Big, Fat Paycheck: An Australian Tale of Wage Differentials by Nativity Accounting for Body Size

Introduction

The goal of this paper is to shade additional light on the complex interplay between immigration, obesity and wages. There is a growing literature and consensus on the association between the act of migrating and a good health status – "healthy immigrant hypothesis". There is also considerable literature on the link between obesity and wages, yet the constant questioning of (direct or reverse) causality (Averett et al, 2013:245) lead to mixed conclusions (see Averett 2011 for a literature review). However, as Averett et al. (2013:242) note, there are only two studies that specifically tackle the effect of both obesity and immigration on wages. Specifically, Cawley et al. (2009) work using U.S. data and Avarett et al. (2012) work using UK data.

We contribute empirical evidence on this link using data from Australia, which ranks seventh in terms of being most popular destination for immigrants(OECD 2014a: 20), and fifth in terms of obesity levels among the adult population (OECD 2014b:2). We extend the existing literature on three dimensions. First, we look at the performance of immigrants in a country which given the high level of immigration and rate of obesity has opted for related health screening embedded in a point-based migration process. Second, we distinguish between immigrants from an English and a non-English speaking country as a way to account for a similar obesity rate and lifestyle to the Australian one and an easier labor market insertion. Third, we employ a superior measure of obesity to BMI: the waist to height ratio, and investigate the possible added benefit of one strategy addressing the endogenous nature of the relationship obesity-wages.

Literature Review

The Healthy Immigrant Hypothesis

The healthy immigrant effect (HIE) refers to the fact that upon arrival immigrants are in a better health condition than native and, moreover, than those from their home country who decided not to migrate. This situation tends to be attributed to "selection" arguments. Immigrants might come from countries characterized by a healthier lifestyle and nutrition pattern (Popkin 2002) and might have a tendency to invest more not only in their human capital, but in their health. The immigration policy of the host country might involve a screening process partial to the healthiest. In addition, those who suffer from an illness might return, voluntarily or by consequence of no visa renewal, to their home country – the salmon-bias effect.

Research also looks at whether this initial advantage fades over time. The 'unhealthy' assimilation hypothesis/ acculturation explanation states that the longer one resides in a country exhibiting high obesity rates the higher is the probability of bad diet and reduced activity alike that of natives. The erosion of the initial advance is, however, held back by delayed acculturation and cultural buffering if close cultural ties to the homeland still manifest.

The evidence regarding HIE and 'unhealthy' assimilation in Australia seem fairly consistent. Kennedy and al (2006) works strongly supports HIE, in particular in case of immigrants from developing countries. The intake of mainly skilled, young migrants is highlighted as a major driver for these results, with the important mention that the education health gradient is significantly smaller for immigrants compared to native-born individuals.

As far as the evidence in favor of the adoption of obesogenic behaviors and experience of weight gain following migration to Australia is concerned, there seem to be more supportive than dismissive results. On the one hand, work by Biddle and al (2007) shows that the longer immigrants spend in Australia, the closer their health approximates that of the Australian-born population. Renzaho et al. (2006) go further and specifically highlight the fact that in the case of children coming from countries with a lower rate of obesity the likelihood of experiencing it in Australia increases with the length of time since migration, while Hauck et al (2011) indicate that, despite their initial lower rate, Asians are at risk of assimilating to the predominant mainstream culture in only one generation, with a consequent BMI increase. By extension, Renzaho et al. (2008) results suggest that maintenance of traditional cultural orientation is associated with lower rates of obesity and sedentary behaviors. Hauck et al (2009) analysis indicates that a slower transition to native rates of obesity occurs if part of a large ethnic enclave. On the other hand, recent work by Jatrana and Rao Pasupuleti (*forthcoming*) finds that immigrants from an English speaking country come with no health advantage and do not become disadvantaged. Immigrants from a non-English speaking country lose their initial obesity advantage once in Australia for more than 20 years.

Lastly, it is import to note that work such as that by Delavari et al. (2013) raises the issue of the need to explore possible mediators and moderators on the relationship between the degree of acculturation and body weight.

