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THE EFFECT OF MINIMUM WAGE ON YOUTH EMPLOYMENT AND UNEMPLOYMENT IN TAIWAN*

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Abstract

Using Taiwan's quarterly time series data from 1973 to 2004, this paper investigates the effect of minimum wage on youth employment and unemployment. The effect of minimum wage is examined under data from 30 industries and after controlling for demand-side and supply-side factors in the analysis, the estimation results show that a 10% jump in the minimum wage would increase the youth employment rate and the youth labor participation rate by 0.47 %, although no significant effect was found for the youth unemployment rate. Our results are consistent with (though the magnitude is small) the findings of the New Economics of the Minimum Wage. However, we find that the positive employment effect of minimum wage is not driven by the decrease in youth unemployment, but rather mainly from the increase in the participation rate by youths. Therefore, the policy implication derived from Taiwan's empirical study suggests that in the short run the minimum wage has no adverse effect on youth employment, however, the long-run effect of the minimum wage on youths may be large and harmful as the increasing early dropout of them from school into the labor market interrupts the accumulation of human capital and thus deters the long-run economic growth of the economy.

Keywords: Minimum wage, Employment rate, Labor participation rate, Unemployment rate
JEL classification: J31, J38

I. *Introduction*

The impact of minimum wage legislation has been widely discussed and is a major concern among labor economists, especially the effect of minimum wage on the employment of youths — a major group that is influenced by such legislation. The conventional neoclassical model predicts that the implementation of a minimum wage induces unemployment as long as the demand curve for labor is downward slopping. Until recently, most time series studies in U.S. are consistent with neoclassical predictions and find that a 10% increase in the minimum

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wage would lower teenager employment by between 1% to 3% (Brown, Gilory, and Kohen (1982) and Brown (1988)).[1]

Card, Katz, and Krueger (1994) and Card and Krueger (1995), however, challenge the neoclassical predictions and demonstrate the sensitivity of past estimation results on model specification. With a sample extended into the 1980s, they find that the impact of minimum wage on teenager employment becomes less significant. Their recent case studies suggest that the latest increases in the minimum wage have had no significant adverse effect on employment (Katz and Krueger 1992, Card and Krueger 1994). This new line of research has been rendered as the New Economics of Minimum Wage revolution. Burkhauser, Couch, and Wittenburg (2000) do point out that as minimum wage changes occur in discrete steps through time, the inclusion of variables in the estimations that have the effect of controlling for any discrete change over time (e.g. a year dummy) is likely to substantially reduce the chance of obtaining a precise estimate for the policy impact. Using alternative controls for macroeconomic conditions, they find a significant but modest negative relationship between minimum wage increases and teenage employment.[2]

Taiwan's Labor Standard Law was implemented in 1984, when minimum wage legislation was enacted. Ever since then, the minimum wage has had over seven adjustment stages, from the beginning with a 62.19% coverage rate to 100% full coverage in 1999. According to the survey of Wang, Ma, and Wu (1999), the compliance rate with the Minimum Wage Law is 90% in Taiwan. Moreover, the percentage of workers with a monthly wage below NT$15,000 (a wage slightly lower than the currently minimum wage of NT$15,840) is largest among young workers between 15-24 years old, followed by the age group of 45-64 years old, and then that of 25-44 years old. The corresponding figures are 7.56%, 4.12%, and 2.28%, respectively.[3] Therefore, Taiwan deserves a careful study on the impact of minimum wage on teenager employment. Taiwan's labor market experience can provide an additional piece of evidence and also shed light over our understanding on the impact of minimum wage on youth employment.

This paper uses Taiwan's cross-industry quarterly data from 1973:1 to 2004:4 to examine the effect of minimum wage on youth employment and unemployment. Our findings are in accordance with the line of the New Economics of Minimum Wage. However, the small but positive effect of minimum wage on youth employment is mainly derived from the increase in the youth labor participation rate induced by the growth in the minimum wage. Therefore, from a long-run perspective, the impact of minimum wage slows down the accumulation of human capital and thus hinders the long-run growth of an economy. The rest of the paper is organized as follows. Section 2 presents the empirical model for the estimation. Section 3 contains data analysis and the description of the estimation method. Section 4 lays out the estimation results. Concluding remarks are followed up in Section 5.

