

# **When There Is No Way Up: Reconsidering Low-wage Jobs As Stepping Stones**

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- Access to the data used in this study was provided by Statistics New Zealand under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975.
- The results presented in this study are the work of the authors, not of Statistics NZ.

## Background:

- Intensive discussion on inequality (e.g. OECD 2015, IMF 2017)
- Numerous studies on the effect of low pay employment on labour market prospects:
  - Persistence in low pay:
$$P(\text{Low pay}_t | \text{Low pay}_{t-1}) \geq P(\text{Low pay}_t | \text{Higher pay}_{t-1})$$
  - Good chances of exiting the low-pay sector:
$$P(\text{Higher pay}_t | \text{Low pay}_{t-1}) \geq P(\text{Low pay}_t | \text{Low pay}_{t-1})$$
  - Conclusion: *stepping-stone* towards higher-paid jobs (e.g. Uhlendorff 2006)

## **Aim of this study:**

Assessing the plausibility of assuming relatively constant wages within a year and determining the impact of this assumption on estimates of low pay persistence:

- Discussing the prevailing identification strategy which is based on annual labour market information.
- Comparing the results with a model that uses a large administrative dataset with monthly earning information and accounts for the intensity of the low pay attachment.

## Findings:

- 1) Annual share of individuals affected by low pay is underestimated
- 2) Level of low pay attachment varies across individuals
- 3) Intensity of low pay attachment over time is highly correlated



Conventional identification strategy *under-* and *overestimates* the persistence in low pay substantially

# Literature Review (excerpt)

## **United Kingdom (BHPS, Understanding Society):**

- Cai et al. (2017): ‘those employees who are on low pay are more likely to be found on low pay in the future, compared with those who are (...) unemployed or on higher pay’ [p. 27]

## **Italy (Survey on Households Income and Wealth):**

- Cappellari (2007): ‘considerable state dependence: the experience of low pay raises the probability of subsequent low pay episodes’ [p. 465].

## **Germany (GSOEP):**

- Uhlenborff (2006): ‘strong true state dependence in low pay’ [p. 18]

## **Europe (ECHIP):**

- Clark & Kanellopoulos (2013): ‘positive, statistically significant state dependence in every single country’ [p. 122]

## **Australia (HILDA):**

- Fok et al (2015): ‘Consistent with the previous literature, the results clearly indicate that there is state dependence in (...) low-paid employment’ [p. 885]