Obesity and Wages

Never has the mantra "association does not mean causation" been truer. There is currently in the social science literature a growing effort to puzzle out whether one should indeed talk about the negative impact of obesity on labor market outcomes. Obese people might have a lower wage simply because there are discriminated against on grounds of a. labor productivity: obesity people are thought to be lazier and lack social skills (Sobal 2004, Han et al 2009), they lack the required muscular strength or looks (Caliendo and Gehrsitz 2014) and they do not think long-term by not investing in skill improvement (Cawley 2004) or b. cultural norms (Costa-Font and Gil 2004; Brunelo and D'Hombres 2007; Garcia and Quintana-Domeque 2007). They could also have lower wages on account of the fact that their employer has to pay a premium for their health insurance hence has to be compensated for the financial loss (Bhattacharya and Bundorf 2009). Reverse causality is very much possible in as far as those with lower wages cannot afford the costs of a healthy diet (Drewnowski 2009). Last, the possibility of obesity having a positive effect on wages should not be disregard of the bat. For the obese the marriage market might be tight, hence the decision to heavily invest in human capital skills conducive of higher wages is a likely scenario (Averett and Korenman 1996).

The segment of the empirical literature investigating the link between obesity and wages in Australia seems to reconcile the theoretical conundrum by concluding no effects. Kort and Leigh (2010) find no significant relationship between BMI and wages. This result is supported by Lee (2014) who stresses the importance of thinking in terms of height-weight combinations whilst focusing on age groups.

Hypotheses

The above synthesis incorporates nutrition, immigration and labor market theories to explain immigrants' initial body composition advantage, its likely convergence to native level over time, and associated wage penalty. It emphasizes how immigration might affect population health and to that end economic returns, in three ways.

First, based on HIE, we hypothesis that immigrants within a short duration after arrival have a body composition advantage over the native born. We expect to find this effect to be more substantial in the case of immigrants coming from countries economically and culturally dissimilar to Australia- those born in non-English speaking countries (NESC).

Second, while a certain degree of erosion of the initial advantage might occur over time, we hypothesis that this advantage still remains significant because of origin culture buffer and return migration. Once more, we expect this scenario to substantiate among NESCs as for ESCs no lifestyle and nutrition difference will present themselves. As such, we do not envisage any variation in economic returns to body composition over duration of residence.

Third, as far as nativity differentials in returns to body composition are concerned, we hypotheses no differences between natives and ESCs. In as far as differences between natives and NESCs, we put forth the idea by which we expect NESCs to incur a (higher) penalty for obesity given the departure from group average of such cases.

Econometric Strategy

We investigate the existence of a HIE by estimating body size differentials for nativity groups controlling for individual characteristics, as specified:

$$P(Y_i > j) = g(X\beta_j) = \frac{\exp(\alpha_j + X_i\beta_j + ESC_i\varphi_j + NESC_i\eta_j)}{1 + \{\exp(\alpha_j + X_i\beta_j + ESC_i\varphi_j + NESC_i\eta_j)\}}, \quad j=1,2 \ldots M-1 \qquad (0)$$

where M is the number of categories of the ordinal dependent variable - in this case three (normal weight, overweight, obese) hence two equations (category 1 vs. 2+3 and category 1+2 vs. 3).

We estimate an obesity ordinal dependent model for consistency reasons. Specifically, a RESET test (Thursby and Schmidt 1977) indicated that the hypothesis of linearity of wages in obesity is rejected at a 5 percent significance level.

We opt for an ordered model over a multinomial model as not to discard the ordered nature of the data and potentially lose efficiency (Peterson et al, 1990). We assessed in preliminary analyses the parallel slops assumption (βs are the same for all values of j) using a Brant test and decided for a generalized ordered logit model (gologit) which relaxes it. Specifically, we employ a partial proportional odds model - a special case of gologit allowing just some of the covariates to not have proportional effects. Ananth and Kleinbaum (1997) provide a thorough discussion of the statistical theory behind the partial proportional odds model. The STATA command gologit2 with gamma parametrization (Williams 2006) was used to fit the model. In this type of parametrization each covariate has a beta (β) coefficient and can have M-2 gamma coefficients, where gammas represent deviations from proportionality.

