



MONASH University

Education

# Willingness to move for work: analysis using discrete choice experiment

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# Introduction

- ❖ Investigates the monetary value of incentives to offer individuals to move from one region of Australia to another for work
- ❖ Provides policy-makers with estimates of the relative importance of the different job characteristics influencing the choice of workers to move to work in regional Australia

# Background

- ❖ Regional disparities in employment performance exist in many OECD countries ([OECD 2005](#))
- ❖ [Lawson & Dwyer \(2002\)](#) showed divergence in the performance of regional labour markets in Australia, with regional migration playing a dominant, but variable, adjustment role
- ❖ From 2000 to 2012, when unemployment generally fell the average unemployment dispersion in Australia narrowed ([Gruen, Li & Wong 2012](#))
- ❖ Shortage of skilled labour in some regions continued to coexist with pockets of high unemployment in other parts of the country

# What are the policy options?

- ❖ **Labour market policies** that increase the demand for labour in regions where unemployment is high—often part of the social inclusion agenda
- ❖ **Geographic labour mobility:** move people from areas with high unemployment to areas with persistent job vacancies—allows the individual to transcend ‘locational disadvantages’ associated with a particular area

Adam Smith wrote in *The wealth of nations*:

*After all that has been said of the levity and inconstancy of human nature...man is, of all sorts of luggage, the most difficult to be transported.*

# Australian experience in moving people

Specific policies on moving people:

- ❖ Assistance for unemployed job seekers who were willing to relocate from parts of regional New South Wales and northern Adelaide to regions with stronger labour markets such as Western Australia ([Australian Government 2010](#))
- ❖ *Connecting People with Jobs* offered grants to eligible unemployed to move to Queensland to take up employment opportunities in flood affected areas ([Australian Government 2011](#))
- ❖ *Move 2 Work* initiative offers similar incentives to relocate for work
- ❖ Decentralisation and regional development plans (e.g. Albury-Wodonga)

# What is this study about?

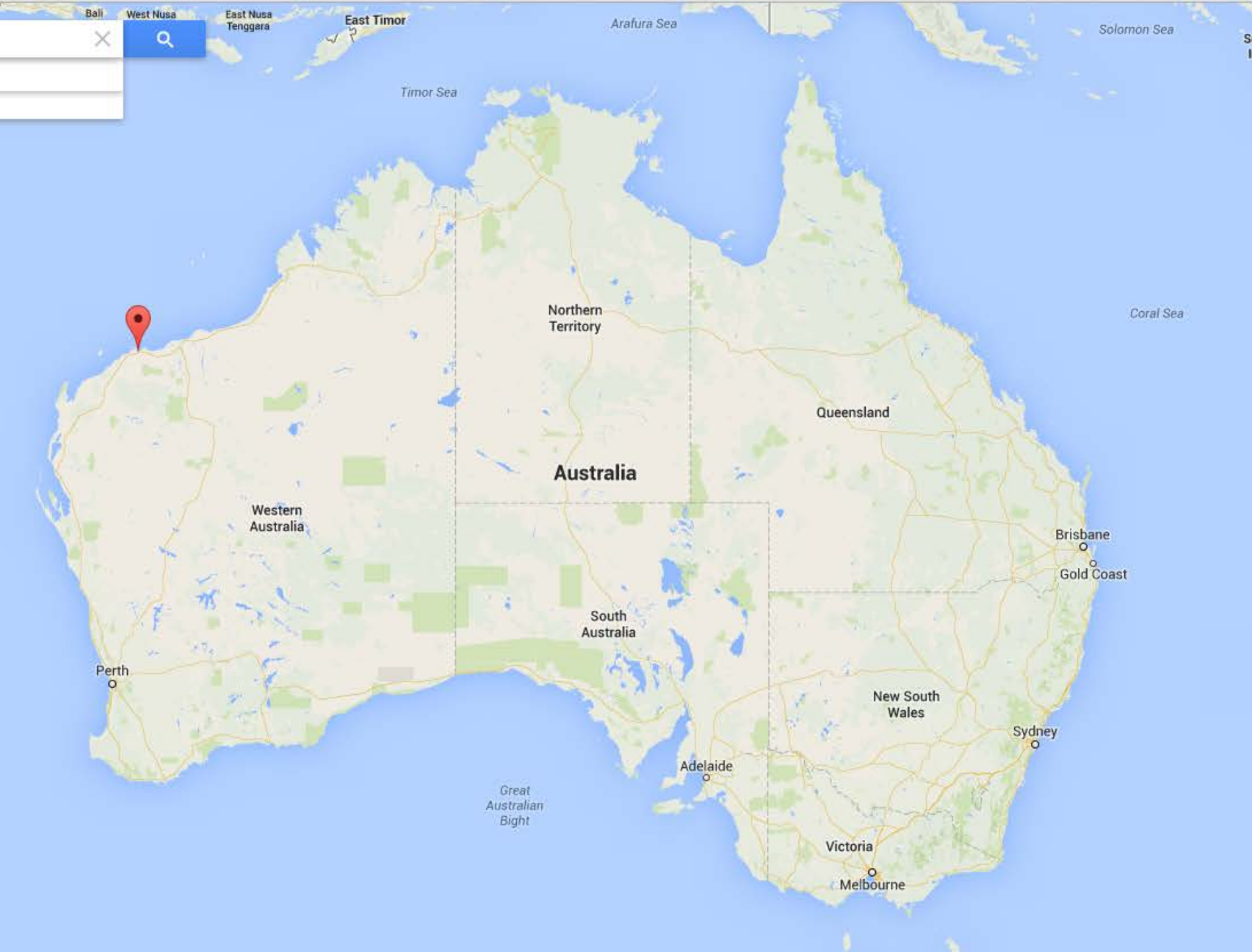
Persistent disparity in regional employment outcomes suggests:

