

The Effect of Marginal Tax Rates on Moonlighting

Steven Wych

Advisor: Professor John F. O'Connell

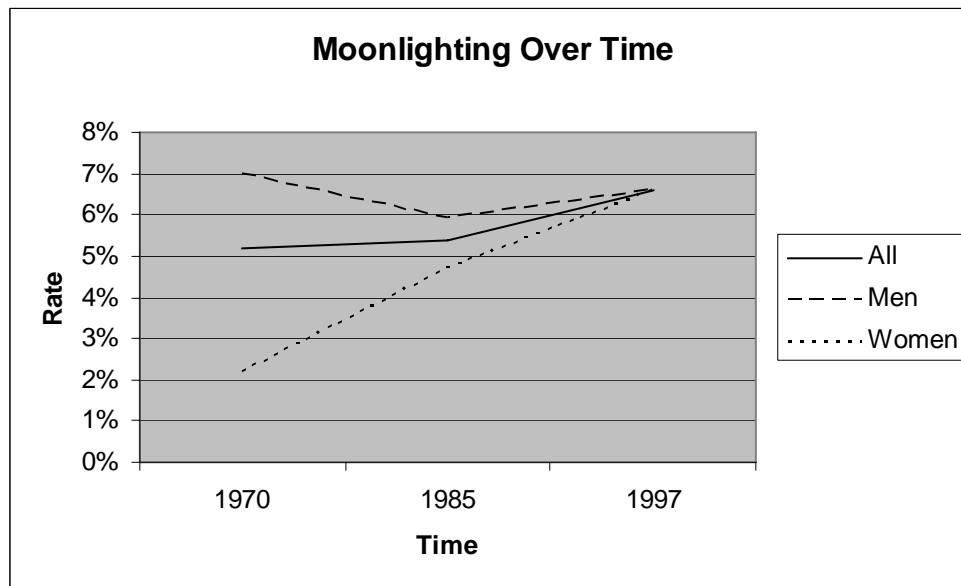
From 1970 to 1991, moonlighting rates for women have nearly tripled from 2.5% to 6% while the rate for men increased slightly from 6% to 6.5%. The average moonlighter works longer hours, receives lower wages, and is poorer than the average worker. This study will expand the examined variables that influence the moonlighting trend over time. Specifically, this study will determine the marginal tax rate's effect on moonlighting hours, examining whether the income or substitution effect dominates. First, moonlighting wages are estimated for all observations, regardless of moonlighting status. Second, a Tobit estimation is used with moonlighting hours as the dependent variable and the marginal tax rate as the independent variable of interest. The results show that the marginal tax rate and moonlighting hours are inversely related, indicating a dominant substitution effect.

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I. Introduction

A “moonlighter” refers to an employed person who, during a given week, either had two or more jobs as a wage and salary worker, was self-employed and also held a wage and salary job, or labored as an unpaid family worker and also held a wage and salary job (Bureau of Labor Statistics). Many factors influence the amount of moonlighting one will choose. Although the study of motives behind moonlighting is complicated, it has been hypothesized that factors such as family size, the wage on the primary job, the moonlighting wage, age, education, race, and gender all play a role in an individual’s decision making process regarding multiple job holding. Many studies have examined these characteristics. However, another perhaps more important question that should be addressed is whether the marginal tax rate affects the number of hours spent on the secondary job.

Graph 1



Source: Alper and Wassall, 2000

The effect of marginal tax rates on the secondary labor supply should be studied for many reasons. As Graph 1 indicates, the moonlighting rates of men and women have tended to converge in recent years (Alper and Wassall, 2000). However, Averett (2001) finds statistics that deviate slightly from Graph 1. From 1970 to 1991, moonlighting rates for women have nearly tripled from 2.5% to 6% while the rate for men has increased slightly from 6% to 6.5% (Averett, 2001). Moreover, Kimmell and Conway (1995) finds that the average moonlighter works longer hours, receives lower wages, and is poorer than the average worker. Considering these statistics, policymakers need to address the issue of moonlighting and the socioeconomic conditions surrounding it. Increasing moonlighting rates may lead to more time constraints, causing Americans to spend unnecessary resources on non-parental child care. Also, the relationship between tax rates and moonlighting should be of particular concern for the American government. Boehner (1996) asserts that U.S. workers are increasingly taking on second jobs to counter heavier tax burdens (Averett, 2001). Clearly, the large social impact of moonlighting is reason enough for it to warrant careful study.

