

## Chapter 2

# Economic Approaches to Studying Underemployment

Roger Wilkins and Mark Wooden

**Keywords** Labor underutilization · Economic analysis · Time-related underemployment · Skills-related underemployment · Labor hoarding · Overqualification

Labor economists have long been interested in why it is that markets for labor do not behave like markets for many other goods and services. In particular, many labor markets are characterized by imbalance between demand and supply, meaning that the available labor resources are not fully utilized, and these imbalances are often persistent. For economists, such outcomes are inefficient; labor services cannot be stored and hence if at any time they are not being used, the output that could have resulted is lost forever. The underutilization of labor also imposes significant costs on affected individuals and their families, and not just in terms of foregone income.

The indicator that is most commonly used to measure this disparity is the unemployment rate – the number of persons without paid work who are actively seeking work (and are available to start work) as a percentage of the labor force. Nevertheless, it is also widely recognized that the unemployment rate is only a proxy measure for labor market tightness, and seriously understates the true level of idle labor capacity. Most obviously, the unemployment rate is unaffected by variations in the extent to which both the time and skills of employed labor are used, or what is generally referred to as underemployment. In the USA, for example, data from the Current Population Survey show that the number of employed persons working part-time hours for economic reasons – usually because their hours had been cut due to unfavorable business conditions, or because they could not find full-time work – averaged 8.9 million in 2009, or 6.4% of all employed persons. All of these people are employed and hence do not figure in the unemployment rate, but nevertheless are like the unemployed in that they are unable to work the hours they would prefer.

Underemployment, however, describes other forms of labor underutilization as well, and summarizing the breadth of situations that are covered by underemployment is one of the aims of this chapter. More specifically, we begin by introducing

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R. Wilkins (✉)

Melbourne Institute of Applied Economic and Social Research, University of Melbourne,  
Melbourne, VIC 3000, Australia  
e-mail: r.wilkins@unimelb.edu.au

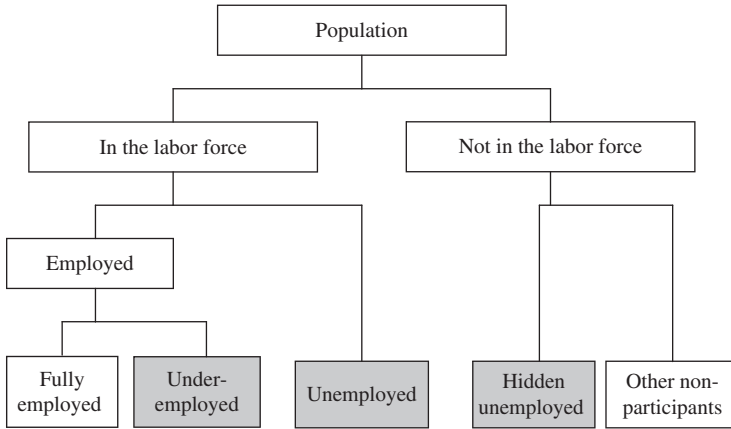
the concept of underemployment and how it is understood by economists in particular. We then consider in more detail three specific types of underemployment: time-related underemployment, skills-related underemployment, and labor hoarding. We discuss the problems associated with identifying underemployed workers, summarize existing evidence on its extent, and review the empirical economic research on its incidence, characteristics, and consequences.

## Conceptual Issues

More than researchers from other disciplines, economists rely heavily on data provided by nationally representative data sources, and especially those provided by national statistical agencies. These agencies rely on the measurement conventions adopted by the International Labour Organization (ILO), which, in the area of employment and unemployment statistics, are based on the labor force framework. In this framework, the population is divided into those who are economically active (the labor force) and those who are not, with the former being further divided into the employed (E) and the unemployed (U). From this simple typology can be derived the unemployment rate ( $U/[E+U]$ ), which, as already noted, is widely used as an indicator of labor market activity, and indeed the overall health of economies.

The ILO has long been aware that as an indicator of the extent to which labor is fully utilized, the unemployment rate is far from ideal, with ILO resolutions providing guidelines for the measurement of underemployment and underutilization of labor dating back to 1966. As is now widely recognized, there are two main flaws in the simple typology that only distinguishes between employed persons, unemployed persons, and the economically inactive. First, it fails to recognize that at any point in time there are likely to be many persons defined as economically inactive but who would be in employment or looking for work if economic circumstances were more favorable. These persons comprise what is often referred to as either discouraged workers (e.g., Bosworth & Westaway, 1987; Bowen & Finegan, 1969; Mincer, 1966) or the hidden unemployed (e.g., Stricker & Sheehan, 1981; Taylor, 1970). Second, the extent to which employed labor is fully utilized will vary both across individuals and over time. When the labor of employed workers could be more effectively used, those workers can be described as underemployed.

Figure 2.1 summarizes the expanded conceptual framework for labor underutilization that results from incorporating these additional forms of labor underutilization (represented by shaded boxes). The hidden unemployed are distinguished from the underemployed and the unemployed by the fact that they are outside the labor force but nevertheless would prefer to be in employment. The underemployed are distinguished from the unemployed and the hidden unemployed by the fact that at least some hours are being worked (and paid for).



**Fig. 2.1** An expanded labor force underutilization framework

The current ILO guidelines, adopted at the 16th International Conference of Labour Statisticians in 1998, identify two broad types of underemployment: (1) time-related underemployment and (2) inadequate employment situations. Time-related underemployment is the employed-persons counterpart to unemployment and hidden unemployment, and refers to a situation of insufficiency in the volume of work. Inadequate employment situations, by contrast, refer to a variety of other limitations in the labor market that, in some way, prevent a worker's full productive potential from being realized.

The ILO defines persons as being in *time-related underemployment* situations if, during some short reference period (such as 1 week), they: (1) were willing to work additional hours; (2) were available to work those additional hours; and (3) had worked fewer hours than a predetermined threshold relating to working time (see ILO, 1998). The willingness and availability criteria are analogous to those used in identifying the unemployed, though in contrast to the unemployment definition, which requires individuals to be engaged in active job search, satisfaction of the underemployment definition does not require individuals to actively be seeking more hours of work.

The ILO definition of this form of underemployment also requires that there be some upper ceiling on the actual hours worked, which necessarily does not apply to the unemployed. Official statistical agencies have typically interpreted this threshold as full-time employment (though note that definitions of full-time employment vary across countries). The effect of this criterion is to exclude persons working quite long hours (but who nevertheless report a desire to work even more hours) from being defined as underemployed. The reasons for imposing this limit have not been articulated, but seem to be based on the view that community norms over what constitutes full utilization of labor should take precedence over individual working-time preferences in such situations.

The ILO defines *inadequate employment* as any situation where workers desire “to change their current work situation for reasons that limit their capabilities and well-being and were available to do so” (ILO, 1998). This definition relies on two main elements: a willingness to change work situations, and the presence of reasons why a person is unable to maximize either his or her use of capabilities or his or her well-being. The willingness to change criterion is relatively straightforward, and analogous to the willingness to work additional hours criterion used to define time-related underemployment. The second element, however, while consistent with theoretical notions of labor underutilization, is so broad that it is difficult to imagine how it could be effectively implemented.

The ILO itself appears to recognize that this definition is incapable of being implemented, and instead recommends that indicators be developed to measure three specific types of inadequate employment situations: (1) skills-related underemployment; (2) income-related underemployment; and (3) excessive working hours.