- ❖ employers are unwilling to hire because applicants lack the appropriate skills and experience—labour demand-side factors
- ❖ individuals with the necessary skills are unwilling to move to where the jobs are or do not have information about the opportunities that exist there—labour supply-side factors

This study is about the supply-side with a focus on willingness to move and the incentives to offer for mobility

# Specifically....

- ❖ It investigates the types of incentives to offer individuals to move from New South Wales and South Australia to take up job offers in Karratha (Western Australia) and Emerald (Queensland)



Bali West Nusa Tenggara

East Nusa Tenggara

East Timor

Arafura Sea

Solomon Sea

Timor Sea

Coral Sea

Northern Territory

Queensland

Australia

Western Australia

South Australia

New South Wales

Brisbane

Gold Coast

Perth

Sydney

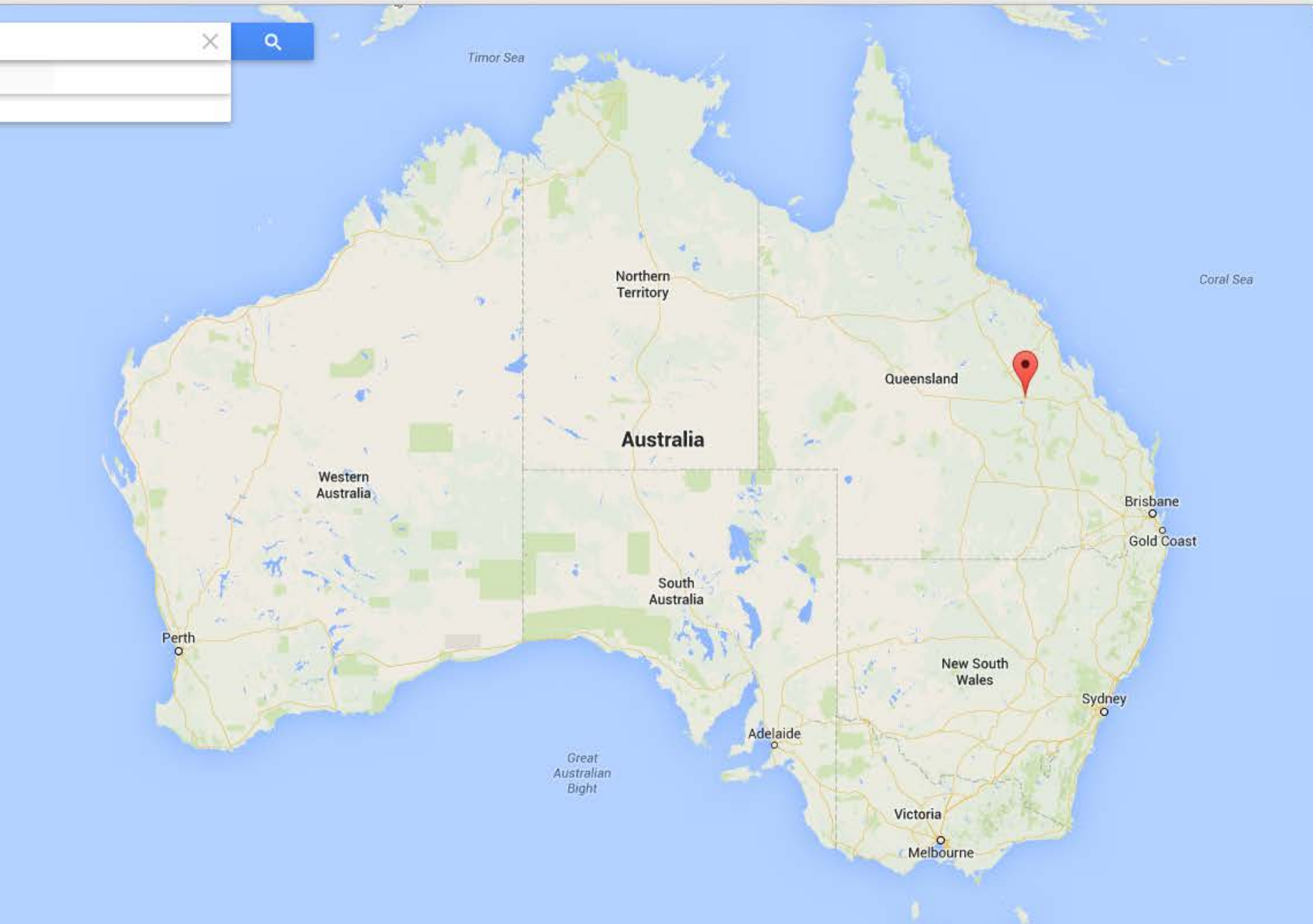
Adelaide

Victoria

Melbourne

Great Australian Bight





# Why use DCE?

Observed data on migration are limiting because at any time the number of people who migrate and the number who do not is a function of both labour demand and supply conditions

Discrete choice experiment (DCE) lets us investigate the factors that influence an individual's willingness to move for work

It allows us to investigate whether:

- ❖ distance to job matters
- ❖ preference for fly-in/fly-out or permanent relocation
- ❖ value of initial job training
- ❖ effects of individual characteristics on willingness to move

# WTM studies using DCE

- ❖ [Lagarde and Blaauw \(2009\)](#) provide a review of 10 studies, from developed and developing countries, that used discrete choice experiments to investigate the job preferences of health workers
- ❖ General practitioners' preferences for moving to a regional/rural location ([Scott et al. 2012](#))

# DCE method

- ❖ Typically in a DCE is conducted on a **sample** of individuals
- ❖ Each individual is presented with a unique set of hypothetical scenarios or **choice sets**
- ❖ Each choice set, contains a choice of two or more **alternatives** of which one has to be selected
- ❖ Each alternative is generally characterised by a number of **attributes** and **levels** of these attributes

## Attributes and their levels

Attribute	Level
Wage (before tax)	40% above current wage
	90% above current wage
	140% above current wage
Relocation options	Full relocation
	Fly-in/fly-out
Contract type	Fixed-term, 6 months no training
	Permanent with training
	Permanent without training