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[1] See also Meyer and Wise (1983), Linneman (1982), Wellington (1991), and Welch and Cunningham (1978), among others.

[2] See also Kennan (1995) for criticisms on the New Economics of Minimum Wage.

[3] The corresponding figures for the monthly wage between NT$15,000-19,999 are 27.01%, 11.46%, and 8.44%, respectively.

II. *The Empirical Model*

As in the literature, the test for the effect of minimum wage on youth employment is specified as:

$$Y = f(MW, D, S, X\cdots) + \varepsilon, \tag{1}$$

where Y is the youth employment variable, MW is the minimum wage variable, D and S stand respectively for the demand-side and supply-side factors that affect youth employment, and X represents other control variables such as time and regional dummies. In the literature the dependent variable includes the employment-population ratio,[4] the labor participation rate,[5] and the unemployment rate.[6] In early studies, the effect of minimum wage focuses on the unemployment rate of youths.

Brown, Gilroy, and Kohen (1982) point out that one may encounter several caveats: (i) If the increases of minimum wage cause teenagers to retreat from the labor market, then they are classified as being not in the labor force and do not count as being unemployed. Furthermore, if some of the teenagers enter the labor market and cannot find jobs, then they are counted as being unemployed, but this has nothing to do with the increase in the unemployment rate due to an increase of the minimum wage. (ii) The definition of unemployment or an exit from the labor market is vague, as it is only confined by the attitude of the worker on whether he or she is aggressively searching for a job. However, the definition of employment is very clear. (iii) According to the research purpose, the employment status can be further classified as part-time or full-time employment. As the three variables (employment rate, labor force participation rate, and unemployment rate) for youth labor activity are closely related, in this study we separately test the effect of minimum wage on the youth employment ratio, the labor participation rate, and the unemployment rate.

The widely-adopted minimum wage variable is the Kaitz index,[7] defined as:

$$\text{Kaitz index} = \sum_i \frac{MW_i}{AW_i} \times \frac{E_i}{E} \times C_i, \tag{2}$$

where i is an index for industry, MW is the minimum wage confronted by the industry, AW is the average wage of the industry, E is the employment level of the industry, TE is the total number of employed in the economy, and C stands for the coverage rate of the minimum wage in the industry. Therefore, the Kaitz index is a weighted average of the minimum wage with respect to the industry's average wage, using the employment structure multiplied by the coverage rate as the weight. The advantage of the Kaitz index is that it contains information on the relative wage between the minimum wage and the average wage, the coverage rate of the minimum wage, and the employment structure.

[4] See, for example, Betsey and Dunson (1981), Brown, Gilroy, and Kohen (1983), Wellington (1991), Neumark and Wascher (1992), Williams (1993), Card, Katz, and Krueger (1994), Card and Krueger (1995), and Burkhauser, Couch, and Wittenburg (2000).

[5] See, for example, Brown, Gilroy, and Kohen (1983), Solon (1985), and Wellington (1991).

[6] See, for example, Kaitz (1970), Moore (1971), and Adie (1973).

[7] See, for example, Brown, Gilroy, and Kohen (1983), Solon (1985), Wellington (1991), Card and Krueger (1995), and Park and Ratti (1998).

As for the demand-side and supply-side factors, demand factors include the adult male unemployment rate to capture the business cycle of the economy[8] and adult workers' wage (Burkhauser, Couch, and Wittenburg (2000)) or average wage in the manufacturing industry (Card and Krueger (1995)). Supply factors include the youth population as a share of the population over 15 years old, teenagers in the armed force as a share of the teenager population, teenagers' school enrollment rate,[9] the share of 15-17 years old in the teenager population (Card and Krueger (1995)), the share of teenagers in job training (Brown, Gilroy, and Kohen (1983), and Park and Ratti (1998)), and the expenditure share of teenagers' job training (Wellington (1991)). However, Card and Krueger (1995) argue that teenagers' employment level and their enrollment rate is negatively correlated, and therefore the inclusion of the teenagers' enrollment rate variable will cause an endogeneity problem in estimating the effect of minimum wage.