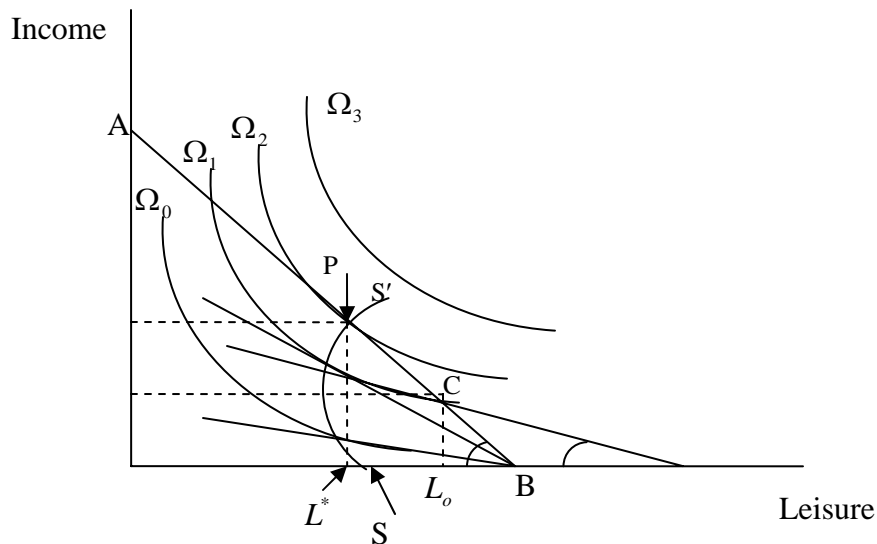
As suggested by O'Connell (1979), moonlighting will occur when the income earned in the individual's primary job is inconsistent with utility maximization. Since the marginal tax rate directly affects the individual's income, the tax rate directly affects utility maximizing choices and perhaps the decision to moonlight. In this context, two separate issues will be tested. The first involves how the moonlighting trend in the United States has changed over time. The second hypothesis concerns the effect of the marginal tax rate on moonlighting. This research expands O'Connell (1979) with updated data and a more precisely specified model.

Section II summarizes the earlier studies of moonlighting and positions my research. Section III discusses the methodology and the empirical tests. The paper concludes with a summary of the findings and suggestions for future research in section IV and V, respectively.

II. Literature Review

The theoretical foundation for this type of analysis is presented by Shishko and Rostker (1976). Combining traditional micro-economic theory and demographic profiles of the typical moonlighter, this study estimated a moonlighting supply curve. The basic model is as follows. Individuals can spend their time one of two ways: working and earning income, or using their time in leisure activities. The time spent in leisure can be viewed as forgone income, with the opportunity cost equal to the after-tax wage rate. In Figure 1 several sets of indifference curves are plotted. Each indifference curve represents combinations of income and leisure at a given utility level. Although income is measured on the vertical axis, it affects utility through consumption. The line segment AB is the budget constraint, with a slope equal to $-w_o(1-t)$, where w_o is the wage of the primary job, and t is the marginal tax rate. An individual maximizes utility where the budget constraint is tangent to the indifference curve Ω_2 , at point P. This point is where the marginal rate of substitution of leisure for income equals the slope of the budget constraint. As Shishko and Rostker (1976) suggest, as the wage (or indirectly, the tax) changes, the locus of all such tangency points (the expansion path) can be interpreted as an individual's supply curve. This is shown in Figure 1 as the curve SS'.

