

**EMPLOYMENT AMONG OLDER WORKERS
AND INEQUALITY OF GENDER AND EDUCATION:
EVIDENCE FROM A TAIWANESE NATIONAL SURVEY***

LUO LU

National Taiwan University

ABSTRACT

The aim of this research was twofold: to examine the prevalence of employment and under-employment among Taiwanese older workers (aged 50 and above), and to explore personal correlates of their employment status, in particular gender and education. Using a national representative sample, we found that: 1) a rather substantial percentage of people continued to work well into their older years; 2) the underemployment rates were substantial in the older age, and less-educated workers and women were more at risk; and 3) multivariate analysis confirmed that age, gender, personal health, spousal health, and family income were significant predictors of continued employment after age 50. Gender and education were also significantly related to the risk of under-employment. Our results highlight the importance and urgency of more concerted research to inform public labor policies, especially in an aging developing society where older workers are faced with a double challenge of economic and societal restructuring.

Aging is a pressing problem for many countries in this century, especially for a developing country such as Taiwan. In Taiwan, advance in medical science and

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technology, successful promotion of health care, material prosperity, coupled with the gradual demise of Chinese family values and lifestyle, have sent the birth rate in a steady decline, but the life expectancy in a steady increase. Consequently, as early as in September 1993, Taiwan was officially an aging society as the proportion of those aged over 65 had exceeded 7% of the country's population, and further reached 9.7% in 2005. This trend will exacerbate when the post-civil war (1949) cohort enters old age in 2014. The official projected proportion of 65+ is 14.6% in 2018 and 20.6% in 2025 (Taiwan Census Bureau, 2006). However, systematic research on aging topics in Taiwan is still in its infancy, and relies heavily upon Western theories and findings. Furthermore, most research efforts have been devoted to medical gerontology and other aging-related medical care topics, while the issue of employment is largely overlooked. This is partly because, in Taiwan, 65 is the statutory retirement age for civil servants and employees in the public sector. It is also fueled by the commonly held projection of old age in Chinese societies being a time of leisure and retreat into family life with grandchildren. However, such images neglect the considerable prevalence of employment among older Taiwanese: 31.6% for those aged 60-64, and 7.6% for those aged 65+ in 2006 (Taiwan Census Bureau, 2006). In addition, there have been discussions on whether to revise or abolish the statutory retirement age, in the hope of injecting more human resources to tackle the worsening problem of labor supply shortage in Taiwan (Chou, 2006). The purpose of this study, therefore, was to explore personal factors related to continued employment in old age, and to further examine the prevalence of employment hardship among older workers, with special attention toward gender and education inequality in Taiwan.

THE ECONOMIC CIRCUMSTANCES OF OLDER TAIWANESE WORKERS

As stated earlier, for many in Taiwan paid work is still an option in old age. At the individual level, it is likely a matter of economic necessity for ordinary Taiwanese—78.1% cited “maintaining personal and family economic standard of living” as the most important reason for continued work into old age (Council of Labor Affairs, 1999). At the society level, in an era when people are living longer, non-work and under-employment among older Taiwanese come at an increasing social cost. The cost comes in the form of lost productivity and tax revenue, shrinking pool of human resources, as well as public spending on entitlements to support early retirement. Taiwanese civil servants and public sector workers are entitled to full retirement benefits at as early as age 50, and the average retirement age was 55.9 in 2006 (Taiwan Census Bureau, 2006). In sum, the realities of a rapidly aging society make the employment circumstances of older workers a pressing concern for individuals and society alike.

Industrial restructuring in past decades underscores this issue. While Taiwan is transforming its industrial structures from labor-intensive to a high-tech and

service-oriented economy, many workers are facing precarious economic positions. Relatively neglected in these discussions, however, have been the unique circumstances of older workers. Several policy advisers called attention to this omission. Specifically, in an extensive analysis of official employment data, Y. S. Wu (2002) noted that older workers in Taiwan are facing extreme employment hardship, which manifests in the form of higher unemployment rate, longer unemployment duration, and greater difficulties in finding jobs again, compared to younger workers. Wu further speculated that structural factors such as industrial restructuring and company downsizing, negative stereotypes about the productivity of older workers or age discrimination, cutting overhead costs of pension and retirement entitlements, and the minimal education attainment or lower skill level of older workers are all possible obstacles for obtaining stable employment after age 50.