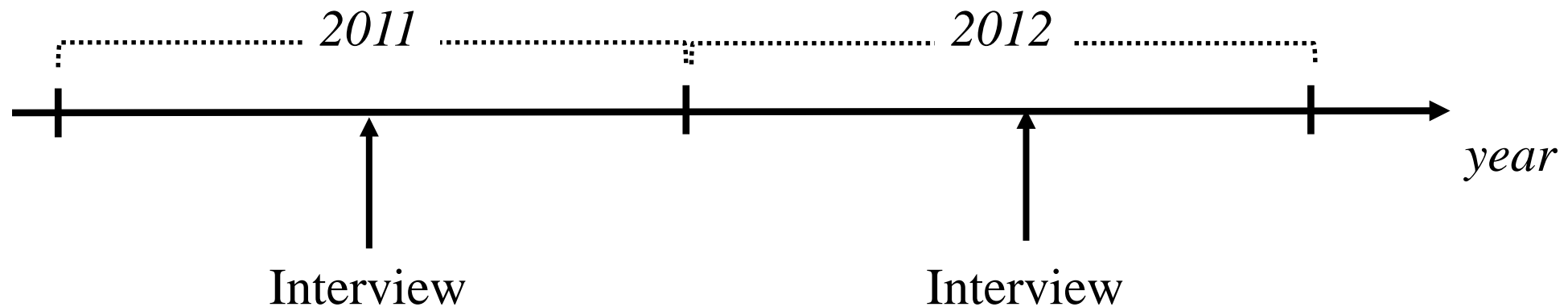
# Literature Review

*Table 1: Low pay persistence of related studies*

<i>Study</i>	$P(Lp_t   Lp_{t-1})$	$P(Hp_t   Lp_{t-1})$
Uhlendorff (2006, Table 8)	0.049	0.860
Mosthaf (2014, Table 6)*	0.091 – 0.168	0.695 – 0.789
Clark & Kanellopoulos (2013, Table 5)**	0.033 (Spain) – 0.133 (Portugal)	-
Cai et al. (2017, Table 7)	0.272	0.472

*Note:* \* Differentiation according to qualification groups. \*\* Authors study 12 countries - remaining ten countries are within that range.

# Underlying concept



- Conventional approach: Identification of low pay employed with respect to the **time point of the interview**
- However: wages **not necessarily constant** over the year (job changes, promotion)
- Inland Revenue (IR) provides information of wages and salaries on the **monthly level**
- Possibility to derive **level of attachment** to the low pay sector



# Descriptive Statistics

## Statistics New Zealand's Integrated Data Infrastructure (IDI):

- IDI links longitudinal microdata about individuals, households etc. from various sources
- Backbone is the Central Linking Concordance (CLC) which contains a list of all individuals with some characteristics (e.g. sex, date of birth)

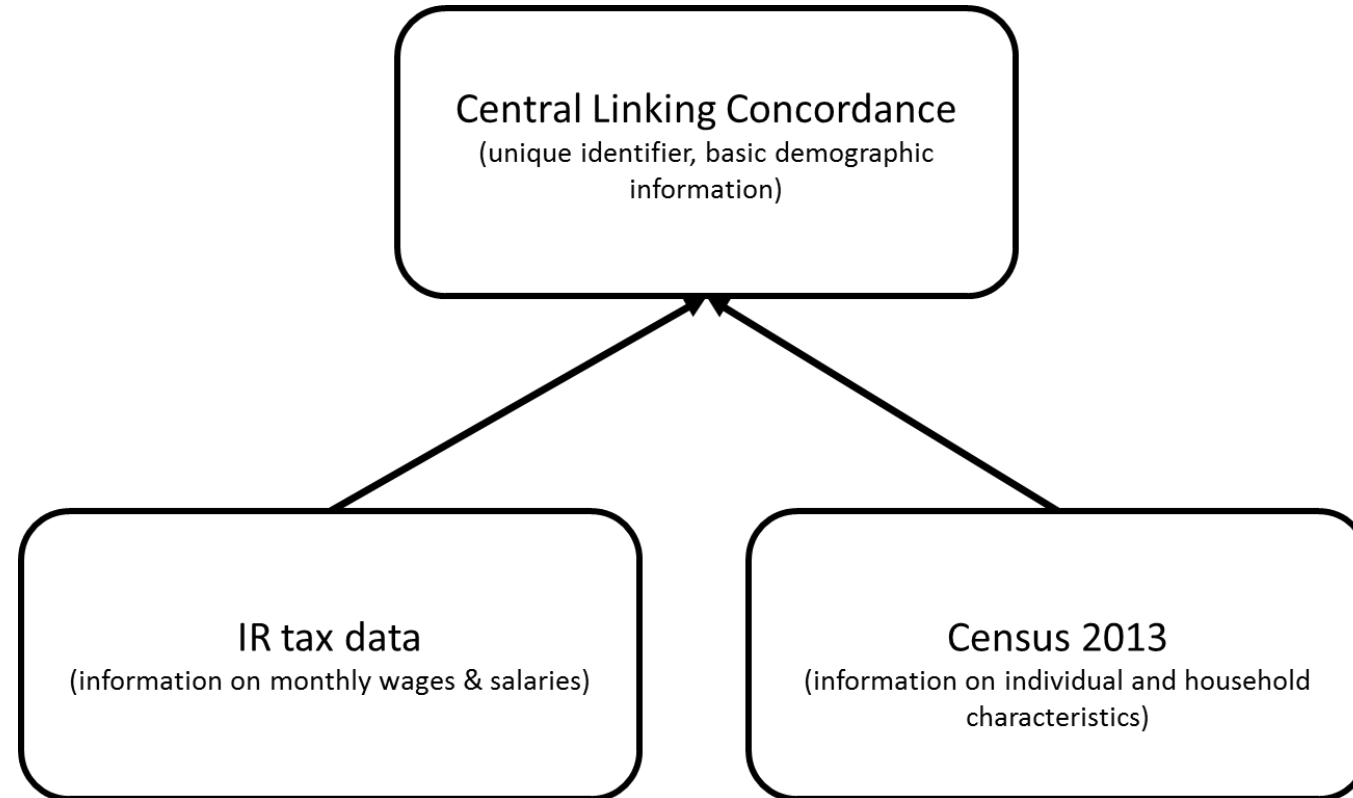
## Inland Revenue tax data (IR):