Figure 1



B equals the total amount of time available to an individual in a week, and L^* represents the desired hours of leisure. $B - L^*$ is the optimal number of hours worked. If the individual faces a constraint on the number of hours that can be worked, say $(B - L_o) < (B - L^*)$, she fails to maximize her utility and is on indifference curve Ω_1 at point C. An individual will accept a moonlighting job as long as the secondary wage is greater than the marginal rate of substitution of leisure for income at point C, the intersection of the primary wage line and the allowable hours on the primary job (Shishko and Rostker (1976)). This is represented as wage w_m^r , the wage rate associated with the budget constraint that is tangent to Ω_1 at point C. As long as the moonlighting wage is greater than w_m^r , the individual will accept a second job. The wage w_m^r is defined as the reservation wage, the minimum secondary wage at which an individual will accept

employment in the secondary labor market. However, although this graphical representation gives a solid foundation for the following empirical work, the theoretical model is not clear on how the tax rates can affect the decision to moonlight. Changing the tax rate will affect both w_o and w_m^r , and may increase or decrease L^* , depending upon the individual's preferences and whether the substitution or income effect dominates.

Leuthold (1978) describes how the effect of taxes can be broken down into income and substitution effects. The substitution effect results from the fact that as the marginal tax rate increases, the opportunity cost of leisure decreases. Since the price of leisure decreases, leisure should increase (labor should decrease) as the marginal tax rate rises. The substitution effect has a negative tax elasticity, as workers substitute away from labor (and consumption goods) towards leisure. The income effect applies if leisure is a normal good. A normal good is defined as a good for which the optimal consumption level varies directly with income (Mathis and Koscianski, 2002). As the marginal tax rate increases, a worker's actual income decreases, and thus leisure would decrease (and labor would increase). Therefore, if the income effect dominates, we would expect to see a positive elasticity between the tax rate and hours worked. Leuthold (1978) demonstrates this mathematically. Let t be the marginal tax rate, w is the before-tax wage rate, w_d is the after tax wage rate, and H is the units of labor supplied. Equation (1) represents the after-tax wage. Distributing through yields equation (2). Taking the partial derivative of (2) with respect to t gives (3). Multiplying (2) by H yields income, represented by (4). Distributing through gives (5), and taking the partial derivative of (5) with respect to t yields (6). However, one needs to take into account how H changes as t

changes. Thus, taking the derivative of H with respect to t in (6) gives the net effect of the tax rate change as (7), and multiplying through by t/H gives the marginal tax elasticity of moonlighting, depicted as (8).

$$\begin{aligned}
 (1) \quad w_d &= w(1-t) & (5) \quad Y &= wH - wHt \\
 (2) \quad w_d &= w - tw & (6) \quad \partial Y &= -wH\partial t \\
 (3) \quad \frac{\partial w_d}{\partial t} &= -w & (7) \quad \frac{dY}{dt} &= -w \left(\frac{dH}{dt} \right) \\
 (4) \quad Y &= wH(1-t) & (8) \quad \varepsilon_t &= \frac{-tw}{H} \left(\frac{dH}{dt} \right)
 \end{aligned}$$

Using these equations, this project will calculate the marginal tax elasticity of moonlighting just as O'Connell (1979) has done. These estimations will show how trends in moonlighting have changed over time, and whether the income or substitution effect dominates.

Formalizing and testing the theory put forth by Shishko and Rostker (1976) using data from the National Longitudinal Survey, O'Connell (1979) relies on the simple utility maximizing principle:

$$U = U(Y, l) \quad (9)$$

where Y is income and l is leisure. However, income is constrained by the wage (w_o and w_m) and the tax rate $T(H)$. Thus, incorporating these considerations into the theory yields (10).

$$Y = [w_o(V)H_o + w_m(Z)H_m][1 - T(H)] + A_o, \quad (10)$$

where H_o is the primary hours worked, H_m is the moonlighting hours worked, $T(H)$ is the average tax on $H = H_o + H_m$ hours worked, V is a vector of characteristics determining the primary wage, Z is a vector of characteristics determining the secondary wage, and A_o is net after tax nonlabor income. The moonlighting wage is a function of the characteristics Z as follows:

$$w_m = \prod_{i=1}^n Z_i^{\beta_i} \quad (11)$$

Then, by taking the natural log, and assuming a normally distributed disturbance, we are left with the following wage equation:

$$\ln w_m = \sum_{i=1}^n \beta_i Z_i + u \quad (12)$$

By employing (12), and using the National Longitudinal Survey data, the least squares estimates of (12) were formulated.