H. S. Wu (2006) concurred with Y. S. Wu's (2002) bleak portrait of economic circumstances of older Taiwanese workers. He noted that the Taiwanese employment rate for workers aged 60-64 (33.49%) was generally lower compared to developed countries (e.g., United States: 50.9%), and our East Asian neighbors (e.g., Japan: 54.7%; Korea: 53.6%). He again highlighted industrial restructuring and low education attainment of the older workers as main factors constraining their opportunities for finding adequate employment in the computer era.

Scholars have warned that in such an economic context the distinction between voluntary and involuntary retirement becomes quite blurry (Quadagno & Hardy, 1996). Even for those who remain in the labor market, under-employment may be a serious problem. For example, is a worker whose factory is relocating to a lower cost country and opts for an early retirement settlement really a voluntary retiree? Is a worker who settles for a part-time job who would much prefer full-time work were it available adequately employed? Factory closure and company downsizing often result in unemployment or under-employment for older workers, we thus have reason to believe that Taiwan's recent economic change has fueled employment adversity particular to older workers.

GENDER AND EDUCATION INEQUALITY AMONG OLDER TAIWANESE WORKERS

Focusing on the economic circumstances of Taiwanese older people in the aggregate may mask the persistent disadvantages faced by particular subgroups of the older population, specifically women and those who are less educated. Research in the United States found clear disadvantages for older workers relative to their middle-aged counterparts—and women in particular (Slack & Jensen, 2008). Multivariate analysis further revealed that these disadvantages were explained by factors other than age, particularly education. American research has also shown that the mechanisms that influence poverty among older men and women differ significantly due to gendered work and marital histories

(McLaughlin & Jensen, 1995, 2000). It thus seems that less educated women may suffer a double jeopardy in terms of their likelihood of being excluded from the labor market or being under-employed.

In Taiwan, so far there has been no systematic research examining these differential vulnerabilities in employment positions within the elders. However, official labor figures do suggest that employment rates for older women (e.g., 18.0% for aged 60-64) are much lower compared to men of the same age group (49.9%). These figures for women are also significantly lower compared to developed countries (e.g., United States: 45.4%), and our East Asian neighbors (e.g., Japan: 39.7%; Korea: 43.4%). Furthermore, there is no sign of women's re-entry into the labor market after marriage and childbirth as observable in Japan and Korea—the employment rate for Taiwanese women shows a trend of steady decline from age 35 onward (35-39: 67.5%; 40-44: 63.9%; 45-49: 57.6%; 50-54: 45%; 55-59: 29.1%; 60-64: 18.0%). Su (2007) confirmed such phenomenon after analyzing the official employment data for a 10-year period (1997-2006). One possible reason for this female disadvantage may be the prevailing gender inequality that exists in Taiwanese employment and work environment. Researchers have found that female workers face substantial discrimination and unfair treatment in almost every aspect of their work life, such as pay, promotion, welfare, and work content (Lu, Hsieh, & Pan, 2009). Such economic inequality coupled with the traditional Chinese social arrangement of ascribing family responsibilities mainly to women, makes it relatively less costly for women to leave work when there are family members needing care, young or old. Indeed, 54.5% women gave “taking care of family” as the primary reason for not working (Taiwan Census Bureau, 2004). Relatively lower education attainment for older Taiwanese women compared to men may be another exacerbating factor for this employment disadvantage (Wu, 2006).

American research did find that lower education attainment explained some of the age disadvantage in employment (Slack & Jensen, 2008). Official data in Taiwan also revealed that 56.0% of those unemployed older workers (aged 45+) had education attainment at only elementary school level (Taiwan Census Bureau, 2004). More recent data showed that among employed older workers (aged 50-64), those who had education attainment above senior high school comprised the largest group (Ministry of the Interior, 2006). This education effect, though, is less marked for those aged 65 and above. As stated earlier, relatively lower education attainment of older workers compared to their younger counterparts may exacerbate impacts of Taiwan's industrial restructuring and transition toward a high-tech, service-oriented economy, creating graver employment hardship.

