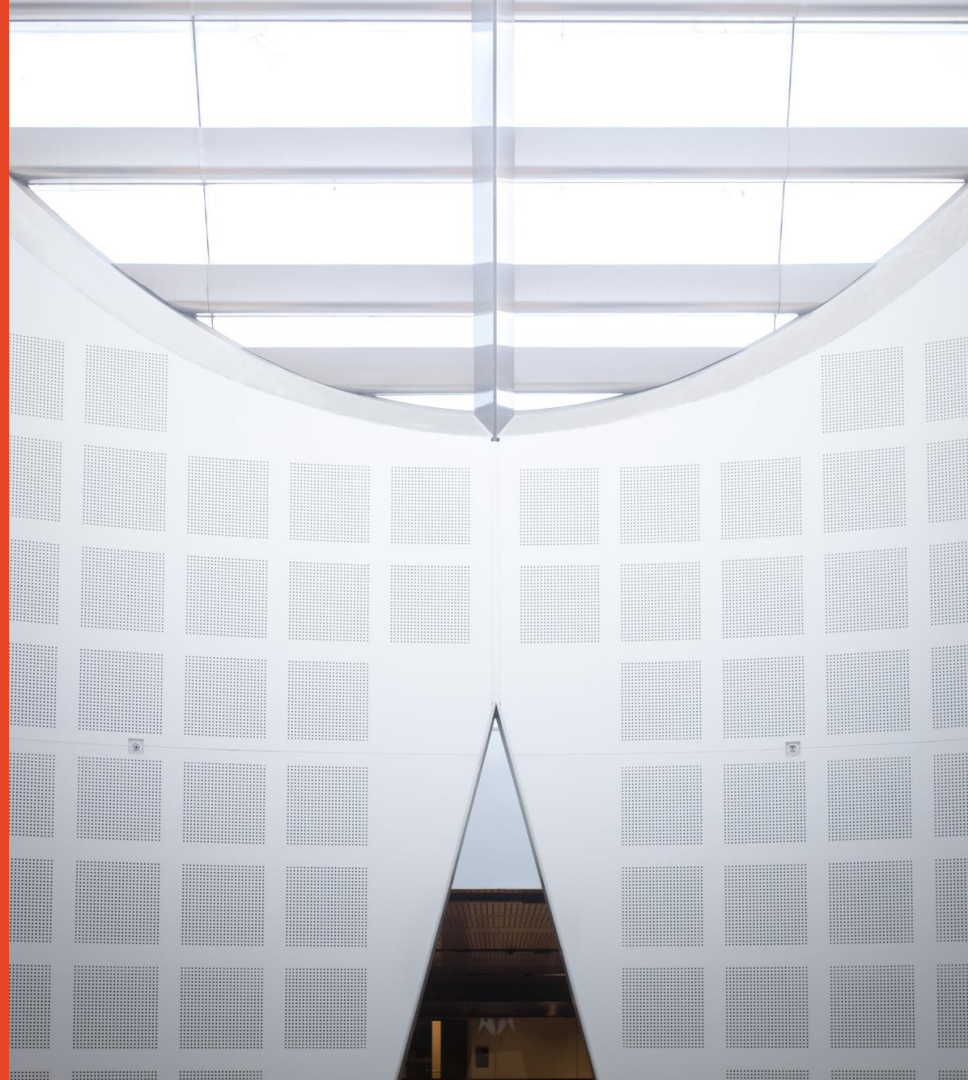
Contours of labour market segmentation: mapping occupational flows within Australia's employed workforce

Powerpoint presentation prepared by Professor John Buchanan, Business Analytics, Business School

THE UNIVERSITY OF SYDNEY



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- Draws on 20 year research program involving research from the former Workplace Research Centre, Leesa Wheelahan, Gavan Moodie and the Melbourne Graduate School of Education, especially Mary Leah, Kira Clarke and John Polesel
- Future Frontiers cross disciplinary research team at Uni of Sydney central to critique of 21st Century skills – Rose Ryan, Rafael Calvo, Nick Glozier, Sandra Peter, Michael Anderson
- Most recent work draws on insights from the Vocational Education Reform Research Collaboration between Uni of Sydney researchers, Uni of Melbourne and NSW Department of Industry
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Introduction

- Thanks to AIRAANZ organisers
- This is work in progress done jointly with NSW Dept of Industry and Sydney Infomatics Hub, USyd (ie Voc Ed Reform Research Collaboration – VERRC)
- Builds on long-standing interest in the dynamics of labour market segmentation

Motivation + Question

- Better matching labour supply + demand:
  - How can the NSW Govt approach to supporting the acquisition of VET qualifications help?
- Objective: identify nature, strength and weaknesses of labour flows
  - Upgrade strengths, overcome weaknesses

=> What are common flows of individuals between occupations in the Australian labour market?