$$\ln w_m = \beta_0 + \beta_1 \ln w_o + \beta_2 \text{Race} + \beta_3 \text{Urban} + \beta_4 \text{Education} \quad (12a)$$

$$\text{Race} = \begin{cases} 1 & \text{if nonwhite} \\ 0 & \text{otherwise} \end{cases} \quad \text{Urban} = \begin{cases} 1 & \text{if a resident of an SMSA} \\ 0 & \text{otherwise} \end{cases}$$

$$\text{Education} = \text{Years of Schooling}$$

Using (12a), the moonlighting wages for all observed male individuals were estimated (even if they did not moonlight), and subsequently those moonlighting wages were plugged into:

$$H_m = \delta_1 w_m - \delta_1 \rho(tw_m) + \sum_{i=2}^n \delta_i X_i + e \quad (13)$$

which is estimated by using Tobit regression analysis. The term ρ is a measure of how individuals perceive taxes and X_i is a vector of determinants of hours worked. The value of ρ is found by dividing the coefficient for the product of the marginal tax rate and the secondary wage by that of the secondary wage. If $\rho > 1$, an individual overestimates the tax rate, whereas if $\rho < 1$, an individual will underestimate the tax rate.

In the market model wages and hours are simultaneously determined. Estimating the model in two stages addresses the identification problem caused by the simultaneity. The moonlighting wage is estimated first, and then used as an instrument to find the moonlighting hours. Since most workers do not moonlight, the wage they would earn if they did had to be estimated from those that do moonlight. The concentration of observations at zero made the ordinary least squares estimates biased and inconsistent. Tobit analysis permits consistent estimates when the dependent variable is truncated at zero.

From equation (13), O'Connell (1979) then found the marginal tax elasticity of moonlighting for two separate variations of the basic model. Model 1 includes both primary hours and wages. However, to account for a multicollinearity problem, the primary wage is excluded in Model 2. The marginal tax elasticity of moonlighting for Model 1 was found to be -0.43 and -0.56 for Model 2. This means that for Model 1, a 1% increase in the tax rate will result in a -0.43% decrease in moonlighting hours, suggesting a dominant substitution effect.

Other studies have arrived at different conclusions. Hunt, Hill, and Kiker (1985) conflict with O'Connell (1979) in that their study supports the income effect. They utilize Heckman's (1974) Tobit procedure to estimate parameters of the offered and

asking secondary wage rate. Moonlighting occurs when the asking wage equals or exceeds the offered wage.

Actual hours worked on the primary job may not be the best measure of primary hours. Instead, they suggest that primary hours worked is better represented by a 0-1 choice due to the rigidities that often exist within the primary labor market. The secondary labor market is ideal for the work-leisure model because many of the rigidities that exist within the primary job market do not appear in the secondary labor market. They contend that there are fewer constraints on the hours offered on the second job because of the characteristics that often accompany these secondary jobs. These may include: high absenteeism, little on the job training, prevalent self employment, and minimal union coverage (Hunt, Hill, and Kiker, 1985). They estimate two equations. The first is for the reservation wage. The second equation is for the secondary wage offered by the employer. The marginal tax rate is expected to have a positive effect on the reservation wage, assuming individuals allot time based on after-tax wages and that leisure is a normal good.

As stated before, an individual will accept a second job only if the wage offered in the secondary job is greater than the reservation wage. By employing an equation that incorporates the difference between the wage offered and the reservation wage, they found that a one-percentage point increase in the marginal tax rate increases secondary hours worked by about 3 hours. This finding indicates a dominant income effect, shedding light on how theoretical work as well as previous empirical research on this subject has been ambiguous.