Other control variables include a time trend, seasonal dummies, their interaction terms (Wellington (1991), Card and Krueger (1995), Park and Ratti (1998)) and year, and industry, region, and state dummies (Neumark and Wascher (1992), Williams (1993), Burkhauser, Couch, and Wittenburg (2000)) in the cross sectional or panel study.

This paper uses the widely-adopted Kaitz index as the measure for the minimum wage variable. However, due to data limitation and availability in Taiwan's labor market, the independent variable includes the adult male unemployment rate, average wage in the manufacturing industry, and teenagers' population as a share in the total population above 15 years old, and a time trend and seasonal dummies.

Our empirical model is thus specified as:

$$ER_t = \alpha_{0t} + \alpha_1 KI_t + \alpha_2 POP_t + \alpha_3 UMALE_t + \alpha_4 WAGE_t + \alpha_5 T_t + \alpha_6 Q_t + \alpha_7 T_t Q_t + \varepsilon_t, \qquad (3)$$

where index t denotes time, ER is the logarithmic form of the youth employment rate,KI is the Kaitz index as the proxy for minimum wage, POP is the share of youth in the total population above age 15, UMALE is the unemployment rate of adult males, WAGE is the average wage of the manufacturing industry, T is the time trend, and Q is the seasonal dummy. However, in order to closely examine the underlying reason for the change in the employment rate, we also run the regressions as in equation (3) for the unemployment rate (UR) and the labor force participation rate (LPR) as the dependent variable, separately.[10] For robustness of the estimation, we also include the quadratic and cubic time trend, as well as an interaction term of a time trend with different combinations of seasonal dummies.

As for the signs of the explanatory variables, under perfect competition the imposition of a minimum wage will theoretically reduce the employment level of youths and increase the unemployment rate and labor participation rate of them. However, in a labor market with

[8] See, for example, Brown, Gilroy, and Kohen (1983), Solon (1985), Wellington (1991), Neumark and Wascher (1992), Card and Krueger (1995), Park and Ratti (1998), Williams and Mills (1998), and Burkhauser, Couch, and Wittenburg (2000).

[9] See, for example, Brown, Gilroy, and Kohen (1983), Solon (1985), Wellington (1991), Neumark and Wascher (1992), Williams (1993), Card and Krueger (1995), Park and Ratti (1998), and Burkhauser, Couch, and Wittenburg (2000).

[10] As by definition, the employment rate is equal to one minus the unemployment rate multiplied by the labor participation rate. Therefore, any changes in the employment rate may likely form changes in either the unemployment rate or the labor participation rate.

monosony if the minimum wage is higher than the monosony wage, then the imposition of a minimum wage increases the employment rate and reduces the unemployment rate; see, e.g. Stigler (1946) and Maurice (1974).

Welch (1974) constructs a two-sector model, a covered sector, and an uncovered sector to analyze the effect of minimum wage legislation. There are three choices for a typical worker who is subject to minimum wage legislation and is forced to leave the current job. First, the worker stays in the covered sector in order to keep looking for a job, the employment rate decreases, the unemployment rate increases, and the labor participation rate remains unchanged. Alternatively, the worker may shift and find a job in the uncovered sector, which decreases the wage and increases the employment of the uncovered sector. However, the total effect on the employment rate and the unemployment rate is uncertain depending on the underlying structure of the labor market. The worker may alternatively choose to exit the labor market, which decreases the employment rate, the unemployment rate, and the labor participation rate. As the three labor flows happen at the same time, the effects of minimum wage on the employment rate, the labor participation rate, and the unemployment rate are hence undetermined.

III. *The Data and Estimation Method*

In the early years, Taiwan's minimum wage was relatively stable, changing every 8 to 10 years, until December 1978 when the minimum monthly wage was increased from NT$600 to NT$2400. The frequency of minimum wage adjustments then became shorter and regular at a one or two-year intervals. This paper adopts quarterly data from 1973:1 to 2004:4, for a total of 128 observations. Brown, Gilroy, and Kohen (1983) point out that quarterly data are more suitable for an analysis of the minimum wage effect as quarterly data can reflect short-term demand-side fluctuations which annual data cannot and can prevent the noisy effect of any incidental changes that may arise in the monthly data.