Guiding concepts: understanding the structuring of labour markets

(a) **Core idea:** labour market is comprised of non-competing groups (Mill 1848, Cairnes 1874)

(b) **Determinants:** capitalist competition sets the upper + lower bounds of labour market structure, IR, state + culture determine specific forms (Wilkson, Rubery, Botwinick 1993, Picketty 2014)

(c) **Essential characteristics:** literature of occupational + internal labour markets (eg Bosch 1992, Marsden 1999)

(d) **Taxonomies of content of segments:** Dunlop 1988, Goldthorpe 1990, Oesch 2003)

(e) **Dynamics of skills changes + occupational flows:** Mournier 1999 and Geel et al 2011, Maier et al 2017.

Dunlop's account of non-competing groups 1950s USA

Category	% labour force
Production and maintenance in larger enterprises (non-exempt employees)	20
Supervisory, technical, and professional (exempt employees)	12
Clerical occupations in larger enterprises	10
Top management grades in larger enterprises	2
Self-employment	8
Voluntary associations	3
Public sector (federal, state, and local)	15
Small enterprises, all grades	30

Goldthorpe et al class categories, 1980s

I	**Higher-grade professionals, administrators, and officials; managers in large industrial establishments; large proprietors**
II	Lower-grade professionals, administrators, and officials, higher-grade technicians; managers in small industrial establishments; supervisors of non-manual employees
IIIa	Routine non-manual employees, higher grade (administration and commerce)
IIIb	Routine non-manual employees, lower grade (sales and services)
IVa	Small proprietors, artisans, etc., with employees
IVb	Small proprietors, artisans, etc., without employees
IVc	Farmers and smallholders; other self-employed workers in primary production
V	Lower-grade technicians; supervisors of manual workers
VI	Skilled manual workers
VIIa	Semi-skilled and unskilled manual workers (not in agriculture, etc.)
VIIb	Agricultural and other workers in primary production

Oesch's 17 category class schema (2003)

Self-employed		Employees			Marketable skills
Independent work logic		Technical work logic	Organisational work logic	Interpersonal service work logic	
1 Large employers (>9) **Firm owners** **Hotel owners** **Salesman**	2 Self-employed professionals Lawyers Accountants Medical doctors	5 Technical experts Mechanical engineers Computing professionals Architects	10 Higher-grade managers Business administrators Financial managers Marketing managers	14 Socio-cultural professionals University teachers Medical doctors Journalists	Professional/ managerial
3 Small proprietors, artisans, with employees (<9) **Restaurant owners** **Farmers** **Garage owners**		6 Technicians Electrical technicians Computer equipment operators Safety inspectors	11 Associate managers Managers in small firms Tax officials Bookkeepers	15 Socio-cultural semi- professionals Primary school teachers Registered nurses Social workers	Associate professional/ managerial
4 Small proprietors, artisans, without employees **Shop keepers** **Hairdressers** **Lorry drivers**		7 Skilled crafts Machinery mechanics Toolmakers Electricians	12 Skilled office Secretaries Banking tellers Stock clerks	16 Skilled service Police Cooks Children's nurses	Generally/ vocationally skilled
		8 Routine operat-ives Assemblers Machine operators Freight handlers	9 Routine agricul-ture Farm hands Loggers Gardeners	13 Routine office Mail sorting clerks Receptionists Messengers	17 Routine service Shop assistants Home helpers Waiters	Low/unskilled

Research design

- Starting point
  - Standard linear view of education + occupation progress
- Essence of research strategy: Explored reality
  - *Australia at work* data set
  - Examined how people actually move through labour market
  - Clustered these flows to identify current segments
  - Configured the clusters informed by concepts noted above to produce a comprehensive map of the labour map

=> Map of occupationally defined labour market segments today.