III. Methodology

This project will use the same theoretical model as O'Connell (1979). However, it will add more controls including age, gender, health, marital status, number of children, occupation, and industry. Also, it will use updated data from the National Longitudinal Survey to analyze changes over time. In the first stage I estimate the following equation for the moonlighting wage.

$$\begin{aligned} \ln w_m = & \beta_0 + \beta_1 \ln w_o + \beta_2 \text{Race} + \beta_3 \text{Rural} + \beta_4 \text{Gender} \\ & + \beta_5 \text{Age} + \beta_6 \text{Age}^2 + \beta_7 \text{Ed.} + \beta_8 \text{Health} + \beta_9 \text{Marital} \\ & + \beta_{10} \text{Children} + \beta_i \text{Occupation} + \beta_j \text{Industry} \end{aligned} \quad (14)$$

where:

	0	1
Race	Otherwise	Nonwhite
Rural	Urban	Rural
Gender	Otherwise	Woman
Education	Years of School Completed	
Health	Otherwise	Health Limits Work
Marital Status	Married	Otherwise
Children	Number of Children	
Occupations	Otherwise	Occupation-Laborers
	Otherwise	Occupation-Managerial
	Otherwise	Occupation-Service
	Otherwise	Occupation-Technical
	Otherwise	Industry-Construction
	Otherwise	Industry-Finance
	Otherwise	Industry-Government
	Otherwise	Industry-Manufacturing
	Otherwise	Industry-Mining
	Otherwise	Industry-Service
Industries	Otherwise	Industry-Transport
	Otherwise	Industry-Trade

This equation is used to estimate the moonlighting reservation wage for those that moonlight and those that do not. Using this information, I will then estimate moonlighting hours using Tobit. I will then find the marginal tax rate elasticities of

moonlighting hours. The hypothesis tests will check for a negative elasticity, supporting the substitution effect. To find the elasticities, the partial derivative of H_m with respect to t is taken, multiplied by t/H_m (values will be chosen to represent the marginal tax rate and moonlighting hours) to observe the percentage change in H_m as t changes. I will use the equation

$$\varepsilon_t = \left(\frac{\partial H_m}{\partial t} \right) \left(\frac{-tw_m}{H_m} \right) \quad (15)$$

where

$$\frac{\partial H_m}{\partial t} = \delta_1 \rho w_m \quad (15a)$$

which is taken from equation (13).

Data

The marginal tax rate was measured using the statistical program Stata. Since there was no measure of total gross family income in the National Longitudinal Survey, total net family income was used as a proxy. Stata then calculated marginal tax rates for each observation with a positive net family income, based on the highest tax bracket applicable to that income. While deviating slightly, this measure is similar to Leuthold (1978) and O'Connell (1979). Leuthold (1978) incorporates the two major taxes paid by Americans: the income tax and the social security payroll tax. Leuthold (1978) measures the income tax rate for each participant at the highest tax bracket rate applying to total family income, assuming that the family files jointly, takes a single exemption for each dependent, and claims the minimum deduction. The marginal social security tax rate was set at the rate established by current law, unless the participant earned more than the

taxable maximum or was an employee not covered by social security, in which cases a rate of zero was used (Leuthold (1978)). O'Connell (1979) measures the marginal tax rate by observing a joint return on total family income, including income of the moonlighting occupation at fifteen hours per week for fifty weeks.

O'Connell (1979) used data from the National Longitudinal Survey. The more recent National Longitudinal Survey will be used in this study. The updated information that I will use consists of the data set NLSY79 Work History (1979-2004), which provides a longitudinal work record of each respondent from January 1, 1978 through the most recent survey. Of special concern is the fact that these data convey information concerning respondents who held multiple jobs simultaneously in any week (BLS website).

The 1984 summary statistics are shown in Table 1. As one can see, several interesting relationships appear. First, roughly 26.7% of the sample moonlight. Furthermore, the secondary wage is less than the primary wage on average, a fact that agrees with Hunt, Hill, and Kiker (1985). There seems to be minimal gender or education difference between primary workers and those who moonlight. Furthermore, 71% of moonlighters are not married compared to 65% of primary workers. This suggests that if you are married, you may be less likely to moonlight. The average moonlighter also has fewer children than the average nonmoonlighter.