Constructing the Kaitz index requires an appropriate classification of industry. As manufacturing consists of a large employment proportion (about 30%) in Taiwan's economy and the production properties of manufacturing industries may be quite different and divergent, we use 22 two-digit industry[11] classifications for the manufacturing industry together with other 8 industries[12] to form a complete set of 30 industries.[13] Data are from the Labor Monthly Report, R.O.C., Monthly Report on Manpower Survey Statistics, Taiwan Area, R.O.C., Monthly Bulletin of Earnings and Productivity Statistics, Taiwan Area, R.O.C., Quarterly Report of Economic Trends, Taiwan Area, R.O.C., Labor Standard Law, and Report on

[11] The 22 two-digit industries are food and beverage; tobacco; textiles; wearing apparel; leather and fur products; wood and bamboo products; furniture and fixture; pulp, paper and paper products; printing pressing; chemical matter; chemical products; petroleum and coal products; rubber products; plastic products; non-metallic mineral products; basic metal; fabricated metal products; machinery and equipment; electric and electronics machinery; transportation equipment; precision instrument; and miscellaneous industrial products.

[12] The other eight industries are mining and quarrying; electricity, gas, and water; construction; commerce; transport, storage, and communication; financing, insurance, and real estate; business services; social, personal, and related community services.

[13] Most Taiwan studies on minimum wage use only a one-digit industry with manufacturing as a single industry; see, e.g. Jiang and Sen (1987) and Huang (1995).

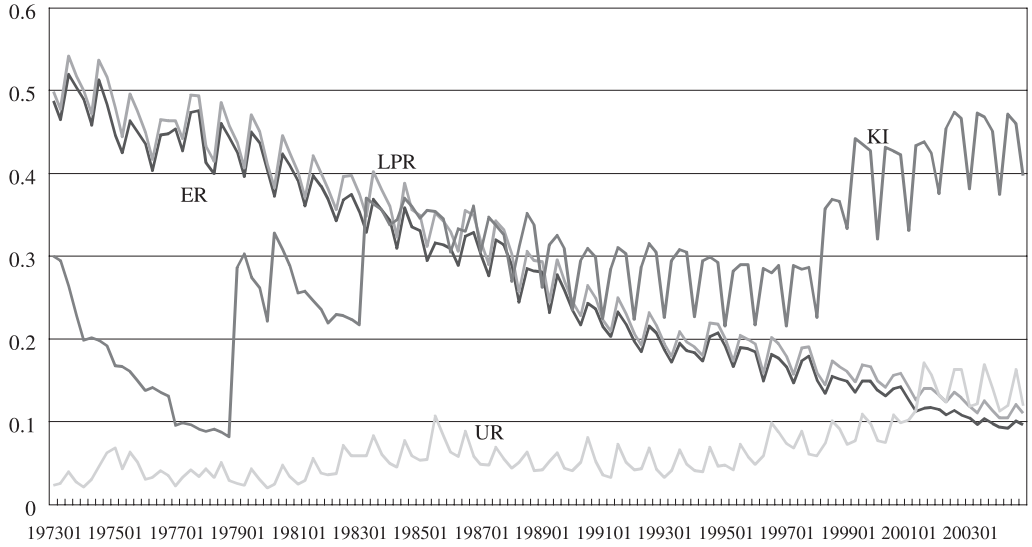
TABLE 1. DEFINITIONS AND SUMMARY STATISTICS OF THE VARIABLES

Var.	Description	Definition	Mean (S.D)	Sources
ER	Youth employment rate	Employed workers of ages 15~19 as a share of the population of ages 15-19 in logarithmic form	0.278 (0.126)	Monthly Bulletin of Labor Statistics, R.O.C.; Report on Manpower Statistics, Taiwan Area, R.O.C.
LPR	Youth labor participation rate	Labor force of ages 15-19 as a share of the population of ages 15-19 in logarithmic form	0.294 (0.128)	Same as above
UR	Youth unemployment rate	Unemployed workers of ages 15-19 as a share of the labor force of ages 15-19 in logarithmic form	0.065 (0.035)	Same as above
POP	Population share of youths	Population of ages 15-19 as a share of total population over age 15	0.142 (0.033)	Same as above
UMALE	Adult male unemployment rate	Unemployed male workers of ages 25-44 as a share of the male labor force of ages 25-44	0.019 (0.014)	Same as above
KI	Kaitz index	Weighted average of minimum wage relative to average wage in the industry, as the weight is the employment share of workers of ages 15-19 in the industry multiplied by the coverage rate of the industry	0.293 (0.095)	Same as above; Labor Earnings and Productivity Statistics, Taiwan Area, R.O.C.; Labor Standard Law; Report on Industrial Survey, Taiwan, R.O.C.
WAGE	Average wage of the manufacturing industry	Average wage of the manufacturing industry divided by the consumer price index in logarithmic form	9.637 (0.875)	Labor Earnings and Productivity Statistics, Taiwan Area, R.O.C.; Report on Price Statistics, Taiwan Area, R.O.C.