The effect of obesity on wages has been addressed in a variety of studies, majority of which being preoccupied with establishing the direction of causality. The issue of addressing the possibly endogenous relationship between wages and obesity resulted in a variety of strategies, none without pitfalls (see Averett et. al 2013: 247-248 for a thorough discussion). Irrespective of choice, the general idea is that when controlling for endogeneity most times the effect of obesity disappears.

The primary goal of this paper is that of providing evidence of the dual effect of immigration and obesity on labor market outcomes for immigrants to Australia, and not that solving the endogeneity puzzle. As such, we start by estimating on the non-natives sample an OLS model based on a specification similar to that employed by Cawley (2009) and Avarett (2012):

$$W_i = \alpha + \beta X_i + \gamma OW_i + \eta OB_i + \tau YR_i + \varepsilon_{it} \qquad (1)$$

W_i stands for the respondent’s log hourly wages. Body size enters the equation as a piece-wise constant in 3 categories: individuals are either overweight (OW) or obese (OB), with recommended weight and underweight combined as the omitted category. X is a vector of demographic controls, while YR accounts for years of residence. Previous work conducted by Lee (2014) supports our decision of a parametric instead of a semi-parametric strategy.

We then, similar to Avarett (2012), extend the model as to directly compare immigrant and native populations. We do this by estimating the following equations, which augment (1) by including an indicator of nativity:

$$W_i = \alpha + \beta X_i + \varphi ESC_i + \delta NESC_i + \gamma OW_i + \eta OB_i + \theta ESC_i{*}OW_i + \upsilon ESC_i{*}Ob_i + \Omega NESC_i{*}OW_i + \xi NESC_i{*}OB_i + \tau YR_i + \varepsilon_{it} \qquad (2)$$

To move from associations towards a possible causal conclusion is further hampered by the act of migration itself as information on family members becomes limited and disconnected from ones’ outcomes in the current country of residence. Nevertheless, following Avarett and Korenman (1996) when working with BMI we re-estimate our models using BMI lagged by one year as to account for endogeneity.

Data and Measurement

Description of the Data

This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social

Research (Melbourne Institute). The findings and views reported in this paper, however, are those of the author and should not be attributed to either FaHCSIA or the Melbourne Institute.

HILDA is a nationally representative household-based panel study which began in 2001. The release we use -13- consists of 13, 386 surveyed households (including the Top-Up sample from 2011). Specifically, it includes 19,987 Continuing Sample Members (CSMs) and 1,341 Temporary Sample Members (TSMs). CSMs are all those members of wave 1 households. Any children subsequently born to or adopted by CSMs are also classified as CSMs. Further, all new entrants to a household who have a child with a CSM are converted to CSM status. CSMs remain in the sample indefinitely. All other people who share a household with a CSM in wave 2 or later are considered TSM (Summerfield et al 2015: 3). Interviews are conducted annually with all adult members of each household. With respect to language difficulties, only a small number of interviews were conducted with the help of a professional interpret, most time another member of the household acting as an interpreter.

Since our independent variable was only measured in wave 13, most information refers this wave. The covariates subsection addresses the rationale behind the use of information collected in earlier waves for some of the covariates.

The data used in this paper was extracted using the add-on package PanelWhiz for Stata®. PanelWhiz (http://www.panelwhiz.eu/) was written by Dr. John P. Haisken- DeNew (john@PanelWhiz.eu). See Hhan and Haisken- DeNew (2013) and Haisken- DeNew and Hahn (2010) for details. The PanelWhiz generated DO file to retrieve the data used here is available from me upon request. Any data or computational errors in this paper are my own.

HILDA allows us to identify immigrant status, obesity and wages as described below.

Sample Selection

We restrict our examination of the data to employed male respondents, age 21-65. We dropped those in self-employment and those employee of own business as they negotiate and collect wages at a different rate. We focus on male respondents as their obesity rate tends to fluctuate less across the life cycle span (Lovejoy 1998). The age restriction speaks to working-age workers and to the fact that little to no height increase occurs after the age of 21(Kortt and Leigh 2009).