The 2004 summary statistics are shown in Table 2. In this sample, roughly 21.6% of the respondents moonlight. Similar to 1984, the average primary wage is again higher than the average secondary wage. A notable difference between 1984 and 2004 is the average number of children. In 2004, the average number of children for dual jobholders,

1.91, surpassed the average primary job holder's number of children of 1.88. This is a large change since 1984, when the primary worker's average number of children was .51 and the secondary worker's average number of children was .39. However, this could be explained by the longitudinal nature of the survey. As the years progress, the participants get older and are thus more likely to have children.

IV. Results

The findings from the procedures implemented here seem to agree with O'Connell (1979), indicating a negative marginal tax rate elasticity of moonlighting. The variables from the wage equations for both 1984 and 2004 can be seen in Table 3. A Chow Stability test was conducted to see if the 1984 and 2004 samples could be pooled. The F -statistic was found to be 3.1097, and the scalar value cutoff $F_{23;2484;.05} = 1.5336$. Since $3.1097 > 1.5336$, we reject the null hypothesis that all the corresponding coefficients from 1984 and 2004 are equal. Therefore, the two years were not pooled. The variables found in the Tobit estimation (13) are shown in Table 4. In the Tobit estimation, the asymptotic Z -statistic for the [(Fitted Reservation Wage)*(Tax)] coefficient is found to be -4.250 for 1984 and -1.896 for 2004. This indicates that at the $\alpha = .05$ level, both the 1984 and 2004 coefficients are significant.

In conjunction with the findings of O'Connell (1979), the coefficient on the variable of interest, $t \ln w_m$, points to a negative marginal tax elasticity of moonlighting. The elasticity can be computed by employing equation (15) using the mean values for w_m , H_m , and t . Substituting mean values into equation (15) yields:

$$\varepsilon_{t84} = (-16.265) \left(\frac{(0.2068)(1.5067)}{37.8786} \right) = -0.1338 \quad (16)$$

$$\varepsilon_{t04} = (-19.420) \left(\frac{(0.2163)(2.5646)}{33.2464} \right) = -0.3241 \quad (17)$$

This means that for a one percentage point increase in the tax rate, moonlighting hours will decrease by 0.1338% in 1984 and by 0.3241% in 2004. Comparing these results to O'Connell (1979), both 1984 and 2004 seem to be less than the -0.43 elasticity found in 1971.

As it is not possible to test the elasticity's significance directly, the hypothesis test is of the marginal effect of tax on secondary hours worked. Hence, the employed tests resemble:

$$H_0 : \frac{\partial H_m}{\partial t} \geq 0$$

$$H_1 : \frac{\partial H_m}{\partial t} < 0$$

This is appropriate since the elasticity must have the same sign as the marginal effect of the tax on secondary hours worked. For 1984, the Z-statistic is -4.249710, with the cutoff equaling $Z_{.05} = -1.64$. Since $-4.249710 < -1.64$, we reject the null hypothesis. The p -value was found to be 0. For 2004, the Z-statistic is -1.896126, with the cutoff equaling $Z_{.05} = -1.64$. Since $-1.896126 < -1.64$, we again reject the null hypothesis. The p -value was found to be 0.0287.

The value of ρ , or the measure of how individuals perceive the tax rate, was found by dividing the coefficient of $t \ln w_m$ by that of w_m . The value of ρ was found to be 0.4526 for 1984 and 0.9393 for 2004, indicating that the marginal tax rate is underestimated by individuals in both samples.

To test for the possibility of heteroskedasticity within each sample, White Tests were performed. The cross-terms were included for these tests. For 1984, the p -value was found to be 0.000002, indicating that there is a large probability of heteroskedasticity. For 2004, the p -value was 0.000061, also indicating a large probability of heteroskedasticity. Consequently, the reported wage equations were run using White's heteroskedasticity consistent standard errors, rendering the statistical inferences approximately correct in large samples. The 1984 and 2004 wage equation samples were 1771 and 759 respectively, validating the large sample needed for correct statistical inferences.