The significance of *skills-related underemployment* has long been recognized, though typically national statistical agencies do not report measures of its extent. Indeed, previously the ILO referred to this type of underemployment as invisible underemployment precisely because it was difficult to identify and hence hard to measure. Despite this, and as we shall show below, there is a now sizeable literature within labor economics and education economics concerned with measuring and understanding the consequences of skills-related underemployment (though typically under the guise of overeducation). Skills-related underemployment is conceptually similar to the overqualification construct studied in other disciplines, such as industrial and organizational (I-O) psychology and organizational behavior.

*Income-related underemployment*, on the other hand, has received little or no attention from economics researchers. While there is a very large research literature focused on the adequacy of earned income, this is usually couched within a broader discussion of poverty and economic deprivation. In contrast, in the ILO definition, income-related underemployment only exists when a worker's income is lower than it would otherwise be because of some feature of the employer or workplace, like inadequate equipment, insufficient training, or poorly organized working arrangements. Attempts at any sort of accurate measurement of this for even a single worker would seem hopeful, let alone for a large nationally representative sample.

While *excessive hours* have been the subject of numerous empirical studies, the notion that persons reporting excessive working hours are underemployed is contradictory. Indeed, excessive hours – that is, working more than desired – is the flip side of time-related underemployment. Both are forms of mismatch between hours preferred and hours worked, and both can have similar sorts of adverse consequences (e.g., Wooden, Warren, & Drago, 2009), but the notion that overemployment is a form of underemployment is nonsensical and hence not pursued any further here.

Finally, there is one type of underemployment that economists have long been interested in – labor hoarding – which is not covered by the ILO guidelines. *Labor*

*hoarding* occurs when a firm does not utilize all of the labor that it pays for, and has long been thought to help explain the tendency for the productivity of working hours to vary with the business cycle (e.g., Okun, 1963; Solow, 1968). That is, when a firm experiences a decline in demand for its output, it does not always reduce labor input in line with the reduced production requirement. In many cases, the employers will reduce the hours its employees work, thus leading to time-related underemployment, but in other cases working hours remain unaffected; it is just the productivity of those hours that declines. In these situations, employers are said to be hoarding labor. In some cases this arises because there are legal impediments to reducing labor requirements, in other cases because of technological impediments which make it difficult to curtail employment in proportion to output, but more often because employers are reluctant to release trained and experienced workers who they might need in the future when demand for output picks up again.

Labor hoarding is also quite distinctive from other forms of underemployment. First, and in contrast to time-related underemployment, while ‘hoarded workers’ are underemployed in the sense that their labor is not fully utilized, they are typically fully employed in the sense that they are working the hours they prefer. Second, unlike other forms of underemployment, it is the employer that bears the cost rather than the employee. However, in many situations labor hoarding will be associated with a decline in skills utilization (as a result of an insufficiency in the quantity of challenging and interesting work) and in these instances there may be considerable overlap between measures of skills-related underemployment and labor hoarding. Finally, labor hoarding is distinctive in that it is not necessarily inefficient. Given the presence of fixed and quasi-fixed labor costs, such as those associated with hiring and training, it may be efficient in the long run for firms to hoard workers during periods when demand is temporarily at low levels.

## **Time-Related Underemployment**

Given its focus on insufficiency in the volume of employment, time-related underemployment is the natural counterpart to unemployment and has, therefore, been the primary focus of national statistics agencies looking to produce extended measures of labor underutilization. Time-related underemployment is also of considerable interest to labor economists as a form of inefficiency and a source of social welfare loss, and also because of its implications for understanding (effective) labor supply. Labor supply modeling, which seeks to identify the responsiveness of supply to wage rates (and other factors), is a major area of labor economics research, and increasingly these models are being adapted to take into account the presence of underemployment in order to improve predictive power (e.g., Bryan, 2007; Dickens & Lundberg, 1993; Ham, 1982; Kahn & Lang, 1991; Stewart & Swaffield, 1997).

## ***Measurement Issues***

Time-related underemployment is analogous to unemployment and therefore lends itself to similar approaches to measurement. Thus, collection of survey data from employed persons on both their willingness to work more hours (preferences) and their availability to work those additional hours may be obtained in much the same manner as is done for unemployment.

Similar to unemployment, eliciting working time preferences for employed persons involves implicit assumptions about the work being sought, most importantly in respect of wages. Conventional economic theory posits that an individual's labor supply depends on the wage rate being offered. ILO guidelines make no reference to wages in determining unemployment status, but it is implicit that the unemployed person is searching for work at the "market wage rate" for that person, an admittedly indeterminate and unverifiable quantity. Underemployment status is likewise typically ascertained without reference to wages, but as with unemployment the implicit premise is that expressed desire and availability for more hours of work is at the worker's market wage rate. This need not be the worker's current wage rate, but in practice it seems likely that respondents will assume additional hours of work will be paid for at their current wage.

In theory, availability for additional hours should be a key requirement for time-related underemployment. Reasons for not working desired hours can be because of demand constraints or supply constraints, and it is only the former which qualifies as underemployment. Supply constraints, which include factors such as poor health and unavailability of child care services, prevent a person from working the additional hours he or she claims to want to work. Demand constraints are present when the worker is available to work additional hours, but is unable to either obtain those additional hours from their current employer or find another employer offering the desired number of working hours. Statistical agencies such as the US Bureau of Labor Statistics (BLS), when classifying reasons for part-time employment, refer to demand-related factors as 'economic reasons' and supply-related reasons as 'non-economic reasons.'

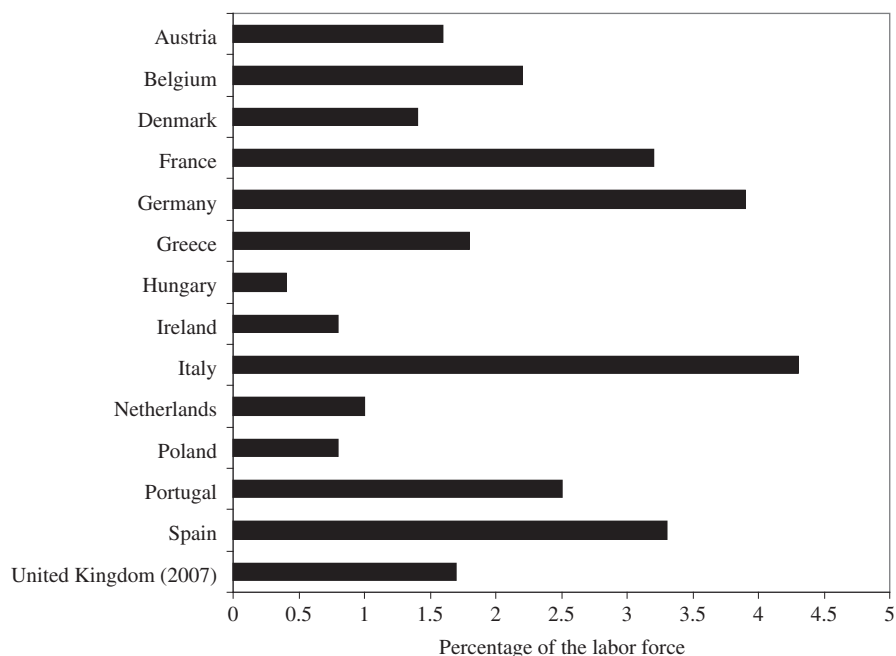
## ***The Extent of Time-Related Underemployment***

Central statistics agencies in most developed countries report one or more measures of some kind of time-related underutilization of employed persons, but approaches and measures vary considerably.