We use information on the country of birth to identify and categorize immigrants. We conduct our analysis on three categories namely Native-born (NB), born in English speaking countries (ESC), and born in non-English speaking countries (NESC). Immigrants from the United Kingdom, America, New Zealand, Canada, Ireland and South Africa were categorized as immigrants from ESC and the rest as immigrants from NESC. This classification is as suggested by the Australian Bureau of Statistics (ABS) and as such fosters the possibility of a comparative assessment of our results. As ABS notes countries are not classified on the basis of whether or not English is the predominant or official language, but merely on whether they constitute 'main countries from which Australia receives, or has received, significant numbers of overseas settlers who are likely to speak English'[1]. In addition, it must be emphasized that this classification is partial to our endeavor given that EDC countries rank similarly to Australia in terms of obesity rates.

The NB group is restricted to non-indigenous people, i.e. non-Aboriginals and non-*Torres* Strait *Islanders. The distinct obesity and demographic profile of the indigenous (ANHPA 2014)*[2] *directed this decision.*

Dependent variable: Wages

Income information is collected in the Person Questionnaire. Income imputation was undertaken in three steps, at the derived variable level, leaving the original data unchanged. The steps were:(1) carryover of zeroes, (2) Nearest Neighbor regression

---

[1] http://www.abs.gov.au/Ausstats/abs@.nsf/Latestproducts/3417.0Glossary12011?opendocument&tabname=Notes&prodno=3417.0&issue=2011&num=&view=

[2] http://sydney.edu.au/medicine/public-health/menzies-health-policy/publications/Evidence_Brief_Obesity_Prevalence_Trends_Australia.PDF

imputation and (3) Little and Su imputation. In wave 13, 10.4 % of "responding persons" missing cases were imputed via (2) and 89.6% via (3). Ideally, all records would be imputed by (3), however sufficient information is not always available (Summerfield et al 2015: 63-64).

Particularly, we are interested in gross hourly wages and salary in the main job. These are calculated by dividing the gross weekly wage in the main job by the number of hours per week worked in said job. Wage observations below half the federal minimum wage are dropped, as we regard these as implausibly low[3].

Independent variable: Obesity

When it comes to measuring obesity, for a long time three magic letters held most weight– BMI (Body Mass Index). Recent work indicates the waist to height ratio (WHtR) as a superior measure of pinpointing obesity and predicting the health risk associated with it (Scheneider et al. 2010). The reason is twofold: medical and methodological. Medically speaking the most dangerous place to carry weight is in the abdomen. Fat in the abdomen is metabolically active and produces hormones which can cause harmful effects, such as diabetes, elevated blood pressure and altered lipid levels (Amen 2011:13). Methodologically, WhtR is cheaper and easier to collect, its boundary value is not sensitive to age, gender or ethnicity, and can easily be converted into a consumer-friendly chart (Browning, Dong Hsieh and Ashwell 2010).

As the name indicates WHtR is calculated by dividing waist size by height. Ideally, the waist circumference should be less than half of the height -0.5 represents the main proposed boundary value. The second boundary value is 0.4, and the third 0.6. Reviewing the chart-based literature she pioneered in the 1990s, Ashwell (2011:80) notes that values below 0.4 indicate one will not need to decrease waist circumference and might even be underweight. Values between 0.4 and 0.5 characterize an OK status. Values between 0.5 and 0.6 signify one should "Consider Action" (if adult) or "Take Action" (in the case of a child[4]).Values larger than 0.6 clearly identify a "Take Action" case.

Self-reported waist measurement was collected through HILDA starting wave 13, using the tape measure provided. During the editing process it was noted that many respondents seemed to have provided their waist measurement in inches or were simply implausible (see Eisenmann 2005, Ford et al. 2012). If plausible with respect to age and gender, the values which seemed provided in inches were converted to centimeters. A second plausibility check was then performed in relation to weight and height. All extremely low or high values were visually inspected before deemed implausible (HILDA Subject Codebook, 2014[5]).