# An example of a choice set

	Alternative		
Attribute	Accept Job A	Accept Job B	Reject A and B
Wage (before taxes)	90% increase in wages	40% increase in wages	Reject both job offers
Relocation	Full relocation	Fly-in/fly-out	
Contract	Fixed six months, no training	Permanent with training	
Your choice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Profile of respondents

Characteristic	% of respondents	Characteristic	% of respondents
New South Wales	71	Bachelor or higher	47
Metropolitan	72	Adv dip/dip	14
Male	57	Certificate III/IV	16
Average age (years)	39	Certificate I/II	4
Australia	72	Year 12	79
New Zealand	2	Currently studying	15
Married	66	Employed	94
Have Children	51	Looking for new job	32
Had lived outside state	47	Seeking work outside state	28
Permanent resident	98	Average hours of work/week	41
House ownership	63	Average annual wage (\$)	69,927
		Sample size	2,331

# Does distance to job matter?

Proportion of pooled responses indicating willingness to move (%)  
and distance to destination

	Destination	
State of origin	Karratha (Western Australia)	Emerald (Queensland)
New South Wales	67 (5,147 km)	64 (1,444 km)
South Australia	60 (3,762 km)	63 (2,117 km)



# Determinants of willingness to accept job

- ❖ Random effects probit model on pooled sample
- ❖ Includes controls for individual characteristics (including educational and employment background, home ownership status and social connectedness) but NOT job attributes

# Determinants of willingness to accept a job offer

Explanatory variable	Marginal effect	p-value
Basic demographics		
<i>Age</i>	0.004	0.01
<i>Male</i>	0.146	0.00
<i>Born in Australia</i>	-0.071	0.04
<i>Single</i>	0.072	0.03
<i>Born in New Zealand</i>	0.055	0.52
<i>Born in English speaking countries excluding New Zealand</i>	-0.042	0.60
<i>Permanent resident or citizen</i>	0.059	0.55
<i>Number of dependents<sup>1</sup></i>	0.009	0.47
<i>Number of parents living in same state</i>	-0.003	0.53
<i>Proportion of siblings living in same state</i>	0.032	0.36
<i>Resident in South Australia</i>	0.012	0.70
<i>Living in metropolitan area</i>	0.014	0.65

# Determinants of willingness to accept a job offer

Explanatory variable	Marginal effect	p-value
Labour force status		
<i>Unemp (Base = Employed &amp; not looking for work)</i>	0.169	0.00
<i>Employed and looking for work</i>	0.205	0.00
Education		
<i>Number of years of schooling</i>	0.019	0.24
<i>Degree or higher (Base = No qualification)</i>	0.010	0.78
<i>Advanced Diploma/Diploma/Certificate III/IV</i>	0.040	0.29
<i>Certificate I/II or other certificates</i>	0.001	0.95
<i>No qualification (base category)</i>		
<i>Currently studying</i>	0.093	0.01
Home ownership		
<i>Own house (Base=Do not own house)</i>	-0.087	0.08
<i>Own house under mortgage</i>	-0.088	0.01

# Determinants of willingness to accept a job offer

Explanatory variable	Marginal effect	p-value
Social connectedness		
<i>Know people living in destination</i>	0.134	0.01
<i>Have been to destination</i>	0.075	0.13
<i>Never lived outside state</i>	0.030	0.36
<i>Have relatives living in destination</i>	0.016	0.43
<i>Not involved with local community</i>	0.017	0.54
<i>Frequency of social contact</i>	0.039*	0.03
<i>Satisfaction with current neighbourhood</i>	-0.030	0.20
<i>Satisfaction with current accommodation</i>	-0.053*	0.02

# Marginal willingness to pay (MWTP)

- ❖ MWTP is the marginal rate of substitution between wages and a job attribute
- ❖ Mixed multinomial logit model to estimate the effects of job attributes on the probability of accepting job offers
- ❖ Specification includes:
  - ❖ only variables that were significant (10%) in the first step
  - ❖ job attributes
  - ❖ the individual's current (expected wage)
  - ❖ difference between the current and expected wage for employed individuals looking for work