V. Conclusions

There are several areas of this study that may contain pitfalls and deserve investigation. They are very adequately summed up in Leuthold (1978). The first involves the possibility of multicollinearity, which would mean that correlation exists among variables assumed to be independent of one another. Both Leuthold (1978) and O'Connell (1979) recognized this predicament. However, O'Connell (1979) deals with the multicollinearity by employing the use of a second model, one that excludes the primary wage. Leuthold (1978) disregards the problem because the correlation among variables never exceeded 0.40 and the correlation coefficient between the wage rate and other explanatory variables never exceeded 0.26. For this project the correlation coefficients never exceeded 0.439 for 1984 and 0.58 for 2004, and the correlation coefficient between the primary wage rate and other explanatory variables never exceeded .33 for 1984 and .40 for 2004.

Furthermore, a caveat concerning the data needs to be addressed. A large proportion of moonlighters do not report their income (Averett, 2001). This makes sense intuitively, since many moonlighting jobs often pay in cash. However, this may cause problems when estimating the moonlighting wage and hours worked, since this information is critical in performing the regressions.

Valuable implications of the perception of taxes can be deduced. The value of ρ_{84} was .4526 and ρ_{04} was .9393. However, this contrasts with O'Connell (1979). In his research, O'Connell found ρ to equal 1.22, indicating that the males in his study overestimate taxes. In 1971, males overestimated taxes by 22%. In 1984, both men and women underestimated taxes by almost 55%. And in 2004, both men and women underestimated taxes by around 6%. Based on these findings, it seems that taxpayers are starting to become more aware of the tax burden confronting them. If taxes are perceived to be less than they actually are, changes in taxes are most likely perceived to be less than they are in reality. Thus, this information could be used to shed light on how changes in tax rates have affected and could affect political outcomes. Similar methods could be helpful in attempting to forecast the effectiveness of future tax changes in influencing polls and approval ratings. Furthermore, this finding may hint at differences in the way men and women perceive taxes. Since this study is unable to differentiate between the perceptions of men and women, another study could more appropriately address this query.

Despite these reservations, the results reveal valuable information regarding the tendencies toward moonlighting. This research adds to the empirical studies supporting the substitution effect, finding that an increase in the marginal tax rate decreases

moonlighting hours. This finding is supported with a marginal tax rate elasticity of moonlighting of -0.13378 for 1984 and -0.32408 for 2004.

It is interesting to see how the marginal tax elasticity of moonlighting hours has changed over time. Stemming from a 1971 sample, O'Connell (1979) estimates the elasticity to be -0.43. In 1984, the estimated elasticity equals -0.13. This is a significant decrease in the elasticity. Furthermore, in 2004, the elasticity is calculated as -0.32. While still less than that from 1971, this represents a large increase in the elasticity from 1984. Another interesting revelation is that the coefficient for children in the Tobit equation for 2004 is 1.879, while -2.232 for 1984. This implies that the presence of children hampered moonlighting hours in 1984, but encouraged moonlighting hours in 2004. However, this needs to be interpreted with caution as most of the participants in the longitudinal survey had less children in 1984 than they did in 2004.

Further studies may delve deeper into the study of moonlighting and its implications on the labor supply curve. A future paper may divide the moonlighting population into two distinct categories: one being the higher wage moonlighters and the second representing the lower wage moonlighters. Although moonlighters as a whole are poorer and earn lower wages than the average worker, those moonlighters on the high end of the spectrum may earn more than the average worker. Consequently, elasticities could be calculated for both the low end wage earners in addition to the high end wage earners. In support of a backward bending supply curve, the low end wage earners should have a negative marginal tax elasticity of moonlighting while the high end wage earners should have a positive elasticity.

Growing support for the substitution effect in empirical moonlighting literature should reveal to lawmakers effective methods of manipulating moonlighting hours. This research suggests that in order to reduce moonlighting hours, one might increase the marginal tax rate. However, this work needs to be interpreted with caution, since the finding from the 2004 elasticity is statistically insignificant.