Covariates

HILDA wave 13 benefits from the re-inclusion of the health module. The module contains information on physical activity both via a single-item Self-Completed Questionnaire (SCQ) measure and the International Physical Activity Questionnaire (IPAQ) measures. Wooden (2014: 15) concludes that the SCQ measure performs just as well if not better than the IPAQ variables, one possible explanation being that it accounts for usual activity as opposed to activity in the last 7-days. As such, and considering the possibility of comparability with similar work, we make use of the SCQ measure. This is a categorical measure: 'low', 'moderate', 'high' level of physical activity.

A consistent body of public health literature focuses on the relationship between obesity and health risks. The risk of type II diabetes, elevated cholesterol levels, depression, musculoskeletal disorders, gallbladder disease, as well as a variety of heart conditions and several cancers is higher among the overweight and obese (Pi-Sunyer 1996). In order to quantify the extent to which health status affects the relation between obesity and wages we include four summary measures of physical health status derived from the SCQ's Short Form Health Survey (SF-36) section: the physical functioning, role-physical, bodily pain, and general health indices. The scale is 0-100, where 100 is a good status.

---

[3] In 20, most respondents were interviewed between August and November 200, when the federal minimum wage for workers aged 21 and over was $12.70 per hour, so we drop those earning less than half the minimum wage ($6.35).

[4] Over 5 years old

[5] https://www.melbourneinstitute.com/hildaddictionary/onlinedd/VariableDetails.aspx?varn=bmwaist&varw=13

Similar to Cawley et al (2009) and Averett et al (2012) we include variables on smoking status and alcohol consumption in order to account for myopic time preferences. Moderate drinkers and heavy drinkers constitute 'current drinkers'. Drinking habits were classified according to Cruise (2009: 34-36). 'Cigarette smoking' identifies all those who smoked at least 100 cigarettes in their lifetime. The same definition was used by Cawley et al (2009). The question was asked in this format in wave 7 of HILDA. The information was updated by considering the answers given to wave 8-13 questions on frequency and intensity of smoking by wave 7 non-smokers or non-respondents, and by those who came of interview age or entered the survey later on.

There is debate in the literature as to whether one should control for education and experience when estimating wages, as the two might be confounding variables, correlated with both body size and wages (see Neal and Johnson 1996, Heckman 1998 for a discussion). Upon further examination results solely based on a measure of cognitive ability are not robust (Darity and Mason 1998, Lang and Manouve 2004) and adding back education into the wage equation makes the ethnic/racial gap reemerge. The explanation is that while cognitive ability accounts for aptitude, education accounts for additional productivity attributes such as acquired skills or knowledge. Consequently, using information collected in wave 12 we control for cognitive ability (Backwards Digital Span –BDS – highest rate of response, not influenced by language skills – see Wooden 2013 for details), non-cognitive ability (two achievement motivation scales: "hope for success" and "fear of failure"- see Wooden 2013 for details), education (3 levels of attainment: Year 12 or less, other post-school and Degree) and years of experience in current occupation.

The number of years of residence in Australia is calculated as the difference between the year of the survey and the year one first came to Australia. As such the measure suffers from slight imprecision resulting from the fact that spells of time spent abroad since the first visit are not accounted for hence we operate under the assumption of an interrupted stay.

The following regressors are included to control for *characteristics of employment*: contractual status (distinguishing between a fixed term, casual or permanent contract), length of tenure (years) with current employer, industry of activity(1-digit ANZSIC 2006 division, reorganized into 9 categories due to small sample sizes: primary industry or utilities; manufacturing; construction; retail or hospitality; transport; culture; finance or science; education or health; other services), sector of activity (public sector as opposed to private sector or to private non-commercial sector), size of the employer (on the basis of the number of employees throughout Australia: small, medium-small, medium or large firm), and indicator variables for whether the respondent is part of a trade union or employee association, his or her job is part-time (defined at 20 hours per week), has a white collar occupation (as defined by ABS, based on 1-digit ANZCO 2006: Manager, Professional, Community and personal service worker, Clerical and administrative worker, Sales worker[6]), is with.