Australia at Work

In-scope sample

- Those people aged between 15 and 58 in 2006 and were either employed or looking for work at this time
    - Employed
    - Looking for work
    - Excluded NILF
- And intending to remain in the workforce for at least the next three years
- Must bear in mind the population for which conclusions can be drawn

Australia at Work

Response

Wave	Employees	Self-employed	Employed	UE	NILF	Total	Retention
2006	6,505	1,335	7,840	501	0	8,341	
2007	6,473	1,332	7,805	346	190	8,341	
2008	5,545	1,079	6,624	189	273	7,086	85.0%
2009	4,910	997	5,907	224	370	6,501	77.9%
2010	4,694	914	5,608	209	391	6,208	74.4%
2011	4,436	886	5,322	171	412	5,905	70.8%

Australia at Work

Retention

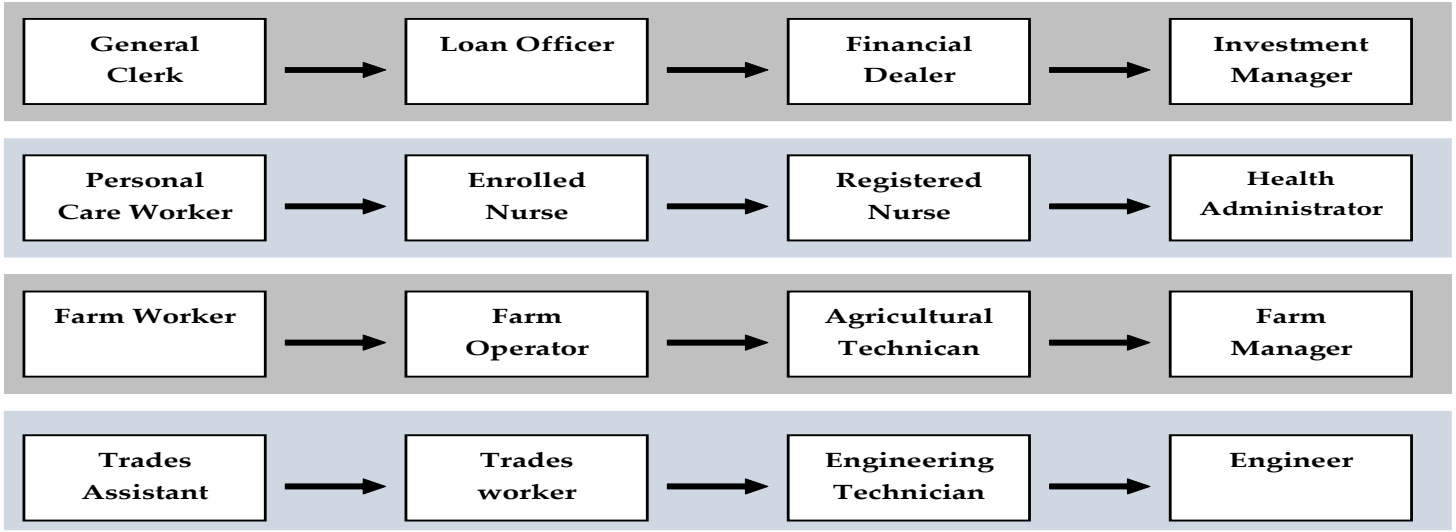
- Overall retention rate across study of 70.8% (29.2% attrition) – small number of participants skipped either Wave 2, 3 or 4 but rejoined the study in the subsequent Wave.
- Year-on-year retention rates:
    - 2007 to 2008 –85.0% (15% attrition)
    - 2008 to 2009 – 91.7% (8% attrition)
    - 2009 to 2010 – 95.5% (4.5% attrition)
    - 2010 to 2011 – 95.1% (4.9% attrition)

Australia at Work

- Gathered data on range of issues facing Australian workers including:
  - Labour force status and recent history
  - Form of employment
  - Worker characteristics
  - Workplace characteristics
  - Working hours
  - Earnings
  - Attitudes
  - Living standards and debt obligations