## Marginal willingness to pay

		Estimate	Confidence interval	
			Lower 95	Upper 95
Wage % (denominator)	%	1	1	1
	\$	74,380	74,380	74,380
FIFO (v/s permanent relocation)	%	0.141	0.104	0.180
	\$	10,504	7,744	13,357
Temporary contract (v/s permanent)	%	-0.151	-0.178	-0.125
	\$	-11,236	-13,260	-9,321
Training (v/s no training)	%	0.093	0.068	0.119
	\$	6,902	5,053	8,832
Age	%	-0.014	-0.023	-0.006
	\$	-1,046	-1731	-421
Male	%	0.390	0.219	0.581
	\$	29,004	16,311	43,249

## Marginal willingness to pay

		Estimate	Confidence interval	
			Lower 95	Upper 95
Born in Australia	%	-0.200	-0.392	-0.003
	\$	-14,876	-29,135	-230
Single	%	0.258	0.073	0.452
	\$	19,206	5,398	33,593
Unemployed (v/s emp not looking)	%	0.970	0.604	1.396
	\$	72,148	44,942	103,844
Employed, looking for work	%	0.817	0.615	1.040
	\$	60,760	45,713	77,338
Currently studying	%	0.340	0.076	0.584
	\$	25,736	5,642	43,439
Own house (v/s rent)	%	-0.344	-0.547	-0.134
	\$	-25,552	-40,687	-9,949
Know people at job location	%	0.590	0.172	0.986
	\$	43,884	12,760	73,339

# Total willingness to pay (TWTP)

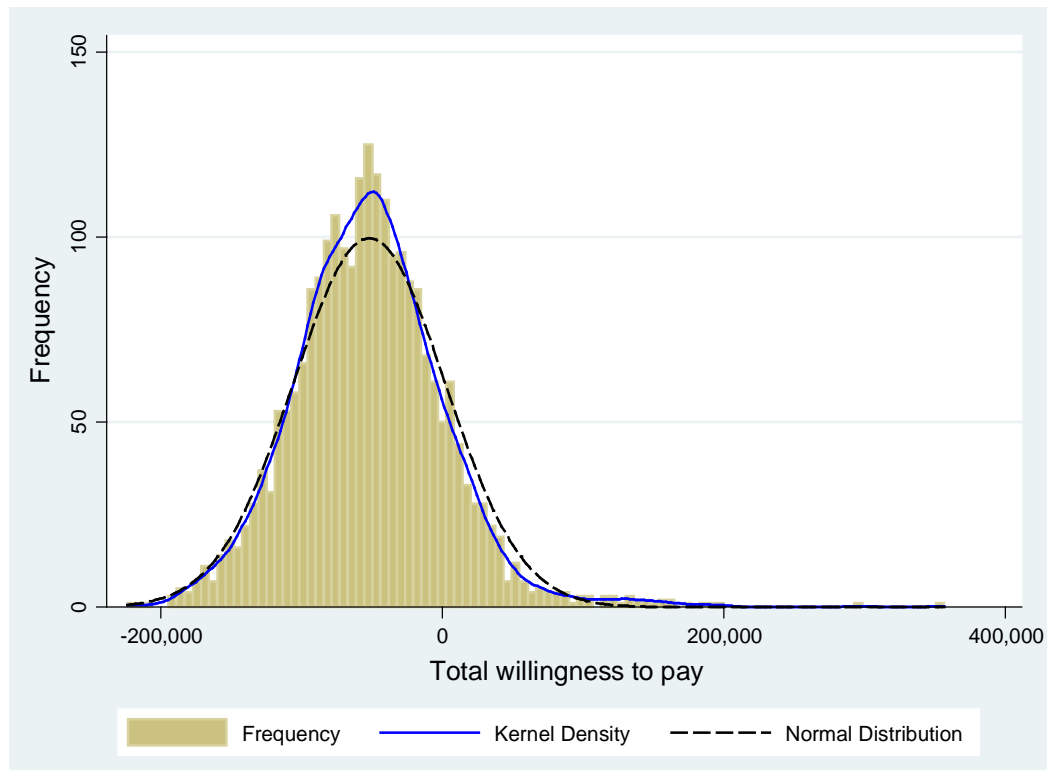
TWTP is the total amount (in wage equivalent terms) that a person with specific characteristics is prepared to forgo or has to be compensated to accept a specific job offer