Reflecting the view that time-related underemployment is essentially a problem of part-time employment, one particular type of time-related underemployment for which data are commonly collected is *involuntary part-time employment*. Data on this concept have been compiled by the Organization for Economic Cooperation and Development (OECD) for its member states and are available from its online database ([www.SourceOECD.org](http://www.SourceOECD.org)). Inspection of the limited metadata that accompanies these data reveals that definitions vary widely and so, even for this narrow measure, international comparisons are complicated. For example, in Canada and

Sweden, it comprises “persons who could not find a full-time job, would prefer to work more hours and believe full-time work is not available”; for Australia, New Zealand, and the Czech Republic, it comprises all part-time workers who prefer to work more hours; while in the USA the group of interest is restricted to those who cite the specific reason for working less than 35 h as “could only find part-time work” (even though there is a much larger group who cite the reason as “slack work or business conditions”).

Within the OECD there is one group of countries that appear to use an identical definition. This is the group of European Union countries that participate in the European Labour Force Survey. This survey, which is actually a series of independent surveys run by different national collection agencies, generates a measure of the number of “persons who declared to work part-time because they could not find a full-time job.” Estimates for this group of European countries, for 2008, are presented in Fig. 2.2. As is shown, the proportion of the labor force involuntarily employed part-time in 2008 ranged from just 0.4% in Hungary up to 4.3% in Italy. In all countries, the estimate of involuntary part-time employment represents a smaller share of the labor force than unemployment – on average about one-third the share, but ranging from 5% in the case of Hungary to 63% in the case of Italy. Note, however, that even among the countries presented in Fig. 2.2, there are still likely to be differences in survey methodologies and concepts.



**Fig. 2.2** OECD estimates of involuntary part-time employment derived from the 2008 European Labour Force Survey

Source: OECD Stat Extracts (<http://stats.oecd.org/>)

The ILO also publishes estimates of time-related underemployment for an expanded set of countries that includes some developing countries (see <http://kilm.ilo.org>). Problems of comparability across countries are likewise present for these estimates, and indeed are almost certainly far more serious. This notwithstanding, the ILO data suggest that time-related underemployment tends to be a more severe problem in developing countries than developed countries, with a number having double-digit rates of time-related underemployment as a percentage of the labor force.

The estimates presented in Fig. 2.2 do not include all underemployed workers under the ILO's definition of time-related underemployment, most notably excluding part-time workers who want more hours but do not want to work full-time. National statistical agencies in some countries, and notably Australia, New Zealand, and the UK, do attempt to regularly collect data on all types of time-related underemployment following the ILO guidelines, though measures nonetheless still differ across these countries. In Australia and New Zealand, a person is classified as underemployed if employed for fewer than 35 h in the survey reference week, preferred more hours of employment, and was available to work those additional hours. In the UK, a similar definition is applied, except that the hours threshold is 40 for persons under 18 years of age and 48 for others, and persons who only express a desire for additional hours of work by getting a different job with more hours (as opposed to increased hours in the current job) are required to be seeking such a job in the survey reference week.

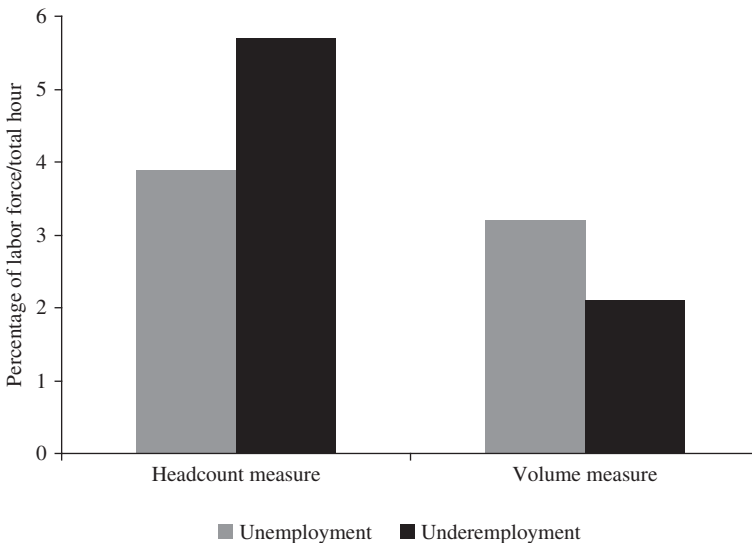
UK estimates of total time-related underemployment provide a useful comparison with the involuntary part-time employment estimate presented in Fig. 2.2. Walling and Clancy (2010) use official UK Labour Force Survey data to derive an estimate for the total underemployment rate, which in 2007 was 6.8%. This compares with the OECD estimate of just 1.7% for the rate of involuntary part-time employment shown in Fig. 2.2. This suggests that the OECD estimate of involuntary part-time employment derived from the European Labour Force Survey is only a relatively small component of total time-related underemployment. Further demonstrating that definitions matter, the Household, Income and Labour Dynamics in Australia Survey (a nationally representative panel study) shows that, in 2008, 1.8% of the Australian labor force reported working part-time because of an inability to find full-time work, compared with the 8.3% of the labor force who were employed part-time and preferred (although were not necessarily available for) more hours of work.

In the USA, the BLS does not produce a measure of time-related underemployment based on the ILO guidelines, but does produce estimates of the numbers of part-time workers working part-time hours (fewer than 35) for "economic reasons." As noted earlier, this averaged 6.4% of the employed workforce in 2009 (or 5.8% of the civilian labor force). This is simply an expanded form of involuntary part-time employment that still excludes underemployed part-time workers who do not want full-time work, but it nonetheless applies to significantly more workers than does the narrow ILO measure.



Underemployment is primarily of interest as an economic concept because of the forgone market output that it represents. The estimates of time-related underemployment presented to this point have been “headcount” measures. These measures indicate the prevalence of time-related underemployment (i.e., the number of people affected), but they do not provide complete information on the total extent of underutilization that results. To measure the true extent of underutilization, the total number of hours sought by underemployed workers needs to be determined. While this issue applies to unemployment also, the issue is more acute for underemployment: For many underemployed workers, the insufficiency in work may be as little as a few hours per week. This suggests the need for “volume-based” measures of underutilization, which tally the total number of additional hours of work sought by the underemployed.

The data necessary to construct such measures are now routinely collected by both the Office of National Statistics in the UK and the Australian Bureau of Statistics (ABS) in Australia. The latter, for example, produces, on an annual basis, volume-based measures of both unemployment (using additional data on the number of hours of work sought by unemployed persons) and underemployment (using additional data on the number of additional hours preferred by part-time underemployed workers; see ABS, 2009). Most importantly, comparison of volume-based estimates and headcount measures reveals that this distinction matters a lot. As Fig. 2.3 shows, the ABS data for Australia indicate that volume-based measures reduce markedly the magnitude of underemployment relative to unemployment.



**Fig. 2.3** Headcount and volume measures of unemployment and underemployment, Australia, August 2008

*Notes:* Headcount measure: Percentage of the labor force underutilized. Volume measure: Percentage of the total potential volume of hours (supplied by the labor force) not utilized.

