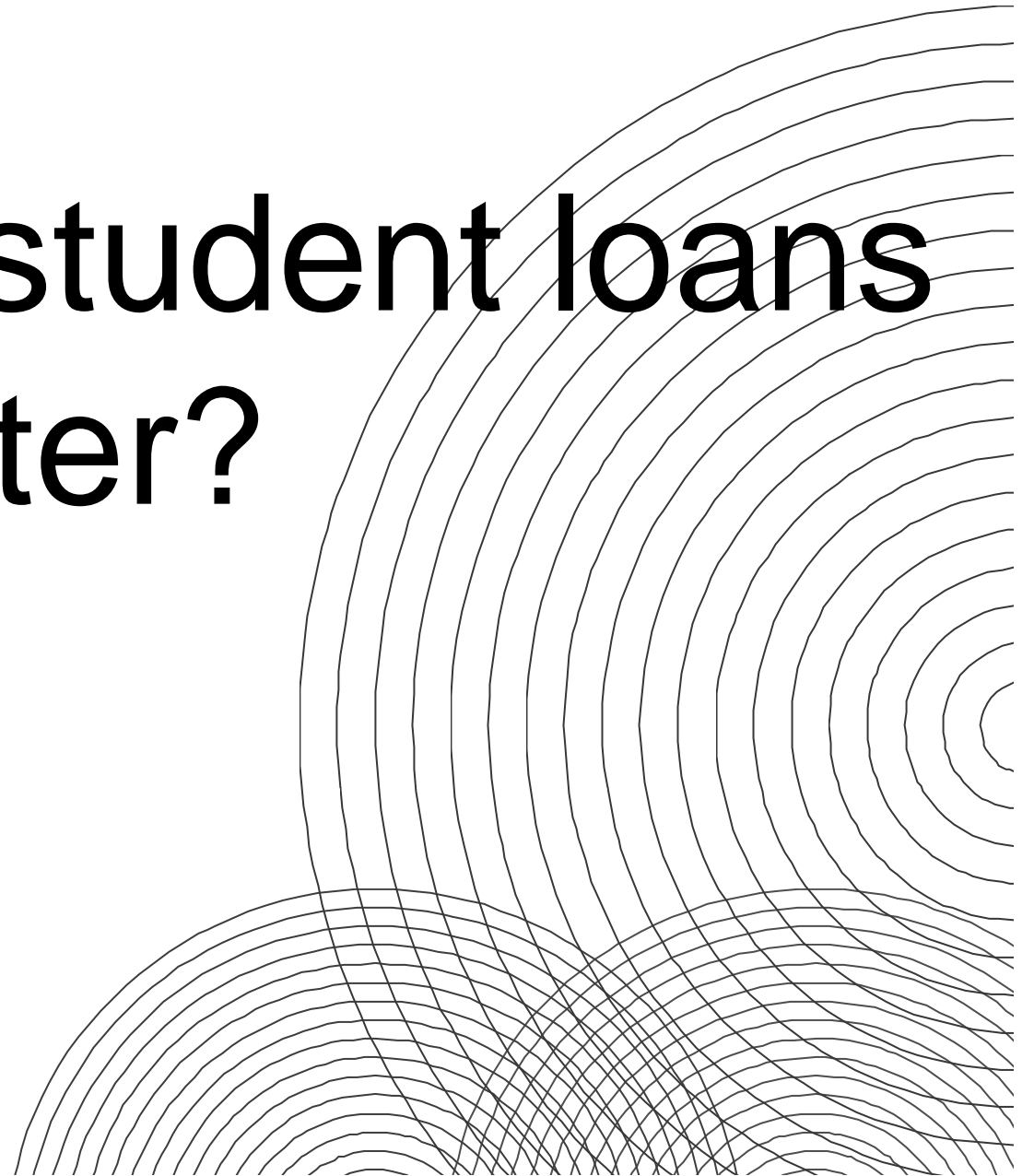


# Direct and indirect effects of ethnicity on net wealth of couples<sup>#</sup>



# Pakeha/Pakeha and Maori/Maori

**Do student loans  
matter?**



# Student loans: do they matter?

---



- Important public policy issue
- Wide concerns, yet only 5% of total liabilities
- Little evidence of behavioral consequences
- Held by 10% of couples, 21% of individuals.  
Median level \$9,000
- Aim to test a series of hypotheses...