In sum, although most research attention in the West has focused on employment hardship among those of “working age” (e.g., aged 18-64), there has been some recent work looking at the circumstances of older workers (Slack & Jensen, 2008). However, there has been no systematic research on older workers' employment plight in Taiwan. We address this void by asking the following

research questions: (a) How does the prevalence of employment and under-employment among Taiwanese older workers vary by gender and education? and (b) What are other personal correlates of employment status among Taiwanese older workers, in addition to gender and education?

DEFINING RESEARCH TERMS

In keeping with the literature (e.g., Slack & Jensen, 2008) and ongoing policy debate in Taiwan (e.g., Su, 2007), we defined “*older workers*” as those who are aged 50 and above. In Taiwan, those who work for more than 1 hour per week at paid jobs are counted as “employed” in official census and governmental surveys (Council of Labor Affairs, 1999; Taiwan Census Bureau, 2006), which is a rather generous definition of “employment.” Exactly for reasons as such, we should not to be overly dependent upon official employment figures for our exploration of the flight of older workers in Taiwan. Instead, we decided to conduct a secondary analysis based on high quality nationwide survey data originally designed for academic purposes (details in the Method section).

We included both full-time and part-time workers as *employed* (the *working group*) in the present study. *Full-time workers* were those who worked for more than 30 hours per week and had done so for at least 3 months, at the time of survey. *Part-time workers* were those who worked for less than 30 hours per week on a regular basis, or those who worked odd jobs earning piece-rate or hourly wages. In Western literature, an important measure of employment hardship is under-employment, which usually includes people who are:

1. unemployed;
2. working full time for near-poverty-level wages;
3. working part-time despite a preference for full-time work;
4. have given up looking for a job due to discouragement with their prospects (Hauser, 1974).

In Taiwan, part-time workers are earning significantly less wage rates than full-time workers, and have almost no benefits, entitlements, or employment protection (Su, 2007; Wu, 2002). Economically and socially, Taiwanese part-time workers are obviously suffering from employment hardship, as conceptualized by Hauser (1974). To rule out any personal decision factors, we restricted our analysis to only those part-time workers who explicitly expressed preferences for full-time employment but, mostly due to their bleak prospects, had settled for part-time employment. In this study, these part-time workers thus consisted of the group of *under-employed* or victims of employment hardship, while full-time workers consisted of the *adequately employed* group.

In contrast to our employed (*working*) group, the *not-working group* consisted of people who had *voluntarily* chosen to exit from the labor market, for personal reasons such as retirement, studying, homemaking, or disabling diseases. These

people are considered no longer part of the labor pool in Taiwanese official records of employment. Our definitions of various employment statuses are supported by the Taiwanese social realities and labor legislation (e.g., Su, 2007; Wu, 2002).

METHOD

Data and Participants

Data for the present article came from the 2006 “Taiwan Social Change Survey” (TSCS), which is the largest nationwide social survey in Taiwan. The TSCS series is operated by the Academia Sinica Taiwan, which has conducted 37 surveys as of 2006. With more than 80,000 interviews over the past 22 years, the TSCS has become the largest survey series among all of the general social surveys in the world (Smith, Kim, Koch, & Park, 2006). Highly reputed for its methodological rigor (e.g., nationwide three-stage stratified proportional-to-population-size sampling using household registration data, well-trained interviewers making home visits, strict supervision, post-interview verification, and data checking), its high quality database is widely used for academic research and cross-cultural comparisons. The response rate for the 2006 survey was 45.7%. We restricted our analysis to those aged 50 and above, comprising the current national sample of 868 respondents. The entire sample was 50.2% male and 49.8% female, with a mean age of 63.87 ($SD = 10.44$, range = 50-94). Mean years of formal education was 9.01 ($SD = 3.73$). The majority (75.2%) was married with a living spouse, and the rest single or widowed (24.8%). The average household size was 4.18 persons ($SD = 2.11$, range = 1-16). Roughly half of our participants (50.8%) lived in cities of various sizes.