*Source:* ABS, *Australian Labour Market Statistics*, April 2010 (ABS cat. no. 6105.0)

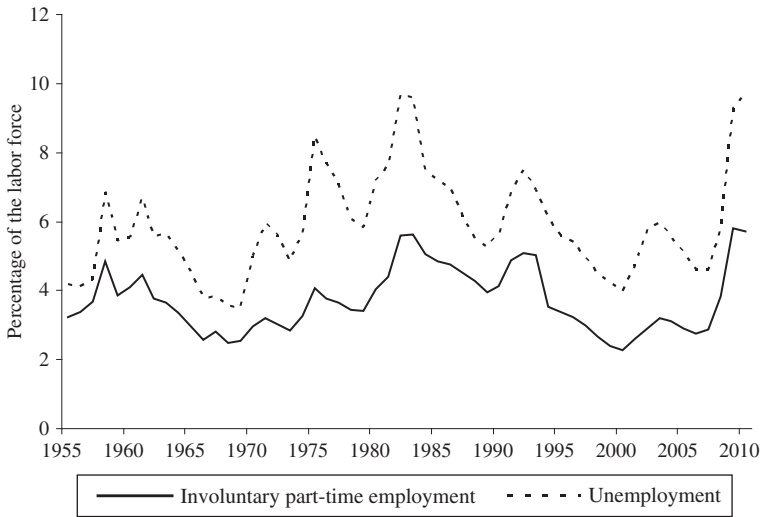
## *Determinants*

Effective policy responses to time-related underemployment require appreciation of its causes or sources. Consistent with the analogous nature of time-related underemployment to unemployment, the (largely implicit) view taken in economic analyses of underemployment is that both forms of underutilization have essentially the same causes. Economic theories explaining unemployment are thus generally viewed as applicable to time-related underemployment. Such theories emphasize the importance of cyclical fluctuations in aggregate demand conditions as the main source in variation over time in unemployment. Structural change to the economy, by leading to job destruction, may also increase unemployment. Economic theory further identifies important roles for a range of institutional features, including minimum wages, welfare and taxation systems, employment protection legislation, and trade unions, factors which affect both the average level of unemployment and the severity of increases in unemployment in economic downturns. Most, if not all, of these factors have the potential to also impact time-related underemployment.

As this view of underemployment would suggest, empirical investigation of the determinants of time-related underemployment has primarily focused on factors known to affect unemployment. While differences in the extent of time-related underemployment across countries would seem to create the most potential for the identification of the roles these factors play, the lack of comparable data has inhibited cross-country studies. More common have been studies investigating the determinants of the level of underemployment using time-series approaches within a single country (Haugen, 2009; Larson & Ong, 1994; Leppel & Clain, 1988; Ratti, 1990; Tilly, 1991).

The consistent finding from time-series studies is that, first and foremost, business cycle conditions determine the level of underemployment. Changes in time-related underemployment closely track changes in the unemployment rate, as is suggested by Fig. 2.4, which plots the US involuntary part-time employment rate alongside the unemployment rate over the period 1955–2010. This has served to reinforce the view that underemployment is, more generally, determined by the same forces as unemployment.

One implication of the finding that business cycle conditions are the key determinant of underemployment is that, while the unemployment rate understates the total stock of time-related underutilization of labor at any given point in time, from the point of view of understanding changes over time in underutilization, the unemployment rate may be a sufficient statistic (Haugen, 2009). However, empirical research has found evidence that there are influences on the level of underemployment other than business cycle conditions. Many developed countries have experienced increases in involuntary part-time employment since the early 1970s that cannot be explained by higher average levels of unemployment, and several studies have found evidence of secular changes to the economy acting to increase the prevalence of time-related underemployment. For example, in the USA, Leppel and Clain (1988), Tilly (1991), and Larson and Ong (1994) all show that changes to the structure of the economy, most notably growth in the service sector, were an



**Fig. 2.4** Unemployment and involuntary part-time employment, USA, 1955–2010

*Note:* Involuntary part-time employed comprise those employed part-time for “economic” reasons.  
*Source:* Annual averages of monthly data from the Current Population Survey, obtained from BLS online databases (<http://www.bls.gov/data/>)

important contributor to the rise in involuntary part-time employment in the 1970s and 1980s. Relatedly, Leppel and Clain (1988) and Tilly (1991) also found that changes in the skills composition of the workforce contributed to the rise.

Time-series approaches do, however, have important limitations. They require variation over time within a country in the factors that determine the level of underemployment, and many potential factors do not vary, or at least do not (independently) vary sufficiently. Most notably, the roles of labor market institutions, welfare systems, and other institutions are generally impossible to ascertain from time-series approaches. Although problems of data comparability have been a significant constraint, cross-country comparisons have the potential to shed light on the impacts of these (and other) factors on time-related underemployment, and indeed some studies have attempted this. Sousa-Poza and Henneberger (2002) and Otterbach (2010) compare 21 countries and, in common with the time-series studies, find that the unemployment rate is an important determinant of underemployment. They further find, after controlling for the effects of the unemployment rate, that higher-income countries tend to have less underemployment, most likely because of increasing marginal utility of leisure; that is, individuals prefer to work less (consume more leisure) as their wealth increases.

### *Characteristics and Consequences*

A key question for applied researchers has been the extent to which underemployment has predictors and consequences in common with unemployment. Concerns

over underemployment are greater the more it is associated with the adverse outcomes that are in evidence for the unemployed. On the other hand, policy targeting labor underutilization may need to be modified if the personal characteristics associated with underemployment differ from those associated with unemployment.

In general, many of the personal characteristics associated with unemployment, such as low education levels, being young, and membership of an ethnic minority, are found to be associated with underemployment (De Jong & Madamba, 2001; Doiron, 2003; Leppel & Clain, 1993; Stratton, 1996; Wilkins, 2006; Wooden, 1993). Job characteristics also seem to matter. Indeed, Barrett and Doiron (2001), in their study of a sample of Canadian workers, conclude that job characteristics, such as industry and occupation, matter far more than personal or human capital characteristics. Some of these so-called job characteristics, and especially occupation, however, are a reflection of human capital endowments, with workers in occupations where skill requirements are relatively low being much more exposed to the risk of underemployment. Again, the same sort of relationship is found in studies analyzing the risk of unemployment.

A particularly important covariate is industry, with the risk of underemployment generally found to be higher in service-sector industries. This is usually thought to be a function of the nature of demand for the services produced in these industries, and in particular the concentration of sales at particular times of the day or week, and hence employer requirements for part-time workers is relatively high.

Another issue on which there is strong consensus is the relationship with self-employment. Self-employment is invariably found to be associated with a high probability of underemployment (e.g., De Jong & Madamba, 2001; Farber, 1999; Wilkins, 2006), consistent with the idea that self-employment is used by some people as a job of last resort in the face of a scarcity of other employment opportunities (see, for example, Earle & Zakova, 2000; Moore & Mueller, 2002).

There is also a small but emerging literature examining labor force transitions and the role played by underemployment in that process. Vera-Toscano, Phimister, and Weersink (2004), for example, examine rural–urban differences in underemployment in Canada, finding rural workers are more likely to both enter and exit underemployment. Very differently, Farber (1999) shows, using US data, that job loss is a strong predictor of subsequent involuntary part-time employment and, as might be expected, that the likelihood of involuntary part-time employment falls with time since job loss. Indeed, Farber (1999) concludes that involuntary part-time employment is “often part of a transitional process... leading to regular full-time permanent employment” (p. S167).