# H1: Student loans have no effect on total net worth

---

*Total NW = a + dSL + Core Variables*

- **Accept null that  $d = 0$  for couples**
- **Reject  $d = 0$  for non-partnered individuals (median NW -\$15,000)**
  - Net worth of individuals reduced by \$1.33 ( $\pm$ \$0.55) for every \$1 of student loan

## H2: Student loans have no effect on mortgages

---

***Prob (Mort) = a + dSL + Core Variables***

- **Accept null that  $d = 0$  for couples**
- **Reject  $d = 0$  for non-partnered**
  - (probability of having a mortgage 6% lower at mean of the X's)
- **Size of mortgage reduced by 46 ( $\pm 26$ ) cents for every \$1 of student loan held by couples**
  - Reduced by 73 ( $\pm 23$ ) cents for individuals

# H3: Student loans have no effect on value of property holdings

---

*Property Value = a + dSL + Core Variables*

- **Accept null that  $d = 0$  for couples**
- **Reject  $d = 0$  for non-partnered**
  - (value of property \$12,500 lower at mean of X's)
- **Value of property reduced by 89 ( $\pm 32$ ) cents for every \$1 of student loan held by individuals**
  - Reduced by \$1.10 ( $\pm \$0.53$ ) per \$1 of student loan for couples