Measures

Questionnaires were administered in face-to-face home interviews by trained interviewers. The author was a member of the TSCS drafting group, but the present article is essentially based on a secondary data analysis. The data analyzed in the present article mainly came from the following parts of the survey.

Employment Status

In the survey, participants were asked to report their current work status. As defined earlier, we classified respondents into one of the three groups:

1. *adequately employed* includes individuals who were currently working full time and had done so for at least 3 months prior to the survey (33.1% in the current sample);

2. *under-employed* includes individuals who were currently working part time or odd jobs, because they could not find full-time jobs or stable employment, even if they wanted to (11.6%); and
3. *not-working* includes individuals who had voluntarily exited from the labor market, and were no longer looking for jobs (55.3%).

For our analytical purpose, the first two groups also constitute the *working group*, in contrast to the *not-working group*.

Correlates of the Employment Status

In the survey, seven possible correlates of the employment status were measured straightforwardly:

1. age;
2. gender (coded 1 = male, 2 = female);
3. education attainment;
4. socio-economic status (SES, 1 = lowest, 10 = highest);
5. personal health (1 = very bad, 5 = very good);
6. spousal health (1 = very bad, 5 = very good); and
7. family income.

Analytic Strategy

We employed descriptive statistical technique to establish the prevalence of employment and the prevalence of under-employment by age, gender, and education. We further contrasted the *working group* (*full- and part-time workers*) against the *not-working group*, using cross-tabulations and *t*-tests to examine their differences on seven correlates of the employment status. We also contrasted the *adequately employed* group against the *under-employed* group, again using cross-tabulations and *t*-tests to examine their differences on seven correlates of the employment status. Finally, we estimated multivariate logistic regression models to predict the likelihood of an older individual continuing to work, and the likelihood of an older worker being under-employed.

RESULTS

Prevalence of Employment

Table 1 shows the percentage of older workers who are in employment (full-time and part-time work) by age, gender, and education. Percentages were calculated by the number of employed people divided by the total number of people in a particular age group in our sample. The number of respondents in each cell is also given (shown in parentheses). The data showed a steady decline of employment rates with age, for men and women, less educated and well-educated.

Table 1. Percentage of Older Adults Employed by Age, Gender, and Education

Age	Total			Less educated			More educated		
	Overall (N)	Men (N)	Women (N)	Overall (N)	Men (N)	Women (N)	Overall (N)	Men (N)	Women (N)
50-54	83.5 (162)	90.7 (97)	74.7 (65)	68.2 (30)	94.1 (16)	51.9 (14)	88.0 (132)	90.0 (81)	85.0 (51)
55-59	64.3 (119)	82.3 (65)	50.9 (54)	61.3 (49)	79.2 (19)	53.6 (30)	66.7 (70)	83.6 (46)	48.0 (24)
60-64	41.5 (49)	57.8 (37)	22.2 (12)	40.6 (26)	60.7 (17)	25.0 (9)	43.4 (23)	55.6 (20)	17.6 (3)
65-69	26.5 (27)	36.0 (18)	17.3 (9)	24.3 (17)	34.5 (10)	17.1 (7)	31.3 (10)	38.1 (8)	18.2 (2)
70-74	19.3 (21)	21.7 (10)	17.5 (11)	24.4 (21)	29.4 (10)	21.2 (11)	0.0 (0)	0.0 (0)	0.0 (0)
75+	6.3 (10)	10.1 (9)	1.4 (1)	7.0 (8)	14.6 (7)	4.7 (1)	4.7 (2)	5.0 (2)	0.0 (0)

Notes: Less educated = up to elementary school; more educated = junior school and above.

Source: Taiwan Social Change Survey, 2006.

Note however, that the employment rates remained rather high even among those who are well into their older years. Over one-third of men aged 65-69 (36.0%) remained working, while 17.3% of women did too. Even among those in their early 70s, nearly one-quarter of men (21.7%) still worked. The data also confirmed a well-established pattern of greater formal labor force participation among men compared to women, a difference that held across the course of older age.