This latter finding is broadly consistent with more recent research using panel data for the Netherlands (Bijwaard, van Dijk, & de Koning, 2008) and for Australia (Wooden & Drago, 2009). Wooden and Drago (2009), for example, report that the mismatch between preferred hours and actual hours worked of many underemployed workers is often resolved quite quickly (within a year). That said, for a sizeable minority, underemployment seems to be a persistent state (27% of underemployed workers still expressed a desired for more work hours 4 years later). Further, other research using these same data suggests that working time mismatches

are more often resolved through changes in preferences rather than through changes in hours worked, suggesting that underemployed workers often eventually settle for the hours they can get (Reynolds & Aletraris, 2006). In contrast, the Dutch findings of Bijwaard et al. (2008) appear to suggest that the majority of underemployed workers who change jobs do indeed transit into jobs providing more hours.

Turning briefly to the consequences of time-related underemployment, research usually finds underemployment to be associated with adverse effects on economic outcomes and on measures of subjective well-being (e.g., life satisfaction), though these effects are typically not as severe as found for unemployment (Brown, Sessions, & Watson, 2007; Wilkins, 2007; Wooden et al., 2009). Similarly, research has also found evidence of negative effects on wages (Bender & Skatun, 2009; Wilkins, 2007) and on job satisfaction (Wilkins, 2007; Wooden et al., 2009; see Chapter 9, this volume).

## **Skills-Related Underemployment**

### ***Measurement Issues***

Skills-related underemployment exists when a worker's skill set exceeds that required by the job. Measurement is thus complicated by the difficulties associated with both identifying the skills requirements of different jobs and measuring skill levels. As a result, measures of skills-related underemployment are not provided by national statistical agencies as part of their regular data collections. Nevertheless, many attempts have been made by academic researchers to measure this concept, though most are not based on a measure of mismatch in skills. Instead, researchers have usually constructed a measure of mismatch between qualifications obtained and the qualifications assumed to be required for employment. Indeed, most research on this issue has not stemmed from an interest in how underemployment varies with the business cycle, but from the blossoming interest in overeducation, which in turn has been fuelled by the expansion in rates of education participation in most Western nations in recent decades.

In his survey of this literature, McGuinness (2006) identifies four approaches to the measurement of overeducation.

- (i) Calculating the magnitude of the difference between an individual's level of education and the mean education level for all workers in the same occupation group, with overeducated workers being those who are at some predetermined distance above the mean. Sullivan and Hauser (1977), for example, defined a worker as underutilized if his or her number of completed years of schooling was one standard deviation above the occupational group mean. This one standard deviation difference is now commonly used, though it has been argued that a measure based on the occupation mode, rather than the mean, is preferred (e.g., Mendes de Oliveira, Santos, & Kiker, 2000).

- (ii) Comparing the educational requirement of an occupation as determined by professional job analysts (as is provided in the US Dictionary of Occupational Titles and its successor, the Occupational Network or O\*NET) with an individual's acquired level of education.
- (iii) Comparing a worker's subjective assessment of the minimum education requirements of his or her current job with his or her acquired education level.
- (iv) Asking workers directly whether or not they believe they are overeducated.

From a measurement perspective all four approaches are problematic. In the first measure the one-standard deviation cut-off point is entirely arbitrary, the estimated incidence of overeducation will actually be a negative function of the general level of education within the occupation, and the implied symmetry in the distribution of over- and undereducation seems highly unrealistic.

Very differently, the occupation dictionary approach assumes that all jobs within the same occupation code have the same educational requirements. Again, this seems very unrealistic; heterogeneity within occupations, even at highly disaggregated levels, is substantial. Additionally, these dictionaries are only infrequently updated, meaning that researchers are forced to assume that the job requirements of occupations do not change over time. Again this is an unrealistic assumption. The subjective measures are arguably even more problematic. Most obviously, quality responses are dependent on workers having a good understanding of what the minimum requirements for their job are.

And of course all of these measures concern educational mismatches, rather than skills mismatches, and as argued by McGuinness and Wooden (2009), there are good reasons to believe that the two concepts are not highly correlated. First, measures of overeducation ignore skills accumulated through training and on-the-job experience. Second, these overeducation measures are only about levels of education, and thus make no accounting for the degree of fit between the *type* of qualification obtained and what is required. Third, employers often use educational qualifications as a mechanism for screening potential workers, meaning formal job entry requirements may greatly exceed that required to perform the work successfully. Further, empirically the choice between measures based on whether it is skills or qualifications that are used has been shown to matter, with recent research providing evidence that subjective measures of overskilling are only weakly correlated with measures of overeducation (Allen & van der Velden, 2001; Green & McIntosh, 2007; Mavromaras, McGuinness, O'Leary, Sloane, & Fok, 2010a).

Another weakness in this literature is that, like most measures of time-related underemployment, all measures of skills-related underemployment are essentially a count of heads. Rarely has any attempt been made to directly quantify the extent to which an individual's skills are not used, and those attempts that have been made only employ very crude categorical distinctions. That said, it is not obvious how more precise measures of the extent of overskilling could be constructed and implemented.

## *The Incidence of Overeducation and Overskilling*

Given both the variety of measures used in the literature, and the wide variety of data sources that underlie these measures, it would be surprising if there were any consensus around the levels of estimated overeducation. The review of the overeducation literature by McGuinness (2006) appears to confirm this, with estimates of incidence varying from a low of just 7% of employed persons to a high of 57%. A major cause of this variation is the measure used, with studies that employ multiple measures (e.g., Battu, Bellfield, & Sloane, 2000; Chevalier, 2003; McGoldrick & Robst, 1996) typically finding that objective measures based on variation in the years of education within occupational groups produce the lowest estimates and subjective measures produce the highest estimates. In contrast, Groot and van den Brink (2000), in an earlier meta-analysis of 25 studies, report that it is only the standard deviation measure that produces distinctly different estimates. Further, they go on to report an average rate of overeducation across those studies using the other three approaches of 26%. They also point to higher average estimates in the USA than in European countries, which possibly is a reflection of the historically higher rates of participation in university education in the USA.

Research on overskilling is, at least among economists, far less common. Further, the estimates generated by these studies are far more difficult to interpret given they are generated by responses to subjective questions that vary widely across surveys and that are all scored on ordinal scales. Green and McIntosh (2007), for example, report that 35% of respondents to a 2001 survey of UK workers were overskilled. This turns out to be very similar to the proportion measured as overqualified in that survey (37%), but as previously noted, the overlap between the two groups is low. Very differently, Mavromaras et al. (2010a) use survey data collected from samples of workers in two countries – Australia and the UK – to identify what they describe as severely and moderately overskilled workers. The respective proportions were 14 and 30% in Australia, and 21 and 33% in the UK.

## *Consequences*

Economics researchers have been very interested in the wage effects of overeducation (and overskilling), consistently finding overeducation to be associated with a sizeable wage penalty. That is, overeducated workers are invariably found to earn less than workers with equivalent levels of education but who are working in jobs where their qualifications are well matched to their jobs. (Overeducated workers, however, are still generally found to earn more than their “appropriately educated” coworkers.) McGuinness (2006), for example, reports that the estimated penalty varies from 8 to 27% across 21 studies, with a mean penalty of 15%. This result has also been found to carry over to studies of overskilling, though there is more disagreement about the size of the effect. Allen and van der Velden (2001) find it is much smaller than for overeducation; Green and McIntosh (2007) report that the effects are about of equal magnitude; and Mavromaras et al. (2010a) report that it



depends on the extent of overskilling, with the penalty negligible for the moderately overskilled but quite large for the severely overskilled.