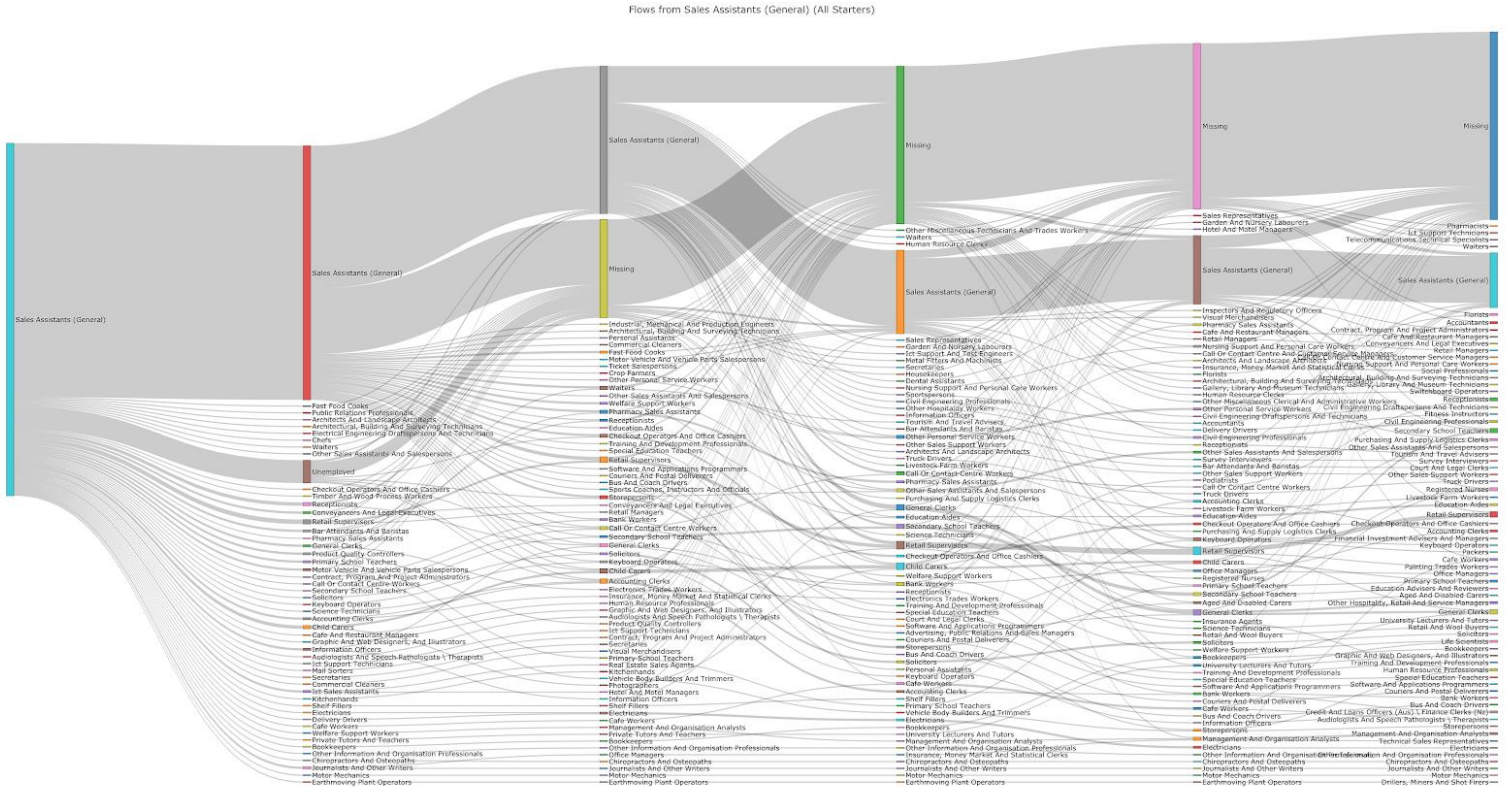
The current starting point: the linear pathway vision

- How do individuals move into and through the labour market?



- What are the commonalities in the trajectories of workers in the labour market?