# H4: Student loans have no effect on fertility

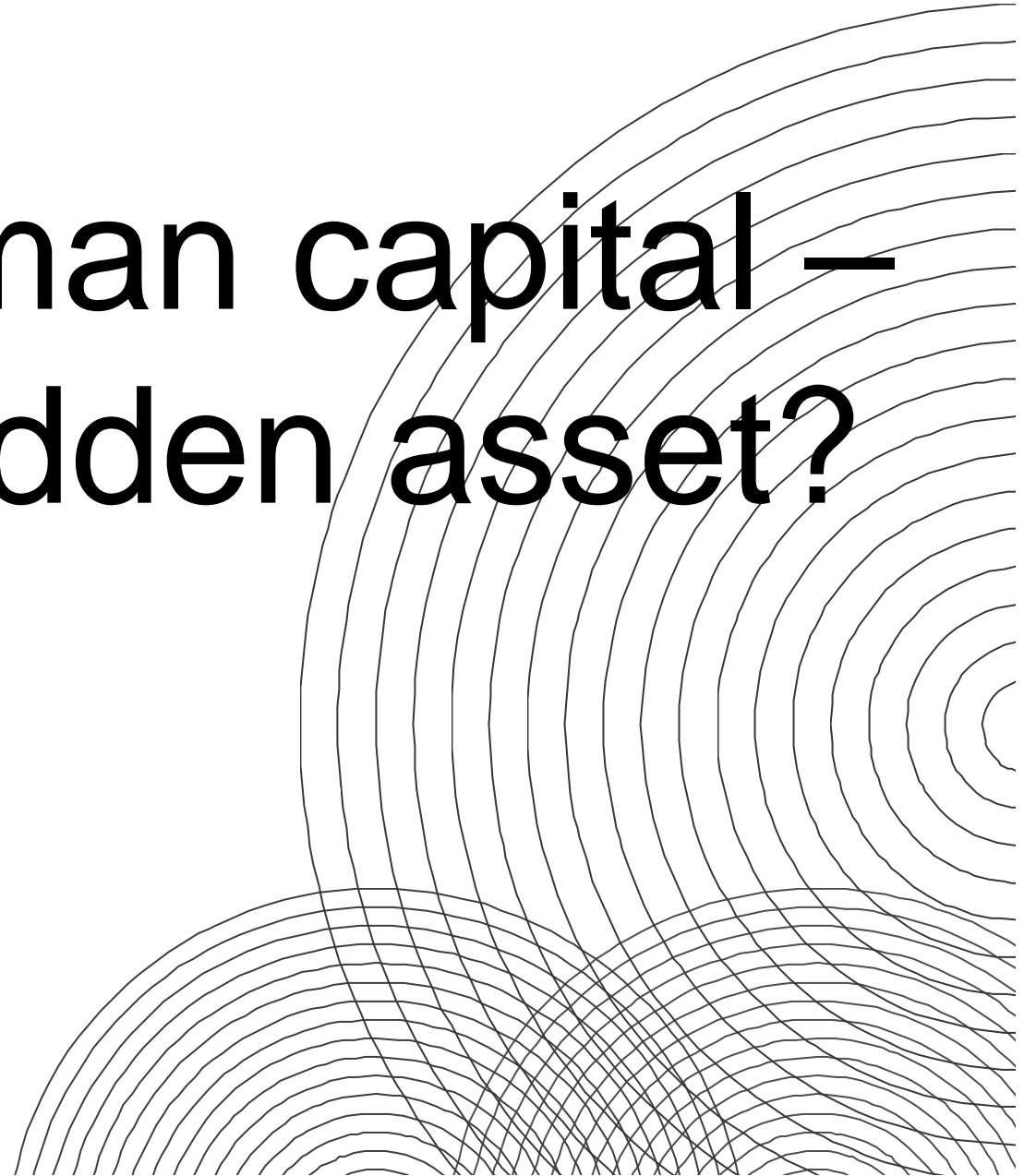
---

*Total Children = a + dSL + Core Variables*

- **Accept null that  $d = 0$  for couples**
  - No effect of either presence or value of loan
- **Mixed evidence for non-partnered**
  - Weak effect that value of loan lowers number of children (only with Poisson model)

**NB: 2/3 of total children from couples, so overall effect on fertility is small**

**Human capital –  
a hidden asset?**



# Human Capital?

---

- Plumber:
  - Assets: \$120,000
  - Liabilities: \$60,000**NET = +\$60,000**
- Dental Student:
  - Assets: Nil
  - Liabilities: \$60,000**NET = - \$60,000**
- Something is missing?