But whether or not overeducation (or overskilling) imposes large costs on individuals depends not just on the size of the wage penalty, but how long that penalty persists. Matching theories of job search, for example, predict that mismatches would be corrected over time and hence only be temporary. Rather differently, theories of career mobility predict that workers may deliberately enter their preferred profession at a level lower than would seem commensurate with their qualifications in order to acquire the necessary skills (through on-the-job training and learning) that will enable them to achieve more rapid career progression in the future.

A sizeable empirical literature has thus emerged to test these theories. Initially, most research tended to report results that were consistent with the notion that overeducation is only temporary; overeducated workers were reported to exhibit high rates of job mobility (e.g., Alba-Ramirez & Blázquez, 2003; Alba-Ramirez, 1993; Sicherman, 1991; Sloan Battu and Seaman, 1999), upward occupational mobility (Sicherman, 1991), relatively high rates of within-firm promotion (Alba-Ramirez & Blázquez, 2003; Dekker, de Grip, & Heijke, 2002; Groeneveld & Hartog, 2004; Hersch, 1995), or greater levels of quit intentions (Hersch, 1995; Robst, 1995). But over time other contradictory evidence has emerged, with more recent studies using arguably superior methods and data finding little evidence that overeducated workers experience any catch-up over time in their wages relative to better matched workers (Büchel & Mertens, 2004; Korpi & Tåhlin, 2009). Further contradictory evidence comes from studies of graduate labor markets. Dolton and Vignoles (2000), for example, reported that 38% of a large sample of UK graduates in 1980 was overqualified in their first job, and 6 years later this proportion still stood at 30%. Similarly, high rates of persistence have been reported in other studies of graduates by McGuinness (2003) and Frenette (2004). There are thus good reasons to believe that overeducated workers never fully recover from the inferior rates of return to education they experience upon entry into the labor market.

Similar conclusions are also arrived at by McGuinness and Wooden (2009) in the only study to investigate the link between overskilling and mobility. Using panel data from an Australian sample they find that while overskilled workers do exhibit greater mobility than other workers, the majority of moves do not actually result in improved matches.

Finally, economists working in this field have also examined relationships with measures of job satisfaction, and typically report evidence of significant negative relationships (e.g., Battu et al., 2000; Tsang, Rumberger, & Levin, 1991). Both Allen and van der Velden (2001) and Mavromaras, McGuinness, O'Leary, Sloane, and Fok (2010b), however, find that it is skills mismatch rather than education mismatch that best predicts job dissatisfaction. For economists such evidence is usually assumed to be indicative of adverse consequences for worker productivity, though only Tsang (1987) has ever attempted to directly quantify the consequences for firm-level output.



## Labor Hoarding

In contrast to other types of underemployment, measures of labor hoarding are almost always compiled at an aggregate level from economy-wide or industry-level statistics or derived from macroeconomic models of firm and worker behavior. Indeed, the main reason academic economists have been interested in labor hoarding is because of its presumed role in explaining how productivity varies over the business cycle, while for policy-makers the interest stems mainly from the desire to better understand the state of the labor market and the wage pressures it generates (Felices, 2003). Implications for individual workers are rarely, if ever, considered, reflecting the assumption that it is employers that bear the cost of labor hoarding.

One approach to its measurement involves comparing actual labor productivity (output per unit of labor, usually hours worked) with some estimate of its “peak” value – that is the value labor productivity would be if all labor inputs were fully utilized. The main issue is how to determine the peak value of productivity. Taylor (1970) recommended plotting the labor productivity data and fitting a frontier which connects the observed peaks in the data, and this approach has been used in the work of, among others, Fair (1985), Fay and Medoff (1985), and Darby, Hart, and Vecchi (2001). Darby et al. (2001), for example, produce time-series estimates of hoarded labor for three countries (Japan, the UK, and the USA) covering the period 1960–1997, and compare those estimates with recorded unemployment rates. Their estimates show the following: (1) labor hoarding is far more cyclical than unemployment; (2) for some periods hoarded labor is quantitatively more important than unemployment; and (3) there are notable differences across countries, with hoarded labor representing a much larger share of total underutilized labor in Japan than in the other two countries.

This simple trend-through-peaks approach, however, has many weaknesses. First, it assumes that all peaks in the data are consistent with fully utilized labor, which seems unlikely. Second, it is difficult to derive estimates for recent periods given the next peak in the data is not yet known. Third, there is no allowance for the possibility of overutilization of labor (which might, for example, lead to high rates of worker illness and injury). Fourth, the trend line used to identify productivity is only a descriptive statistic; it is not based on a structural model of productivity.

Bosworth and Westaway (1987) respond to these problems by basing their estimated peak output levels on a simple production function that is then shifted outward to pass through the largest positive residual. They apply this approach to data for four countries – Australia, Japan, the UK, and USA – and find, with the exception of the USA, patterns over time that are quite similar to those subsequently reported by Darby et al. (2001).

Most recent contributions to the labor hoarding literature have used model-based approaches. These studies are mainly interested in the role that utilization of labor and capital plays in explaining variations over time in productivity but, as a by-product, construct time-varying measures of labor utilization that are intended to be independent of average hours worked. That is, they are assumed to measure

worker effort, with relatively low levels of effort assumed to be indicative of hoarding behavior. Examples of this sort of approach include Burnside and Eichenbaum (1996), Sbordone (1996), Imbs (1999), and Larsen, Neiss, and Shortall (2007). None of these studies, however, actually use any direct measures of worker effort; the estimates are all driven by the assumptions of their respective models.

In conclusion, it is not obvious that economic research has made great progress in understanding the dynamics of labor hoarding since the concept was first introduced in the 1960s. What we do know can probably be reduced to three simple findings. First, most research, but not all, reaches conclusions that are consistent with the notion that labor hoarding remains part of the explanation for the procyclical movements observed in aggregate productivity. Second, the timing of the cycle in hoarded labor is different from that for other labor underutilization measures, peaking much earlier than unemployment and falling quite quickly once unemployment starts rising. Third, there is a suggestion that in at least the UK and the USA the volatility of labor hoarding may be declining over time, which it has been argued (Felices, 2003) could reflect either more flexible labor markets or macroeconomic policies that have been conducive to more stable inflation and output settings. Of course, the recent global economic turmoil will put this hypothesis to the test. But what is still unclear is how significant labor hoarding is. The variation in aggregate labor productivity, which drives the results obtained by Bosworth and Westaway (1987), Darby et al. (2001), and others suggest it is considerable, and at its height may be more significant than other forms of underemployment, but the measurement difficulties are so severe that it is difficult to place much faith in any specific estimate. We also know relatively little about what drives variation in hoarding behavior over time (i.e., beyond the short-run) and across countries. Finally, we know nothing about the types of workers affected and whether low levels of effort, even if only temporary, are associated with any other consequences.