With respect to education differences, across the age span of 50-69, rates of employment remained higher among those who were more educated compared to those who were less educated. However, the pattern reversed drastically when people entered their 70s. Nearly a third (31.4%) of those who were educated for up to the elementary school level remained working after 70, while only 4.7% of those who were educated for junior school or above did so. These patterns were more marked for men than for women though.

Prevalence of Under-Employment

Table 2 shows the percentage of older workers who are under-employed (part-time or unstable work) by age, gender, and education. We used two ways to compute the rates: first including everyone in a particular age group as the denominator, and then including only those who were currently working as the denominator (shown in parentheses). The first set of rates give us an overview for a particular age group, while the second set of rates adjust for the differential labor force participation. The data showed a steady decline of overall *absolute* under-employment rates with age, more marked for well-educated men and women. This drop, of course, would be linked to the decline of overall employment rates with age as shown in Table 1. Note however, that the *real* (adjusted) under-employment rates were substantial. For instance, 20.1% of those aged 50-54 were under-employed. Given that the employment rate for this age group was 83.5% (see Table 1), nearly a quarter (24.1%, shown in parentheses in Table 2) of those working were actually under-employed. There is even a reversed trend with age, especially for those in very late years (e.g., 75+), less-educated, and women.

Correlates of the Employment Status

We first contrasted the *working group* against the *not-working group*, using cross-tabulations and *t*-tests to examine their differences on the seven correlates of the employment status. Cross-tabulations revealed that there were more men (27.2%) than women (17.5%) in the working group, while more women (32.3%) than men (23.0%) in the not-working group ($\chi^2 = 31.87$, $df = 1$, $p < .001$). Regarding education attainment, among those who were educated for elementary school level, more were not-working (35.6%) than working (17.5%), but among those who were educated for high school and above, more were working (21.0%) than not-working (12.7%), whereas among those who were educated for junior

Table 2. Percentage of Older Workers Underemployed by Age, Gender, and Education

Age	Total			Less educated			More educated		
	Overall (N)	Men (N)	Women (N)	Overall (N)	Men (N)	Women (N)	Overall (N)	Men (N)	Women (N)
50-54	20.1 (24.1)	12.1 (13.4)	29.9 (40.0)	27.3 (40.0)	17.6 (18.8)	33.3 (64.3)	18.0 (20.5)	11.1 (12.3)	28.3 (33.3)
55-59	14.6 (22.7)	16.5 (20.0)	13.2 (25.9)	18.8 (30.6)	29.2 (36.8)	14.3 (26.7)	11.4 (17.1)	10.9 (13.0)	12.0 (25.0)
60-64	12.7 (30.6)	15.6 (27.0)	9.3 (41.7)	15.6 (38.5)	21.4 (35.3)	11.1 (44.4)	9.4 (21.7)	11.1 (20.0)	5.9 (33.3)
65-69	9.8 (37.0)	8.0 (22.2)	11.5 (66.7)	11.4 (47.1)	6.9 (20.0)	14.6 (85.7)	6.3 (20.0)	9.5 (25.0)	0.0 (0.0)
70-74	5.5 (28.6)	2.2 (10.0)	7.9 (45.5)	7.0 (28.6)	2.9 (10.0)	9.6 (45.5)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
75+	2.5 (40.0)	3.4 (33.3)	1.4 (100.0)	3.5 (50.0)	6.3 (42.9)	1.5 (100.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)

Notes: Less educated = up to elementary school; more educated = junior school and above.

Figures shown in parentheses were calculated including only those who were currently working as the denominator, thus were adjusted for labor force participation.

Source: Taiwan Social Change Survey, 2006.

school, percentages of working (6.5%) is comparable to not-working (6.8%) (overall $\chi^2 = 65.22$, $df = 4$, $p < .001$). Comparisons of group means using t -tests revealed that in contrast to the not-working group, the working group was younger, had more years of formal education, healthier, had higher SES, healthier spouses, and higher family income, as shown in Table 3.