Transitions and Flows (the raw data)



Overview of clustering analysis

Moved through several stages

- Objective: to find patterns in how people move between jobs over time
- Method
  - Clustering by transition volume (scoped eventually to only include those moving laterally or up at least one skill level)
  - Elements
    - Generate a transition matrix
    - Convert transition matrix to affinity matrix
    - Estimate the number of clusters
    - Cluster affinity matrix
- Three iterations => ultimately to *57* clusters (45 could be coherently coded)

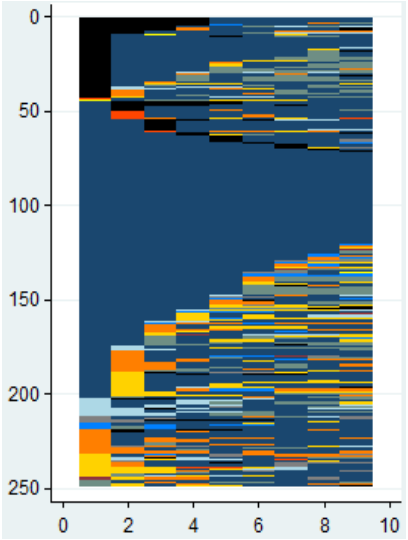
Sample clusters from Australia at Work data 2006 - 2011

- Cluster 21: Registered nurses
  - Registered nurses, nurse managers, nurse educators + researchers, mid-wives, Complementary Health Therapists
- Cluster 2: Educators
  - Primary school teachers, secondary school teachers, School Principals, Special Ed teachers, Other Ed Managers, Private tutors + teachers, Photographers, Senior Non-commissioned defence force members, economists
- Cluster 56: ICT
  - ICT Managers, Database and systems Admin'ors, computer network professionsals, ICT Business Business + System analysts, electronic engnieers, ICT support + test engineers, software + applications programers, ICT Trainers, ICT support techs, Librarians, Other Accomm + Hospitality managers
- Cluster 36: Care, Clerical + Customer Service (upper intermediate)
  - Enrolled + Mothercraft nurses, Pas, Police, Practice Manager, Contract + program managers, Secretaries, Office managers.

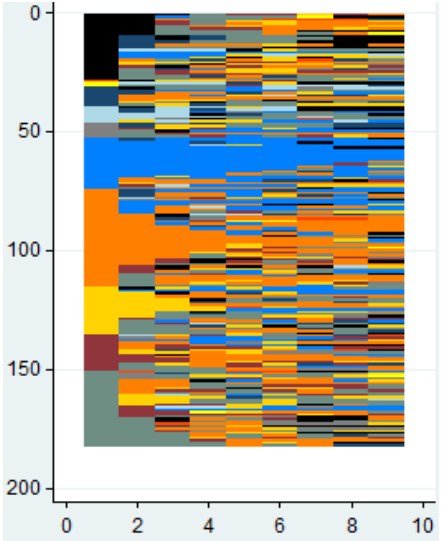
What do the flows look like within segments?