As far as additional *demographic characteristics* go, the list of regressors includes: age (and its square), partnership status (3 categories: married or de facto; divorced, widowed or separated; never in officiated partnership), number of dependent children (sum of the number of children aged under 15, including partner's, residing in the household and the number of own dependent non-residing children), and region of residence (New South Wales, Victoria, Queensland, South Australia, Western Australia, Tasmania, Northern Territory, Australian Capital Territory).

References

- Amen, Daniel G. (2011) *The Amen Solution: The Brain Healthy Way to Lose Weight and Keep It Off*. Random House
- Ashwell, Margret (2011) Charts Based on Body Mass Index and Waist-to-Height Ratio to Assess the Health Risks of Obesity: A Review. *The Open Obesity Journal* 3, 78-84
- Averett, Susan L. and Korenman, Sanders (1996).The economic reality of the beauty myth. *Journal of Human Resources*, Vol. 31 pp.304 - 330.

[6] http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features20Jun+2011 , http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/6105.0Feature+Article1Oct%202011#Endnote12

- _____________ (2011) Labor market consequences: employment, wages, disability, and absenteeism. In: Cawley, John (ed) *The Oxford Handbook of the Social Science of Obesity*, Oxford University Press, New York. pp 531-552
- _____________, Argys, Laura M. and Kohn, Jennifer L. (2013) Immigrants, Wages and Obesity: The Weight of the Evidence. In Constant, Amelie and Zimmermann, Klaus F.(eds) *International Handbook on the Economics of Migration*, Edward Elgar
- Bhattacharya, Jay and Bundorf, M.Kate (2009). The incidence of the healthcare costs of obesity. *Journal of Health Economics* 28(3). pp. 649-658.
- Biddle, Nicholas, Kennedy, Steven and McDonald, James Ted (2007) Health Assimilation Patterns Amongst Australian Immigrants. *The Economic Record* 83 (260). pp. 16-30.
- Browning, Lucy M., Hsieh, Shiun Dong and Ashwell, Margaret (2010) A systematic review of waist-to-height ratio as a screening tool for the prediction of cardiovascular disease and diabetes: 0.5 could be a suitable global boundary value. *Nutrition Research Reviews* 23. pp. 247–269
- Brunello, Giorgio and D'Hombres, Beatrice (2007).Does Body Weight Affect Wages? Evidence from Europe. *Economics and Human Biology* 5. pp. 1–19.
- Caliendo, Marco and Gehrsitz, Markus (2014. Obesity and the Labor Market: A Fresh Look at the Weight Penalty. *SOEPpapers on Multidisciplinary Panel Data Research at DIW Berlin* 631
- Cawley, John (2004). The Impact of Obesity on Wages*. Journal of Human Resources* 39. pp.451 - 474.
- Costa-Font, Joan and Gil, Joan (2004) Social interactions and the contemporaneous determinants of individuals' weight. *Applied Economics 36.* pp.2253 - 2263.
- Darity, William A. and Mason, Patrick L. (1998) Evidence on Discrimination in Employment: Codes of Color, Codes of Gender. *The Journal of Economic Perspectives* 12(2). pp. 63-90
- Drewnowski, Adam (2009) Obesity, Diets, and Social Inequalities. *Nutrition Reviews* 67 (supplement 1). pp. 36-39.
- Dwan, Kathryn and Western, John S. (2003) Patterns of Social Inequality In McAllister, Ian, Dowrick, Steve and Hassan, Riaz (ed.) *The Cambridge Handbook of Social Sciences in Australia*, Cambridge University Press. pp. 433-62
- Garcia, Jaume and Quintana-Domeque, Climent (2007) Obesity, Employment and Wages in Europe. *Advances in Health Economics and Health Services Research* 17. pp.187 – 217