## Conclusion

Economic approaches for the most part conceive of underemployment as an economic inefficiency stemming from the failure to fully utilize the labor of employed persons. In principle, and as indicated by the ILO (1998) guidelines, underemployment can take a number of different forms, although economists have tended to focus on the three broad types discussed in this chapter: time-related underemployment, skills-related underemployment, and labor hoarding. The studies on these forms of underemployment comprise three distinct and largely nonintersecting research strands, but in all three strands much of the focus has been on the measurement or quantification of labor underutilization.

Time-related underemployment is probably the most reliably measured form of underemployment, but even so there is considerable uncertainty over its magnitude in most countries, mainly for reasons of data availability. Comparisons across countries are even more problematic given the marked differences in measures and methods of data collection. This seems very unfortunate given that it has been

clearly demonstrated that it is straightforward to implement the measurement guidelines recommended by the ILO. In contrast, for skills-related underemployment and labor hoarding, uncertainty over their magnitudes stems from their inherent unobservability. Indeed, it can be expected that future research in respect of these two types of underemployment will continue to focus on developing ways to indirectly measure or identify them from available, or potentially available, data.

Measurement problems notwithstanding, the available empirical evidence, while mixed, suggests that all three types of underemployment are significant features of the labor market in most developed countries. Studies of time- and skills-related underemployment also find evidence of significant adverse economic outcomes for the affected workers, further reinforcing the view that underemployment is an important and costly phenomenon.

While there seems little doubt that underemployment is pervasive and carries detrimental consequences, it should be noted that the headcount measures of time- and skills-related underemployment that predominate in the existing statistics and studies do tend to overstate the importance of underemployment as a source of labor underutilization. Volume-based measures that take into account the forgone output of each worker affected by underemployment – such as have been employed in analyses of time-related underemployment – significantly decrease the relative quantitative importance of underemployment compared with unemployment. Moreover, both labor hoarding and time-related underemployment are strongly associated with business cycle conditions, suggesting that, from a macroeconomic policy perspective, there may be limited added value in measuring these forms of underutilization as distinct from unemployment, since policies that moderate the business cycle and lower unemployment are also expected to lower underemployment.

## References

- Alba-Ramirez, A. (1993). Mismatch in the Spanish labor market. *Journal of Human Resources*, 28, 259–278.
- Alba-Ramirez, A., & Blázquez, M. (2003). Types of job match, overeducation and labour mobility in Spain. In F. Büchel, A. de Grip, & A. Mertens (Eds.), *Overeducation in Europe* (pp. 65–92). Cheltenham, UK: Edward Elgar.
- Allen, J., & van der Velden, R. (2001). Educational mismatches versus skill mismatches: Effects on wages, job satisfaction, and on-the-job search. *Oxford Economic Papers*, 53, 434–452.
- Australian Bureau of Statistics [ABS] (2009). Technical report: Volume measures of labour under-utilisation. In ABS, *Australian Labour Market Statistics, October 2009* (ABS cat. no. 6105.0) (pp. 20–23). Canberra: ABS.
- Barrett, G. F., & Doiron, D. J. (2001). Working part-time: By choice or by constraint. *Canadian Journal of Economics*, 34, 1042–1065.
- Battu, H., Bellfield, C., & Sloane, P. (2000). How well can we measure graduate over-education and its effects?. *National Institute Economic Review*, 171, 82–93.
- Bender, K. A., & Skatun, J. D. (2009). Constrained by hours and restricted in wages: The quality of matches in the labor market. *Economic Inquiry*, 47, 512–529.
- Bijwaard, G., van Dijk, B., & de Koning, J. (2008). Working time preferences, labour market transitions and job satisfaction. In R. J. A. Muffels (Ed.), *Flexibility and employment security in Europe: Labour markets in transition* (pp. 255–280). Cheltenham, UK: Edward Elgar.

- Bosworth, D., & Westaway, T. (1987). Labour hoarding, discouraged workers and recorded unemployment: An international comparison. *Australian Bulletin of Labour*, 13, 143–161.
- Bowen, W. G., & Finegan, T. A. (1969). *The economics of labor force participation*. Princeton, NJ: Princeton University Press.
- Brown, S., Sessions, J. G., & Watson, D. (2007). The contribution of hours constraints to working poverty in Britain. *Journal of Population Economics*, 20, 445–463.
- Bryan, M. L. (2007). Free to choose? Differences in the hours determination of constrained and unconstrained workers. *Oxford Economic Papers*, 59, 226–252.
- Burnside, A., & Eichenbaum, M. (1996). Factor-hoarding and the propagation of business-cycle shocks. *American Economic Review*, 86, 1154–1174.
- Büchel, F., & Mertens, A. (2004). Overeducation, undereducation, and the theory of career mobility. *Applied Economics*, 35, 803–816.
- Chevalier, A. (2003). Measuring overeducation. *Economica*, 70, 509–531.
- Darby, J., Hart, R. A., & Vecchi, M. (2001). Wages, work intensity and unemployment in Japan, UK and USA. *Labour Economics*, 8, 243–258.
- De Jong, G. F., & Madamba, A. B. (2001). A double disadvantage? Minority group, immigrant status, and underemployment in the United States. *Social Science Quarterly*, 82, 117–130.
- Dekker, R., de Grip, A., & Heijke, H. (2002). The effects of training and overeducation on career mobility in a segmented labor market. *International Journal of Manpower*, 23, 106–125.
- Dickens, W., & Lundberg, S. (1993). Hours restrictions and labor supply. *International Economic Review*, 34, 169–192.
- Doiron, D. J. (2003). Is under-employment due to labour hoarding? Evidence from the Australian Workplace Industrial Relations Survey. *Economic Record*, 79, 306–323.
- Dolton, P., & Vignoles, A. (2000). The incidence and effects of overeducation in the U.K. graduate labour market. *Economics of Education Review*, 19, 179–198.
- Earle, J. S., & Zakova, Z. (2000). Business start-ups or disguised unemployment? Evidence on the character of self-employment from transition economies. *Labour Economics*, 7, 575–601.
- Fair, R. (1985). Excess labor and the business cycle. *American Economic Review*, 75, 239–245.
- Farber, H. S. (1999). Alternative and part-time employment arrangements as a response to job loss. *Journal of Labor Economics*, 17, S142–S169.
- Fay, J., & Medoff, J. L. (1985). Labor and output over the business cycle: Some direct evidence. *American Economic Review*, 75, 638–655.
- Felices, G. (2003). Assessing the extent of labour hoarding. *Bank of England Quarterly Bulletin*, 43, 198–206.
- Frenette, M. (2004). The overqualified Canadian graduate: The role of the academic program in the incidence, persistence, and economic returns to overqualification. *Economics of Education Review*, 23, 29–45.
- Green, F., & McIntosh, S. (2007). Is there a genuine under-utilization of skills amongst the over-qualified? *Applied Economics*, 39, 427–439.
- Groeneveld, S., & Hartog, J. (2004). Overeducation, wages and promotions within the firm. *Labour Economics*, 11, 701–714.
- Groot, W., & van den Brink, H. M. (2000). Overeducation in the labor market: A meta-analysis? *Economics of Education Review*, 19, 149–158.
- Ham, J. (1982). Estimation of a labour supply model with censoring due to unemployment and underemployment. *Review of Economic Studies*, 49, 335–354.
- Haugen, S. E. (2009). Measures of labor underutilization from the current population survey. BLS Working Paper 424, Bureau of Labor Statistics, US Department of Labor.
- Hersch, J. (1995). Optimal ‘mismatch’ and promotions. *Economic Inquiry*, 33, 611–624.
- Imbs, J. M. (1999). Technology, growth and the business cycle. *Journal of Monetary Economics*, 44, 65–80.
- International Labour Organization [ILO] (1998). Resolution concerning the measurement of under-employment and inadequate employment situations, adopted by the Sixteenth International