## Example

**Job offer:** permanent contract without training requiring relocation



# TWTP for job with permanent contract without training requiring relocation



# Three groups

- ❖ **Young**—single, unemployed or looking for work and under 30 years old (4% of sample)
- ❖ **Old**—married, employed and not looking for work, own a house and over 40 years old (18% of sample)
- ❖ **Others**—all others (78% of sample)

# TWTP for job with permanent contract without training and requiring relocation

		% will move			% will move without incentive
		25%	50%	75%	
Young	Estimate	-32,200	-18,343	-795	75
	Lower 95%	11,370	25,899	46,324	11
	Upper 95%	-84,746	-65,283	-43,058	100
Old	Estimate	78,132	98,400	123,080	0
	Lower 95%	123,722	159,619	213,616	0
	Upper 95%	27,346	39,618	52,472	9
Others	Estimate	19,872	45,607	75,240	14
	Lower 95%	66,038	95,102	134,410	0
	Upper 95%	-33,211	-2,489	21,344	48
Total sample	Estimate	22,379	52,875	85,725	14
	Lower 95%	68,576	102,753	148,730	1
	Upper 95%	-29,971	3,787	30,797	53

## TWTP for job with permanent contract without training and requiring relocation (restricted sample)

		% will move		
		25%	50%	75%
Young	Estimate	3,720	7,476	15,680
	Lower 95%	47,781	55,416	76,653
	Upper 95%	-45,559	-37,975	-26,817
Old	Estimate	78,132	98,400	123,080
	Lower 95%	123,722	159,619	213,616
	Upper 95%	27,346	39,618	52,472
Others	Estimate	32,256	52,754	80,156
	Lower 95%	77,364	103,157	142,760
	Upper 95%	-17,336	4,421	24,897
Total sample	Estimate	37,671	61,529	91,841
	Lower 95%	82,180	113,139	157,835
	Upper 95%	13,284	12,294	34,328

# Conclusions

- ❖ Education not significant in explaining willingness to accept a job offer but individuals are prepared to trade-off wages for training
- ❖ Preference for the fly-in/fly-out option but after factoring in the savings in meals and accommodation, the trade-off in wages is not large
- ❖ Strong willingness to move for work, but lack of success of *Move 2 Work* and *Connecting People with Jobs* suggests the observed patterns in mobility may be related to demand-side factors
- ❖ Future research
  - ❖ variation in demand-side factors, e.g. by offering jobs with training and in non-matching occupations
  - ❖ extent of the mismatch between actual labour demand and the skills of those who are most willing to move

# Limitations

- ❖ Are the results generalizable to the whole population?
- ❖ Hypothetical job offers and decisions to accept or reject made in relatively short time
- ❖ Responses may be biased if individuals know the choices they make are inconsequential
- ❖ In the literature on DCEs, hypothetical bias exists in many forms, though the bias tends to be reduced when individuals are presented with more objective information which is directly related to their experience or when the good is private rather than public

# DCE method

- ❖ To investigate individual preferences which are otherwise difficult to identify, measure and compare
- ❖ Allows valuation of different factors that influence job choices
- ❖ Allows assessment of the relative importance of various jobs characteristics that influence the job choices and the trade-offs between them
- ❖ Estimate the probability of take-up of specific jobs
- ❖ Potentially reduces the selection problem

# Design of study

Locational information where the jobs are offered included:

- ❖ climate and location
- ❖ health and education services
- ❖ social amenities
- ❖ housing costs