We then contrasted the *adequately employed group (full-time workers)* against the *under-employed group (part-time workers)*, using cross-tabulations and t -tests to examine their differences on the seven correlates of the employment status. Cross-tabulations revealed that there were more men (49.5%) than women (24.5%) in the adequately employed group, while more women (14.7%) than men (11.3%) in the under-employed group ($\chi^2 = 17.07$, $df = 1$, $p < .001$). Regarding education attainment, the largest group in under-employment was those who were educated for the elementary school level (14.2%) (overall $\chi^2 = 19.09$, $df = 4$, $p < .001$). Comparisons of group means using t -tests revealed only two significant differences between the two groups: the adequately employed group had more years of formal education and higher family income, compared to their under-employed counterparts, as shown in Table 4.

Multivariate analysis

The descriptive results and simple t -tests showed that continued employment in old age was associated with age, gender, education, SES, personal health, spousal health, and family income. We now present logistic regression models in

Table 3. Differences between the Working Elders and the Not-Working Elders

Correlates	Working group		Not-working group		$t_{(df)}$
	Mean	SD	Mean	SD	
Age	57.44	6.82	69.10	9.94	-20.42*** ₍₈₄₃₎
Education yrs	10.06	3.90	8.16	3.36	7.58*** ₍₇₆₈₎
SES	5.37	1.83	5.03	1.98	2.52* ₍₈₂₅₎
Personal health	3.75	0.99	3.29	1.21	6.21*** ₍₈₆₅₎
Spousal health	3.65	1.06	3.45	1.15	2.33* ₍₆₅₄₎
Family income	8.70	13.30	4.77	4.94	5.24*** ₍₄₃₆₎

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4. Differences between the Adequately Employed and the Under-Employed Elders

Correlates	Adequately employed		Under-employed		$t_{(df)}$
	Mean	<i>SD</i>	Mean	<i>SD</i>	
Age	57.16	6.61	58.22	7.38	-1.34 ₍₃₈₆₎
Education yrs	10.53	3.97	8.69	3.33	4.54*** ₍₂₀₇₎
SES	5.42	1.75	5.19	2.06	1.06 ₍₃₇₆₎
Personal health	3.79	0.95	3.63	1.07	1.38 ₍₃₈₆₎
Spousal health	3.72	1.02	3.45	1.16	1.93 ₍₃₆₄₎
Family income	9.49	14.37	6.41	9.19	5.02*** ₍₃₆₂₎

* $p < .05$. ** $p < .01$. *** $p < .001$.

an attempt to account for these differences and to provide a more nuanced assessment of the correlates of continued employment among older workers. The dependent variable was a dichotomy measuring whether an individual was employed (1 = yes) or not. Table 5 shows the results.

In Table 5, Model 1 included only the key independent variables of interest (age, gender, and education) as predictors of continued employment. The results showed that the likelihood of being employed decreased monotonically from age 50 onward. Model 1 also confirmed a statistically significant disadvantage for women to obtain employment. Model 2 added the effects of SES, personal health, spousal health, and family income. The results showed that the likelihood of being employed was significantly higher for those with better personal health, healthier spouses, and higher family income.

We then tested a similar set of logistic regression models in an attempt to account for differences found earlier between those adequately employed and under-employed, to provide a more nuanced assessment of the correlates of employment hardship among older workers. The dependent variable was a dichotomy measuring whether an individual was under-employed (1 = yes) or not. As fewer people were working after age 60, we restricted our analysis to comparing only two age groups (below 60 and above 60). Table 6 shows the results.

Model 1 in Table 6 confirmed statistically significant disadvantages of under-employment for women and those less-educated. Model 2 revealed no additional correlates for under-employment.