# Estimating human capital

---

$$H_k = (1 - u_k) \hat{y}_t + (1 - d_k) H_{k+1} (1 + g) / (1 + i)$$

**Present value of future labour earnings**

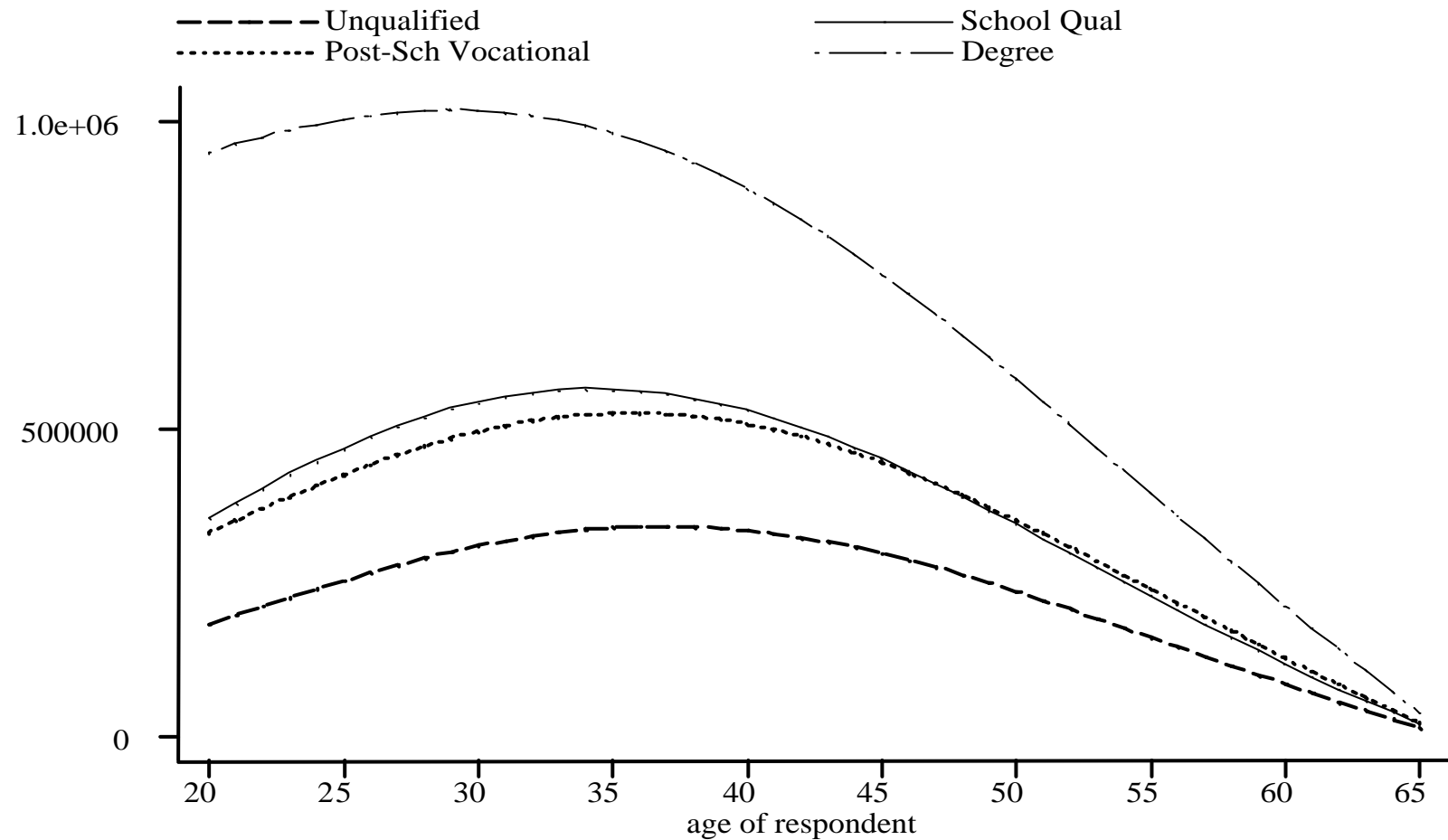
$$\hat{y}_t = f(\text{age}, \text{age}^2, \text{qual}, \text{gender}, \text{ethnicity})$$