- Information on person tax data from Inland Revenue
- Monthly data on gross earnings before tax that come from wages and salaries (geographic coverage: all New Zealand)

## Census 2013:

- Information on individual and household characteristics

# Descriptive Statistics



*Source:* own representation.

## Data restrictions:

- Time period 2007 to 2013 (as using information provided by the 2013 Census)
- Male workers aged between 25 to 45 (inclusive) in 2007
- Employed at least 6 months per year
- Age group adjusted monthly low pay threshold (OECD, percentile)
- Using a random subsample of  $N = 77,250$  observations

## **Level of low pay attachment (monthly marker):**

- *No low pay attachment*: individuals with no low pay experience in a year
- *Weak low pay attachment*: individuals who have worked in the low wage sector but for less than half of their annual employment duration
- *Strong low pay attachment*: individuals who have worked at least half of their total annual employment period in the low wage sector

## **Prevailing identification strategy (annual marker):**

- Using the labour market position of the first employed month in a year

# Descriptive Statistics

*Table 2: Prevalence of low pay employment*

		Annual Marker		
		<i>Higher pay<sub>t</sub></i>	<i>Low pay<sub>t</sub></i>	<i>Share<sub>t</sub></i>
Monthly marker	<i>No low pay attachment<sub>t</sub></i>	97.46	2.54	82.4
	<i>Weak low pay attachment<sub>t</sub></i>	70.92	29.08	9.72
	<i>Strong low pay attachment<sub>t</sub></i>	26.86	73.14	7.88
	<i>Share<sub>t</sub></i>	89.32	10.68	

*Source:* IDI data (2018), own calculations. Based on a random subsample  $N=77\ 250$ . Time period = 2007 to 2013.

# Descriptive Statistics

*Table 3: Transition matrix of the labour market positions (Monthly marker)*

	<i>No low pay<sub>t</sub></i>	<i>Weak low pay<sub>t</sub></i>	<i>Strong low pay<sub>t</sub></i>	<i>Total<sub>t-1</sub></i>
<i>No low pay<sub>t-1</sub></i>	94.98	4.59	0.43	81.45
<i>Weak low pay<sub>t-1</sub></i>	44.69	41.77	13.54	10.20
<i>Strong low pay<sub>t-1</sub></i>	5.72	20.67	73.61	8.35
<i>Total<sub>t</sub></i>	82.4	9.72	7.88	100

*Source:* IDI data, own calculations.  $N=77\ 250$ .

# Descriptive Statistics

*Table 4: Transition matrix of the labour market positions (Annual marker)*

	<i>Higher pay<sub>t</sub></i>	<i>Low-pay<sub>t</sub></i>	<i>Total<sub>t-1</sub></i>
<i>Higher pay<sub>t-1</sub></i>	94.62	5.38	88.47
<i>Low-pay<sub>t-1</sub></i>	48.62	51.38	11.53
<i>Total<sub>t</sub></i>	89.32	10.68	100

*Source:* IDI data, own calculations.  $N=77\ 250$ .