Industry Survey. Table 1 presents the definition of variables and a summary of the basic statistics. Figure 1 depicts the time trend for the Kaitz index, the employment rate, the labor participation rate, and the unemployment rate of youths.

During the sample period, the population share of youths demonstrated a waning propensity from 21.2% to 8.8%, which is reflection of a declining fertility rate over time. The labor participation rate of youths shows a noticeable declining trend from 50% to 11% and the employment rate also shares a similar pattern. The drop in the labor participation rate of youths is mainly generated by the increase of youths' school enrollment. However, the unemployment rate of youths experienced an increasing trend from 2.4% to 12%. The rise in the youth unemployment rate is a response to the rapid industrial structure change towards more capital-intensive and technology-intensive industries which generate demand for more skilled workers. Therefore, the drop in youth labor participation rate together with the

FIG. 1. TIME TREND OF KAIZ INDEX, EMPLOYMENT RATE, LABOR PARTICIPATION RATE, AND UNEMPLOYMENT RATE



increase in youth unemployment rate has governed the declining trend of youth employment rate.

As the current shock to youth employment may affect the future minimum wage level, the OLS estimates of equation (3) in this case are inconsistent. Thus, the OLS regression with the Newey-West correction standard error is used in the estimation of equation (3).[14] Another possible criticism of the OLS estimation of equation (3) is that variables are not cointegrated and that the results are spurious. We also perform test for the unit root and cointegration and find that all the models presented in Table 2 do pass the cointegration test.[15] Burkhauser, Couch, and Wittenburg (2000) point out that the minimum wage policy used to change over time, and hence empirically the minimum wage variable is likely to be correlated and the inclusion of a time dummy will essentially absorb and cover the effect of the minimum wage. They claim that it is this time dummy effect that renders the effect of minimum wage insignificant as in most time-series studies. Thus, we perform both estimations with and without a time dummy as well.

IV. *Estimation Results*

Table 2 presents the estimation results. Without time trend and seasonal dummies, from model (1) the effect of the minimum wage on the employment rate is positive but insignificant. However, including time trend and seasonal dummies, from model (2) the effect of minimum

[14] I thank an anonymous referee for pointing out this issue.

[15] The estimation results for the cointegration test are available from the author upon request.

TABLE 2. THE EFFECT OF MINIMUM WAGE ON YOUTH EMPLOYMENT, UNEMPLOYMENT, AND LABOR PARTICIPATION RATE

	ER		LPR		UR	
	(1)	(2)#	(3)	(4)#	(5)	(6)#
KI	0.022	0.046	0.030	0.047	0.017	−0.00003
	(0.050)	(0.018)**	(0.057)	(0.018)***	(0.019)	(0.010)
POP	1.727	1.828	1.691	1.798	−0.680	−0.618
	(0.543)***	(0.190)***	(0.402)***	(0.186)***	(0.198)***	(0.150)***
UMALE	−1.13	−0.421	−0.907	0.156	2.052	2.180
	(0.229)	(0.147)***	(0.244)***	(0.130)	(0.147)***	(0.134)***
WAGE	−0.064***	−0.068	−0.070	−0.068	−0.025	0.013
	(0.011)	(0.019)***	(0.012)***	(0.018)***	(0.006)***	(0.011)
T		0.005		0.005		−0.002
		(0.001)***		(0.001)***		(0.001)***
T^2		−0.0001		−0.0001		0.0000
		(0.0000)***		(0.0000)***		(0.0000)**
T^3		0.0000		0.0000		0.0000
		(0.0000)***		(0.0000)***		(0.0000)
Q2		−0.031		−0.032		0.0001
		(0.006)***		(0.006)***		(0.004)
Q3		0.032		0.042		0.012***
		(0.006)***		(0.006)***		(0.004)
Q4		0.025		0.028		0.002
		(0.006)***		(0.006)***		(0.004)
Constant	0.665	0.604	0.742	0.625	0.358	0.051
	(0.164)***	(0.006)***	(0.182)	(0.125)***	(0.092)***	(0.077)
Observation	128	128	128	128	128	128
F-statistics	764.9	2836.62	611.79	2940.6	123.86	220.54