**Allow for unemployment (u), real growth (g), survival (d) and discount rate (i)**

**Recursive**

**Allows for market based labour income to age 65; no change of quals - conservative**

# Human capital of Pakeha males



# Net Wealth = Net Worth + Human Capital

---

## Couples

- Mean net worth = \$320,000
  - Mean human capital = \$840,000
- 

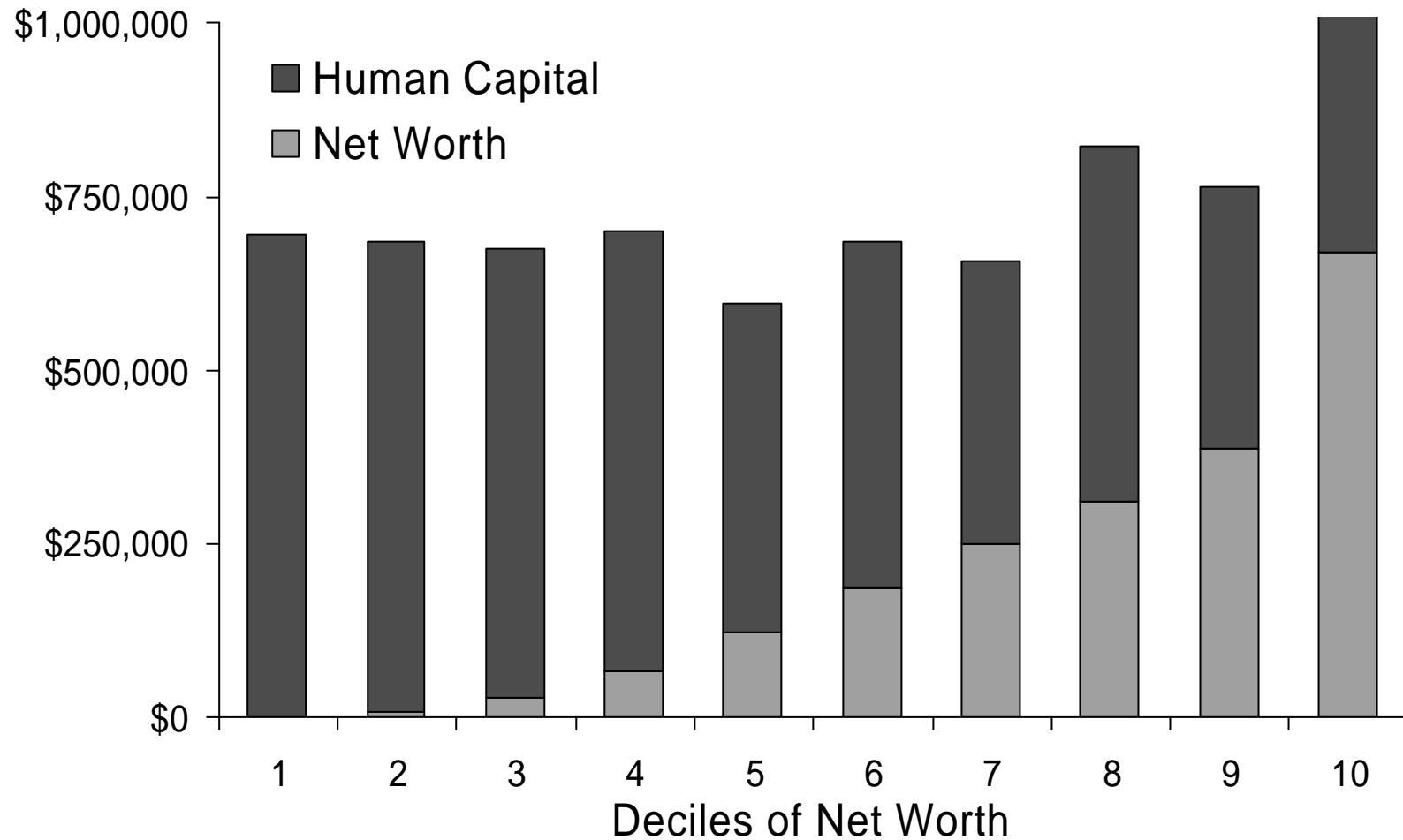
- Mean Net Wealth = \$1,160,000

## Non-partnered

- Mean net worth = \$98,000
  - Mean human capital = \$320,000
- 

- Mean Net Wealth = \$420,000

# Net wealth is more evenly distributed than net worth



# Conclusion



# Conclusions

---

- Unequal distribution of net worth
- Partly reflects age structure
  - Demographic characteristics, incomes, location, and portfolio variables also important
- Ethnic differences are largely explainable
- Student loans – only modest effects
- Including human capital reduces wealth inequality

# Caveats

---

- Still 60% unexplained variation
- Can't study wealth-health relationship
- Labour force and retirement decisions not studied
- No cohort effects
- No standard used to determine if wealth levels are 'adequate' for retirement