- Example: Agriculture

Farm managers



Manual workers in agriculture

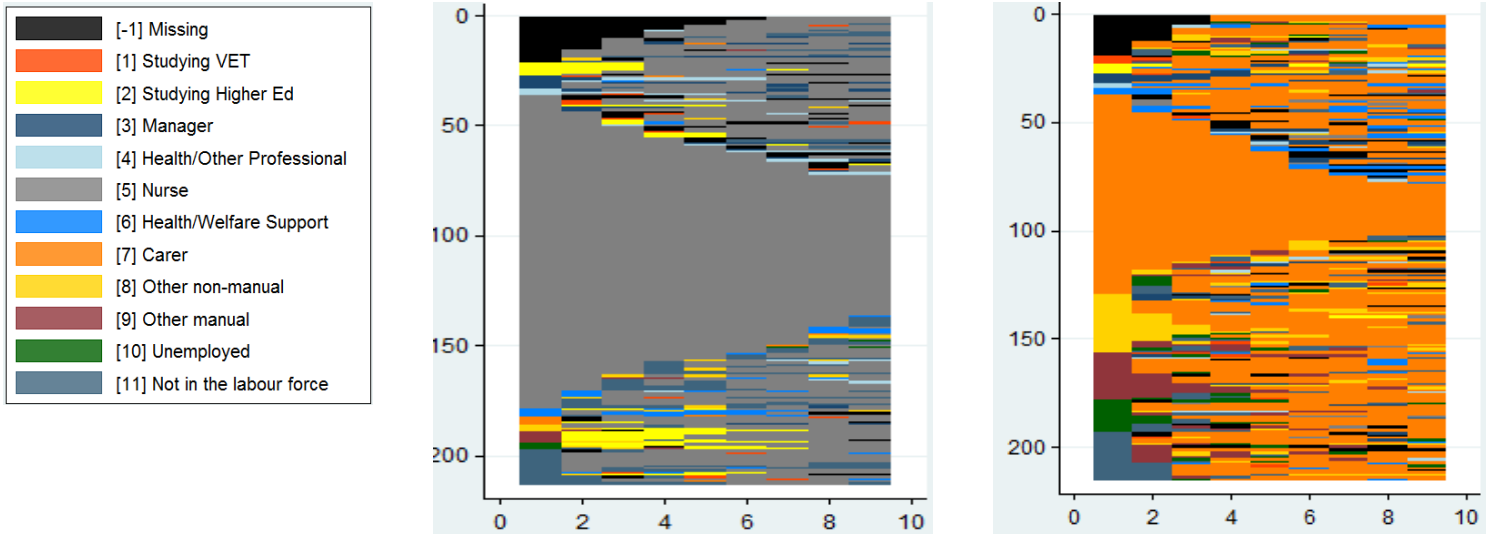


What do the flows look like within segements - Nurses + care workers

- Much continuity – 'stasis' (?)
- Where there is movement it is horizontal not vertical (ie career growth tended not to be vertical into management, but sideways into other specialisations or jobs at equivalent level)

Registered Nurses

Support care staff



How do we configure the clusters?

Use the concepts from the broad 'structuring of labour markets' literatures

(a) Allocate the easiest cases – OLM + Unstructure ELMs

(b) Generate the axes using Mournier's categories, supplemented by Goldthorpe – Oesch notions of hierachy

(c) Allocate the other clusters within this space

(d) Examples of novel cases

  (a) ICT (echoes in structural terms of the old Metal and Engineering labour market)

  (b) Care, Clerical + Customer Service Cluster

A mapping of the major clusters – summary

Basis of transferability

Ability to move laterally because of of deep:
(a) cognitive + behavioural skills and
(b) vocational stream skills[1]

Relative ease in lateral movement possible given relative ease in ability to undertake the work required [cf Mike Rose]

Extent of specific knowledge/analytical capability needed to work in the cluster

Very high (ie considerable specific content knowledge/specialised capability needed) … Very low (ie less specific content knowledge needed, or if needed, relatively easily acquired)

Tightly defined occupations (professions and trades)			Industry/occupational clusters: Connected clusters		Industry/occupational clusters: Segmented cluster	Clusters of intermediate skill level (or below) occupations: Predominantly white collar (working on or with people and/or information)		Clusters of intermediate skill level (or below) occupations: Predominantly blue collar (working on or with things)
Construction	Other	Health	Occupational based	Industry based	Creative industries			
Civil eng /urban form profs + electrical engineering – engineering managers	Legal professionals [6]	Doctors [12]	Educators + associated executive level managers [2]	ICT [56]	Creative industry professionals [35] [48]			
	Professional + tech engineers + scientists [33]	Registered Nurses [21]	Community Services (+ Health) Flow [46]		'Peformers'+ management [15]			
	Health + related scientists/professionals [42]	Psychological+Physical Support [30]	Human resources + related professionals and executive level managers [44]		'Aesthetic' trades [29]			
Building + Architectural technicians [25]		Psycho-social/spiritual support care work [50]	Accounting and financial related professionals + Exec level management [1]		Performing arts techs + management (+ support) [52]			
Higher order Electrical/telecom/multi-media techs + trades (+ toolmakers) [40]		Paramedics [27]	Sales + Production professionals + management [51]					
Electrical trades [40]			Higher level hospitality management flow (ie social work) [22]					
Woodworking +carpentry [5]			Chef/Cook – hospitality/retail management flow [13]					
Plumbing+fluid related trades [34]			[[potential flows into retail supervion + management]] [41]					
Tilers [16]						Higher intermediate customer service, clerical + care [CSCC]		Trades/high intermediate
Painters/Glaziers [43]						Broadly based CSCC I (Police, Enrolled Nurse, Office managers) [36]		Mechanical Metal Trades Flow [14]
Plasters [55]						Broadly based CSCC II (Gamining workers, Filing + registry clekrs, Aged + Disability) [32]		Vehicle Body Trades flow [19]
						Low/mid Intermediate		Low/mid intermediate
						Back office work (+ some customer service + care eg payroll clerk, receptionist, beauty therapy) [10]	Customer service and clerical (eg Gallery guide, mail sorter) [8]	'Operative engineers'(?) – (process work, labouring, plant ops, 'handyman' [49]
							Customer service (travel industry) [9]	
						Low skill work (white and blue collar)		
						Low level customer service (hospitality + retail) + some low skill clerical + manual [23]		Lower level labouring [20], B+C labour [28], [38]
						Low level cleaning + customer service (eg service station operations)[26]		Lower level agricultural + outdoor work [47]
								Low agricultural/rural labouring work [24]
						Predominantly low skils process and mobile plant + labouring work + basic customer service /sales + some clerical [45]		