Notes: KI stands for the Kaitz index; ER is the youth employment rate; LPR is the youth labor participation rate; UR is the youth unemployment rate; POP is the population share of youths; UMALE is the adult male unemployment rate; WAGE is the average wage of the manufacturing industry in logarithmic form. # Regression also includes interaction terms of a time trend and quarterly dummies. Figures in the parenthesis are Newey-West correction standard error. *, **, and *** stand for a statistical significant level at 10%, 5%, and 1%, respectively.

wage on the employment rate turns positive and significant. The estimation result suggests that a 10% increase in the minimum wage will increase the youth employment rate by 0.47%.

As for the effect of the adult male unemployment rate, which is a proxy for the business cycle on the demand side, when the economy is in a downturn the demand for labor will theoretically contract, while when the economy is in an upturn the demand for labor will expand. Thus, we expect a negative sign for the business cycle variable. From models (1) and (2) the coefficient of adult male unemployment is negative and significant which is consistent with the expected sign. The average wage of the manufacturing industry, a proxy for the wage of an adult worker, is also negative and significant for both models. Theoretically, if adult workers and young workers are substitutes, then the coefficient should be positive. On the contrary, if adult workers and young workers are complements, then the coefficient should be negative. Our estimation results imply a complementary relationship between adult and young workers.

For the supply-side variable, under both models the share of teenagers in the population

over 15 years old has a positive and significant effect on the youth employment rate. An increase in the population of youths provides itself with the function of being a reserve army for potential employment and hence increases the employment rate of youths. The estimation results suggest that a 1% increase in the share of youth population will increase the youth employment rate by 1.83%. These results imply that the effect of supply factors is relatively more important than that of demand factors in the teenager labor market.

Models (3) and (4) show the estimation results for the labor participation rate of youths. Without time trend and seasonal dummies, the effect of minimum wage on the youth labor participation rate is positive but insignificant. However, with time trend and seasonal dummies included, the effect of minimum wage turns positive and significant. A 10% increase in minimum wage will increase the youth labor participation rate by 0.47%. Thus, the increase in minimum wage has a significantly positive effect on both the employment rate and labor participation rate of youths.

The coefficient of adult male unemployment is also positive but insignificant after including time trend and seasonal dummies. It seems to imply that, when the economy is in a downturn the unemployment rate rises, the income of families drops, and the expenditure on education shrinks, and hence youths drop out of school and enter the labor market early. In contrast, when the economy is in an upturn the unemployment rate falls, the income of families rises, and the expenditure in education increases, and hence youths attain more education and delay their entry to the labor market. However, the coefficient of the average wage of the manufacturing industry, a proxy for the wage of adult workers, is also negative and significant as in the case of employment rate, implying that a general wage increase will attract youths to participate in the labor market. The effect of the share of the youth population has a positive and significant effect on youths' labor participation rate. A 1% increase in the share of youth population will increase youths' labor participation rate by 1.80%.

Models (5) and (6) show the estimation results of the effect of minimum wage on the youth unemployment rate. With or without controlling for time trend and seasonal dummies, the minimum wage effect on the youth unemployment rate is insignificant. This finding is in accordance with that in the U.S. of the so-called New Economics of Minimum Wage. The adult male unemployment rate itself has a positive and significant effect, implying that when the economy is in a downturn this macro shock will hurt the labor market across the working groups. The effect of the average wage of the manufacturing industry is negative and significant, but it becomes positive and insignificant after controlling for time trend and seasonal dummies. This may imply that the increase in the wage of adult workers has an insignificant effect on the unemployment rate of young workers. As for the supply-side factor, the effect of the share of the youth population is negative and significant with or without controlling for time trend and seasonal dummies. From models (2) and (4), an increase in the youth population will increase the employment rate as well as the labor participation rate of youths. Moreover, the magnitude on the employment rate is slightly larger than that on the labor participation rate ($1.83 > 1.80$), hence rendering a net negative effect on the unemployment rate of youths.