- Haisken-DeNew, John P. and Hahn, Markus H. (2010). PanelWhiz: Efficient Data Extraction of Complex Panel Data Sets – An Example Using the German SOEP. *Journal of Applied Social Science Studies*, 130(4), 643 – 654.
- Han, Euna, Norton, Edward C. and Stearns, Sally C. (2009). Weight and Wages: Fat Versus Lean Paychecks. *Health Economics* 18. pp 535–48.
- Hhan, Markus H. and Haisken- DeNew, John P. (2013). PanelWhiz and the Australian Longitudinal Data Infrastructure in Economics. *Australian Economic Review* 46(3). pp 379-386.
- Hauck, Katharina, Hollingsworth, Bruce, and Morgan, Lawrie (2009). The impact of immigration, income and marriage on obesity. Paper presented at the 2009 World Congress of the International Health Economics Association, Beijing, China
- Heckman,James J. (1998) Detecting Discrimination. *The Journal of Economic Perspectives 12(2).* pp. 101-116
- Kennedy, Steven, McDonald, James Ted and Biddle, Nicholas (2006). The healthy immigrant effect and immigrant selection: evidence from four countries. *SEDAP Research Paper* No.164. http://socserv.mcmaster.ca/sedap/p/sedap164.pdf Accessed 19 April 2015
- Kortt, Michael and Leigh, Andrew (2010) Does Size Matter in Australia? *Economic Record* 86(272). pp. 71- 83.
- Lee, Wang-Sheng (2014) *Big and Tall: Is there a Height Premium or Obesity Penalty in the Labor Market?* IZA Bohn Discussion Paper no. 8606
- Lovejoy, Jennifer (1998) The Influence of Sex Hormones on Obesity Across the Female Life Span. *Journal of Women's Health* 7(10).pp 1247-56
- Neal, Derek A. and Johnson, William R. (1996). The Role of Pre-Market Factors in Black-White Wage Differences. *Journal of Political Economy* 104.p p 869–95.
- OECD (2014a) *International Migration Outlook*. Preview Available at http://www.oecd-ilibrary.org/social-issues-migration-health/international-migration-outlook_1999124x
- OECD (2014b) *Obesity Update*. Available at http://www.oecd.org/els/health-systems/Obesity-Update-2014.pdf
- Pi-Sunyer, F.Xavier (1996). A Review of Long-Term Studies Evaluating the Efficacy of Weight Loss in Ameliorating Disorders Associated with Obesity. *Clinical Therapeutics* 18. pp. 1006-35.
- Persico, Nicola, Postlewaite, Andrew, and Silverman, Dan (2004) The Effect of Adolescent Experience on Labor Market Outcomes: The Case of Height." *Journal of Political Economy* 112(5). pp. 1019-53
- Popkin, Barry M. (2002) An Overview of the Nutrition Transition and Its Health Implications. The Bellagio Meeting. *Public Health Nutrition* 5(1A):93-103

- Renzaho, André M.N., Gibbons, Carl, Swinburn, Boyd, Jolley, Damien, and Burns, Cate (2006) Obesity and undernutrition in sub-Saharan African immigrant and refugee children in Victoria, Australia. *Asia Pacific Journal of Clinical Nutrition*, 15(4). pp. 482-9
- Richardson, Sue, Robertson. Frances and Illsley, Diana (2001). *The Labor Force Experiences of New Migrants.*Australian Government Publishing Service, Canberra
- Schneider et al. (2010) The Predictive Value of Different Measures of obesity for Incident Cardiovascular Events and Mortality. *The Journal of Clinical Endocrinology & Metabolism* 95 (4). pp 1777–1785.
- Sobal, Jeffrey (2004) Sociological Analysis of the Stigmatisation of Obesity. In German, John and Williams, Lauren (eds) *A Sociology of Food and Nutrition: The Social Appetite*. 2nd edition. John Wiley, Melbourne.
- Summerfield, Michelle, Freidin, Simon, Hahn, Markus, Li, Ning, Macalalad, Ninette, Mundy, Laura,Watson, Nicole, Wilkins, Roger, and Wooden, Mark (2015) HILDA User Manual-Release 13. Melbourne Institute of Applied Economic and Social Research