## Basic concept:

- First-order Markov process: lagged dependent variable has a genuine effect
- Controlling for unobserved heterogeneity (Heckman 1981a) and its correlation with the initial conditions (Heckman 1981b)
- Applying a dynamic random effects multinomial logit model (Uhlendorff 2006, Mosthaf 2014, Fok et al. 2015, Cai et al. 2017).
- To integrate out the RE we apply MSL (Halton draws).



*Table 5a: Predicted probabilities of low pay persistence (Monthly marker)*

	<i>No low pay<sub>t</sub></i>	<i>Weak low pay<sub>t</sub></i>	<i>Strong low pay<sub>t</sub></i>
<i>No low pay<sub>t-1</sub></i>	0.933 (0.098)	0.060 (0.082)	0.008 (0.018)
<i>Weak low pay<sub>t-1</sub></i>	0.812 (0.209)	0.145 (0.139)	0.042 (0.080)
<i>Strong low pay<sub>t-1</sub></i>	0.514 (0.245)	0.253 (0.084)	0.233 (0.205)

*Source:* IDI data, own calculations.  $N=77\ 250$ .

*Table 6: Distribution of the initial labour market condition (Monthly marker)*

	<i>No low pay attachment<sub>t</sub></i>	<i>Weak low pay attachment<sub>t</sub></i>	<i>Strong low pay attachment<sub>t</sub></i>	<i>Share<sub>t=0</sub></i>
<i>No low pay attachment<sub>t=0</sub></i>	87.5	8.86	3.64	82.4
<i>Weak low pay attachment<sub>t=0</sub></i>	43.48	32.55	23.96	9.72
<i>Strong low pay attachment<sub>t=0</sub></i>	13.18	20.49	66.33	7.88
<i>Share<sub>t</sub></i>	77.37	12.08	10.56	

*Source:* IDI data (2018), own calculations.  $N=77\ 250$ .

*Table 5b: Predicted probabilities of low pay persistence (Monthly marker)  
Initially strong low-pay attachment at  $t=0$*

	<i>No low pay<sub>t</sub></i>	<i>Weak low pay<sub>t</sub></i>	<i>Strong low pay<sub>t</sub></i>
<i>No low pay<sub>t-1</sub></i>	0.709 (0.093)	0.238 (0.075)	0.054 (0.021)
<i>Weak low pay<sub>t-1</sub></i>	0.335 (0.099)	0.406 (0.059)	0.259 (0.061)
<i>Strong low pay<sub>t-1</sub></i>	0.041 (0.020)	0.222 (0.038)	0.736 (0.050)

*Source:* IDI data, own calculations.  $N=77\ 250$ .

*Table 7: Predicted probabilities of low pay persistence (Annual marker)*

	<b>Total</b>	<b>Low Pay<sub>t=0</sub></b>
$P(\text{Higher pay}_t   \text{Low pay}_{t-1})$	0.880 (0.144)	0.582 (0.150)
$P(\text{Low pay}_t   \text{Low pay}_{t-1})$	0.120 (0.144)	0.418 (0.150)

*Note:* IDI (2018) and own calculations. Numbers in parentheses are standard errors.  
 $N=77\ 250$ .

## Findings:

- 1) Using the prevailing identification strategy, the heterogeneity of past low-pay cannot be detected at that granularity → low pay persistence is *over-* and *underestimated*
- 2) After accounting for the level of attachment to the low wage sector those with a strong attachment have very little chance of exiting this sector.
- 3) Strong doubts on whether there is a ‘stepping-stone’ effect of low pay and whether ‘any job is helpful’ with respect of climbing up the wage ladder.

**Thank you very much for your time**

**Questions?**