- Conference of Labour Statisticians. Retrieved June 9, 2010, from [http://www.ilo.org/global/What\\_we\\_do/Statistics/topics/Underemployment/guidelines](http://www.ilo.org/global/What_we_do/Statistics/topics/Underemployment/guidelines)
- Kahn, S., & Lang, K. (1991). The effect of hours constraints on labor supply estimates. *Review of Economics and Statistics*, 73, 605–611.
- Korpi, T., & Tåhlin, M. (2009). Educational mismatch, wages, and wage growth: Overeducation in Sweden, 1974–2000. *Labour Economics*, 16, 183–193.
- Larsen, J., Neiss, K., & Shortall, F. (2007). Factor utilization and productivity estimates for the UK. *Oxford Bulletin of Economics and Statistics*, 69, 245–269.
- Larson, T., & Ong, P. M. (1994). Imbalance in part-time employment. *Journal of Economic Issues*, 28, 187–196.
- Leppel, K., & Clain, S. H. (1988). The growth in involuntary part-time employment of men and women. *Applied Economics*, 20, 1155–1166.
- Leppel, K., & Clain, S. H. (1993). Determinants of voluntary and involuntary part-time employment. *Eastern Economic Journal*, 19, 59–69.
- Mavromaras, K., McGuinness, S., O’Leary, N., Sloane, P., & Fok, Y. K. (2010a). The problem of overskilling in Australia and Britain. *The Manchester School*, 78, 219–241.
- Mavromaras, K., McGuinness, S., O’Leary, N., Sloane, P., & Fok, Y. K. (2010b). *Job mismatches and labour market outcomes* (National Institute of Labour Studies Working Paper No. 163). Adelaide: National Institute of Labour Studies, Flinders University.
- McGoldrick, K., & Robst, J. (1996). Gender differences in overeducation: A test of the theory of differential overqualification. *American Economic Review*, 86, 280–284.
- McGuinness, S. (2003). University quality and labour market outcomes. *Applied Economics*, 35, 1943–1955.
- McGuinness, S. (2006). Overeducation in the labour market. *Journal of Economic Surveys*, 20, 387–418.
- McGuinness, S., & Wooden, M. (2009). Overskilling, job insecurity, and career mobility. *Industrial Relations: A Journal of Economy and Society*, 48, 265–286.
- Mendes de Oliveira, M., Santos, M., & Kiker, B. (2000). The role of human capital and technological change in overeducation. *Economics of Education Review*, 19, 199–206.
- Mincer, J. (1966). Labor force participation and unemployment: A review of recent evidence. In R. A. Gordon & M. S. Gordon (Eds.), *Prosperity and unemployment* (pp. 73–112). New York: Wiley.
- Moore, C. S., & Mueller, R. E. (2002). The transition from paid to self-employment in Canada: The importance of push factors. *Applied Economics*, 34, 791–801.
- Okun, A. (1963). *Potential GNP: Its measurement and significance*. Cowles Foundation Paper No. 190. (Reprinted from the 1962 Proceedings of the Business and Economics Statistics Section of the American Statistical Association). New Haven: Cowles Foundation for Research in Economics, Yale University.
- Otterbach, S. (2010). Mismatches between actual and preferred work time: Empirical evidence of hours constraints in 21 countries. *Journal of Consumer Policy*, 33, 143–161.
- Ratti, R. A. (1990). Involuntary part-time employment: Cyclical behaviour and trend over 1968–1987. *Economics Letters*, 35, 461–464.
- Reynolds, J., & Aletraris, L. (2006). Pursuing preferences: The creation and resolution of work hours mismatches. *American Sociological Review*, 71, 618–638.
- Robst, J. (1995). Career mobility, job match, and overeducation. *Eastern Economic Journal*, 21, 539–550.
- Sbordone, A. M. (1996). Cyclical productivity in a model of labor hoarding. *Journal of Monetary Economics*, 38, 331–361.
- Sicherman, N. (1991). Overeducation in the labor market. *Journal of Labor Economics*, 9, 101–122.
- Sloane, P. J., Battu, H., & Seaman, P. T. (1999). Overeducation, undereducation and the British labour market. *Applied Economics*, 31, 1437–1453.

- Solow, R. M. (1968). Distribution in the long and short run. In J. Marchal & B. Ducros (Eds.), *The distribution of national income: Proceedings of a conference held by the International Economic Association* (pp. 449–446). London: Macmillan.
- Sousa-Poza, A., & Henneberger, F. (2002). An empirical analysis of working-hours constraints in twenty-one countries. *Review of Social Economy*, 60, 209–242.
- Stewart, M., & Swaffield, J. (1997). Constraints on the desired hours of work of British men. *The Economic Journal*, 107, 520–535.
- Stratton, L. S. (1996). Are “involuntary” part-time workers indeed involuntary? *Industrial and Labor Relations Review*, 49, 522–536.
- Stricker, P., & Sheehan, P. (1981). *Hidden unemployment: The Australian experience*. Melbourne: Institute of Applied Economic and Social Research, University of Melbourne.
- Sullivan, T. A., & Hauser, P. M. (1977). The labor utilization framework: Assumptions, data and policy implications. In *National Commission on Employment and Unemployment Statistics, Counting the labor force: Appendix volume I – Concepts and data needs* (pp. 246–270). Washington, DC: US Government Printing Office.
- Taylor, J. (1970). Hidden unemployment, hoarded labor, and the Phillips curve. *Southern Economic Journal*, 37, 1–16.
- Tilly, C. (1991). Reasons for the continuing growth of part-time employment. *Monthly Labor Review*, 114(3), 10–18.
- Tsang, M. C. (1987). The impact of underutilization of education on productivity: A case study of the U.S. Bell Companies. *Economics of Education Review*, 6, 239–254.
- Tsang, M. C., Rumberger, R. W., & Levin, H. M. (1991). The impact of surplus schooling on worker productivity. *Industrial Relations*, 30, 209–228.
- Vera-Toscano, E., Phimister, E., & Weersink, A. (2004). Short-term employment transitions of the Canadian labour force: Rural-urban differences in underemployment. *Agricultural Economics*, 30, 129–142.
- Walling, A., & Clancy, G. (2010). Underemployment in the UK labour market. *Economic and Labour Market Review*, 4, 16–24.
- Wilkins, R. (2006). Personal and job characteristics associated with underemployment. *Australian Journal of Labour Economics*, 9, 371–393.
- Wilkins, R. (2007). The consequences of underemployment for the underemployed. *Journal of Industrial Relations*, 49, 247–275.
- Wooden, M. (1993). Underemployment in Australia. *Labour Economics and Productivity*, 5, 95–110.
- Wooden, M., & Drago, R. (2009). The changing distribution of working hours in Australia. In J. Corbett, A. Daly, H. Matsushige, & D. Taylor (Eds.), *Laggards and leaders in labour market reform: Comparing Japan and Australia* (pp. 67–81). Routledge: Abingdon (UK).
- Wooden, M., Warren, D., & Drago, R. (2009). Working-time mismatch and subjective well-being. *British Journal of Industrial Relations*, 47, 147–179.

Underemployment

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