Major finding: 7 different types of segmented flows

1. Classic professional + trades based labour market
2. Managerial – domain expert flow
3. Industry based labour market
4. Loose occupational labour markets within an industry
5. Semi-structured external labour markets in low and intermediate skilled blue collar work
6. Semi-structured external labour markets in low and intermediate skilled service work (Care, Clerical + Customer Service Flow)
7. Unstructured external labour market

Conclusion

- Recognise the reality of labour market segmentation
- Recognise no symmetry as between the segments (7 different types of segmentation)
- Key implications:
  - New challenges and opportunities for vocational education + union renewal
    - Vocational streams as foundation for renewal of vocational education
    - New contours of solidarity for union renewal.

REFERENCES

John Buchanan.; Ryan, R.; Anderson, M.; Calvo, R.; Glozier, N.; Peter, S. 2018. *Preparing for the best and worst of times*. A report for the NSW Department of Education on the key implications for school education of artificial intelligence and other emerging transformations (Sydney, Australia, Policy Lab, University of Sydney). Available at: https://education.nsw.gov.au/our-priorities/innovate-for-the-future/education-for-a-changing-world/research-findings/future-frontiers-analytical-report-preparing-for-the-best-and-worst-of-times/Future-Frontiers_University-of-Sydney-exec-summary.pdf [3 Aug. 2018].

John Buchanan, Leesa Wheelahan and Serena Yu, 'Increasing young people's adaptability and mobility: from competency approach and twenty-first-century skills to capabilities and vocational streams' in Akiko Sakamoto and Johnny Sung, *Skills and the Future of Work: Strategies for Inclusive Growth in Asia and the Pacific*, Geneva, 2018: 125 – 160 available at: https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-bangkok/documents/publication/wcms_650239.pdf

John Buchanan, Simon Marginson, Leesa Wheelahan and Serena Yu, 'Work, Education and Economic Renewal', A discussion paper prepared for the Australian Education Union, University of Sydney published at http://www.aeufederal.org.au/Publications/2009/JBuchananreport2009.pdf

Damian Oliver (2016) 'Getting over middle child status', in *VET: Securing Skills for Growth*, Committee for the Economic Development of Australia, Melbourne, pp. 33-42, http://adminpanel.ceda.com.au/FOLDERS/Service/Files/Documents/31760~CEDAVETReportAugust2016Final_flattened.pdf .

Leesa Wheelahan, Buchanan, J and Yu, S (2015) *Linking qualifications and the labour market through capabilities and vocational streams*, National Centre for Vocational Education Research, Adelaide https://www.ncver.edu.au/wps/portal/vetdataportal/restricted/publicationContent

Leesa Wheelahan, Moodie, G & Buchanan, J 2012, *Revitalising the 'vocational' in flows of learning and labour*, NCVER, Adelaide. (Nov ember) (http://www.ncver.edu.au/publications/2535.html

Serena Yu, Tanya Bretherton, Johanna Schutz, John Buchanan (2012) *Vocational trajectories within the Australian labour market'*, National Centre for Vocational Education Research (NCVER) Research Paper, Adelaide, May 1 (http://www.ncver.edu.au/publications/2557.html)