Table 5. Logistic Regression Models Predicting Continued Employment among Adults Aged 50+

Independent variable	Model 1			Model 2		
	b	OR	SE	b	OR	SE
Age						
50-54 (ref.)						
55-59	-.96***	.38	.26	-.88**	.42	.30
60-64	-2.13***	.12	.29	-2.22***	.11	.34
65-69	-2.82***	.06	.32	-2.95***	.05	.38
70-74	-3.18***	.04	.34	-3.50***	.03	.42
75+	-4.63***	.01	.40	-4.58***	.01	.47
Gender (1 = M, 2 = F)	-1.24***	.29	.19	-1.29***	.28	.22
Education						
Elementary school (ref.)						
High school and above	-.07	.93	.19	-.26	.77	.22
SES				.04	1.04	.06
Personal health				.30**	1.36	.10
Spousal health				.28**	.76	.11
Family income				.23**	.60	.12
Intercept	2.36***	10.61	.28	2.30***	9.94	.57
Pseudo R^2		.35			.34	
N		865			642	

Notes: OR = odds ratio

Source: Taiwan Social Change Survey, 2006.

** $p < .01$. *** $p < .001$.

DISCUSSION

The purpose of the present study was twofold: to explore personal factors related to continued employment in old age, and to further examine the prevalence of employment hardship among older workers, with special attention toward gender and education inequality in Taiwan. Our results show that contrary to popular images of the older years being a time of retirement and leisure, labor force participation among older Taiwanese is rather substantial. The percentages of continued employment well into the later years in our national representative sample were much higher than the published official labor figures (e.g., Taiwan Census Bureau, 2006). We found that 41.5% ($N = 49$ respondents) of those aged

Table 6. Logistic Regression Models Predicting Under-Employment among Adults Aged 50+

Independent variable	Model 1			Model 2		
	b	OR	SE	b	OR	SE
Age						
50-59 (ref.)						
60+	-.34	.71	.28	-.27	.76	.32
Gender (1 = M, 2 = F)	.94***	.39	.26	1.06***	.34	.28
Education						
Elementary school (ref.)						
High school and above	-.65*	1.92	.26	-.60*	1.82	.30
SES				.08	1.08	.08
Personal health				-.09	.91	.16
Spousal health				.09	1.09	.14
Family income				.10	1.19	.11
Intercept	1.20***	3.31	.27	.88	2.42	.71
Pseudo R^2		.07			.08	
N		388			324	

Notes: OR = odds ratio

Source: Taiwan Social Change Survey, 2006.

* $p < .05$. ** $p < .01$. *** $p < .001$.

60-64 were currently working (the official figure was 31.6%), and 6.3% ($N = 10$ respondents) for those aged 75+ were still currently working (the official figure was not available for this age group, but 7.6% was the estimate for all of those aged 65+). Our results also revealed substantial percentages of under-employment among the elders throughout the later years, and particular disadvantages in this regard among older less-educated workers and women. Those who continued to work in older years were demographically different from those who exited from the labor market permanently. Among those elders who continued to work, adequately employed were again demographically different from those who suffered from employment hardship. Using more stringent analysis of multivariate logistic regression, we confirmed that age, gender, personal health, spousal health, and family income were all significant personal factors contributing to continued labor force participation. Furthermore, gender and education were the two key factors contributing to employment hardship in old age.

Our study extends the literature in three ways. First, we contribute to the literature on under-employment (e.g., Clogg & Sullivan, 1983; Hauser, 1974; Slack & Jensen, 2008) by drawing attention to the neglected issue of employment hardship in older age. The literature to date has uncovered a significant curvilinear age effect on under-employment, but has paid little attention to those working past age 65, not to mention those working even after age 75 (as 6.3% of our sample did). Our findings presented here show that many old Taiwanese people still work, and among those who do, many suffer from under-employment, a form of employment hardship. As our sample was drawn nationwide for population representativeness, our data were collected with face-to-face home visits made by trained interviewers, and cross-checked stringently for validity; the simple cross-tabulations presented in Tables 1 and 2 depict the near possible reality of economic/work circumstances for the elders in Taiwan. Informal probing during the interviews uncovered that most Taiwanese older adults opted for continued employment mainly due to financial concerns. This reflects the changing social realities in Taiwan: older parents do not pin their hopes on adult children for complete financial support and unconditional care, as sanctioned by the Chinese traditional value of filial piety (Lu, Kao, & Chen, 2006). Many Taiwanese elders expressed deep concerns and intense anxiety over old-age poverty (Lu & Chen, 2002). In light of the financial necessity to work for older adults, their employment plight deserves serious concern and concerted research efforts.