In summary, without time trend and seasonal dummies, the minimum wage effect on youth employment and unemployment in Taiwan is insignificant. However, because we adopt quarterly time series data, a control for the time trend and seasonal adjustment is required.

After controlling for the time trend and seasonal dummies, we find that the minimum wage effects on the youth employment rate and the labor participation rate are positive and significant. These results are robust as we also include the quadratic and cubic time trend, as well as the interaction term of a time trend with different combinations of seasonal dummies. The findings are consistent with that in the recent literature under the nomenclature of New Economics of Minimum Wage. Our estimation results show that a 10% increase in the minimum wage will increase the youth employment rate and youth labor participation rate by 0.47%, which has an insignificant effect on the youth unemployment rate.

By definition, the employment rate = (1-unemployment rate)*labor participation rate. Though an increase in minimum wage will increase the employment rate of youths, the main source of the increase is through the growth in the labor participation rate of youths and not through the decrease in the youth unemployment rate. Putting it another way, the increase in Taiwan's minimum wage has induced more young people to drop out of school and enter the labor market which in turn has increased their employment rate.[16]

Previous Taiwan studies, as in the early literature of Jiang and Sen (1987) and Wang, Ma, and Wu (1999), find significant negative effects of minimum wage on the male youth employment rate or participation rate. Hanug (1995) also shows a negative but small effect on the youth employment rate, unemployment rate, and labor participation rate only for certain youth groups. However, Haung and Jiang (1998) present that the minimum wage has a positive effect on the youth employment rate only in northern and eastern regions of Taiwan. Except for Jiang and Sen (1987), these previous Taiwan studies all use either monthly or yearly data which are less suitable for an analysis of the effect of minimum wage; see, for example, Brown, Gilroy, and Kohen (1982). Moreover, they adopt either a real minimum wage or the ratio of the minimum wage with respect to the average wage in the manufacturing industry instead of calculating the Kaitz index (a widely-adopted proxy for the minimum wage variable) as this paper does.

V. *Concluding Remarks*

The aim of minimum wage legislation is to protect marginal workers so that they may receive a wage that guarantees a certain level of living standard is met. Ever since the implementation of Taiwan's Labor Standard Law in 1984, the minimum wage has received its legitimate position. Until now, the minimum wage policy in Taiwan has gone through seven adjustment periods and has covered all the business sectors since 1999 with a 90% high compliance rate. Therefore, the study of Taiwan's labor market should be able to shed light on the effect of minimum wage on youth employment and unemployment.

Studies in the U.S. render mixed results, as recent studies there provide evidence that challenges the conventional wisdom derived from the neoclassical model. Using quarterly time-series data, the finding of this paper's empirical study on Taiwan is in the spirit of recent

[16] According to a survey on the youth population in 2000, the share of youths 15-24 years old who are either not in school or not in the labor market was 12.3%, among which 33.5% were looking for a job and 19.3% were preparing for a school entrance exam. Therefore, the actual share of youths remaining at home was relatively small at around 6%. Thus, over 90% of youths not in the labor force were engaging in either school or preparing for an entrance exam.

studies whereby the effect of minimum wage is less significant or even positive on the youth employment rate. However, the magnitude is relatively small, about a quarter of that found in the U.S. Furthermore, a close examination on the effect of minimum wage on the youth employment rate, the labor participation rate, and the unemployment rate in Taiwan shows that the positive effect of the minimum wage on youth employment is mainly from the increase in youths' labor participation rate induced by a higher expected wage, and not from the decrease in the youth unemployment rate.

From policy viewpoints, in the short run the implementation of a minimum wage increases the employment of youths and has no adverse effect on the youth unemployment rate. However, in the long run the increase of the youth employment rate will mainly come from the increase in the youth labor participation rate — i.e., from the trend of teenagers to drop out early from school. This long-run effect can be huge and adverse to the economy as it will slow down the accumulation of human capital and hence deter the long-run growth of the economy.

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