Second, this research extends the literature on economic disadvantages faced by certain sections of workers such as females (e.g., McLaughlin & Jensen, 1995, 2000) and rural residents (e.g., Slack & Jensen, 2008) in the United States, by demonstrating how gender and education inequalities are manifested in employment hardship for the elders in Taiwan. Although prevailing gender inequality at work has been documented in Taiwan (e.g., Lu et al., 2009), and education inequality in the likelihood of employment (Ministry of the Interior, 2006) or unemployment (Taiwan Census Bureau, 2004) has also been suggested by official labor figures, our findings for the first time present a map of employment as well as under-employment by age, gender, and education attainment. It is clear that gender and education disadvantages persist into older age, especially for those well beyond the conventional working age of 64.

Third, our research is the first systematic analysis of the unique economic circumstances facing older workers in Taiwan, using a credible nationwide survey data, rather than solely relying on secondary governmental labor figures. To date, social gerontological studies in Taiwan are scarce and mostly rely on Western theories and concepts. As the social realities in an aging developing Chinese society such as Taiwan are vastly different from those of the developed Western societies, it is a pressing concern thus to establish facts and patterns of employment circumstances among the older workers in Taiwan to inform future research and policy making. Our research has addressed this void and established important baseline facts using a representative nationwide sample.

Despite these contributions, there are some limitations associated with this study. First, due to the phrasing of questions asked in the survey, we could not obtain complete information on all four forms of under-employment—unemployed, discouraged, low-hour workers, and low-income workers as conceptualized in the Western literature (Hauser, 1974; Jensen & Slack, 2003), we thus focused on part-time workers as victims of employment hardship. As we defined earlier, those were workers forced into part-time or odd jobs, *not* out of their free choices. As a matter of fact, most Taiwanese part-time older workers are involuntary, underpaid, and would prefer full employment with better protections, were it possible (Su, 2007). Especially for those who are still working well into old age, financial security is the main driving force for remaining in the labor market.

Second, the survey design was cross-sectional, which gives us correct information on age differences at this point of time. However, there may be a confounding of age and cohort differences in the present data. As the older cohorts (65+) in Taiwan were born before the end of war (1945), in times of civil instability, economic depression, and education deprivation, their plight may not be inferred to future cohorts. Nonetheless, using our analysis as a springboard, future research may consider panel designs to map out the duration of spells of elder under-employment.

Third, the present study was essentially an exercise in secondary data analysis, which was inherently constricted by the range of variables assessed in the original survey. For instance, no attitudinal data regarding aging and ageism were available for analysis. Recent research in Taiwan has revealed that negative attitudes toward older people not only prevail, but also have profound influences on the general public's intentions to interact with older people in social as well as employment contexts (Lu & Kao, in press; Lu, Kao, & Hsieh, in press). Future research could also explore more potential risk factors that cause the elders to slip into under-employment, such as family contexts.

Despite these limitations, the present study has important implications for the individual and the society. On an individual level, while we are living longer than ever before, and facing uncertainties with pension plans and rising health care costs, many continue to work out of economic necessity or lifestyle choices. As the vulnerable sectors of the labor force usually bear the blunt of economic downsizing or industrial restructuring, the older workers, especially those who have lower educational attainment and gender disadvantage, face even graver labor market challenges in their later years, while working for them is a matter of survival. On the society level, we collectively pay an increasing price for the under-utilization of older workers, in terms of lost productivity, prolonged retirement entitlements, and increasing social welfare benefits. In sum, the realities of an aging society call for greater attention to the labor market challenges to older workers. The unique circumstances facing the older workers should be systematically examined and upon which public policy should be crafted to ameliorate the employment hardship of the elders.

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Direct reprint requests to:

Prof. Luo Lu
Department of Business Administration
National Taiwan University
No. 1, Sec. 4 Roosevelt Road
Taipei 106, Taiwan, ROC
e-mail: luolu@ntu.edu.tw