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Table 1**Summary Statistics 1984**

	Primary Workers		Dual Jobholders	
	Mean	Std. Dev.	Mean	Std. Dev.
Primary Wage	6.01	5.83	5.45	2.62
Secondary Wage	NA	NA	5.00	2.69
Secondary Hours	NA	NA	37.88	11.05
% Non-white	0.29	0.46	0.25	0.43
% Rural	0.20	0.40	0.18	0.39
% Female	0.49	0.50	0.42	0.49
Age	22.96	2.26	22.59	2.22
Education	12.42	2.01	12.50	2.03
% Limited by Health	0.02	0.15	0.03	0.16
% Not Married	0.65	0.48	0.71	0.45
Children	0.51	0.84	0.39	0.72
Occupation-Laborers	0.21	0.41	0.23	0.42
Occupation- Managerial	0.17	0.38	0.19	0.39
Occupation-Farming	0.02	0.12	0.01	0.11
Occupation- Technical	0.41	0.49	0.38	0.48
Occupation-Service	0.18	0.38	0.18	0.39
Industry-Agriculture	0.03	0.17	0.03	0.17
Industry-Construction	0.04	0.21	0.07	0.26
Industry-Finance	0.05	0.22	0.04	0.20
Industry-Government	0.05	0.22	0.04	0.20
Industry- Manufacturing	0.22	0.42	0.20	0.40
Industry-Mining	0.01	0.11	0.01	0.10
Industry-Service	0.23	0.42	0.23	0.42
Industry-Transport	0.04	0.20	0.05	0.22
Industry-Trade	0.24	0.43	0.24	0.43
Observations	4866		1771	

Table 2**Summary Statistics 2004**

	Primary Workers		Dual Jobholders	
	Mean	Std. Dev.	Mean	Std. Dev.
Primary Wage	21.02	15.65	18.47	16.74
Secondary Wage	NA	NA	16.90	22.95
Secondary Hours	NA	NA	33.25	16.13
% Non-white	0.31	0.46	0.36	0.48
% Rural	0.28	0.45	0.23	0.42
% Female	0.48	0.50	0.49	0.50
Age	42.87	2.25	42.81	2.21
Education	13.48	2.39	13.51	2.36
% Limited by Health	0.04	0.20	0.04	0.19
% Not Married	0.34	0.47	0.45	0.50
Children	1.88	1.34	1.91	1.41
Occupation-Laborers	0.29	0.46	0.30	0.46
Occupation-Managerial	0.30	0.46	0.26	0.44
Occupation-Farming	0.00	0.06	0.00	0.06
Occupation-Technical	0.29	0.45	0.29	0.45
Occupation-Service	0.09	0.29	0.13	0.34
Industry-Agriculture	0.01	0.09	0.01	0.07
Industry-Construction	0.06	0.24	0.08	0.27
Industry-Finance	0.07	0.25	0.07	0.25
Industry-Government	0.09	0.28	0.06	0.24
Industry-Manufacturing	0.17	0.38	0.11	0.31
Industry-Mining	0.00	0.06	0.00	0.05
Industry-Service	0.31	0.46	0.38	0.49
Industry-Transport	0.08	0.27	0.05	0.22
Industry-Trade	0.13	0.33	0.13	0.33
Observations	2759		759	

Table 3**Wage Estimate****Dependent Variable: $\ln w_m$**

	1984			2004		
	Coefficient	Std. Error	t-Statistic	Coefficient	Std. Error	t-Statistic
Constant	-0.657	1.020	-0.644	4.026	7.877	0.511
Log of Primary Wage	0.355	0.025	14.429	0.377	0.054	6.963
Non-white	-0.066	0.022	-3.004	-0.103	0.045	-2.312
Rural	-0.104	0.024	-4.295	-0.046	0.044	-1.058
Female	-0.117	0.021	-5.631	-0.154	0.046	-3.325
Age	0.121	0.091	1.333	-0.158	0.366	-0.432
Age Squared	-0.002	0.002	-1.082	0.002	0.004	0.457
Education	0.013	0.005	2.513	0.058	0.011	5.252
Health	0.030	0.059	0.516	-0.041	0.090	-0.460
Not Married	-0.021	0.023	-0.913	-0.025	0.042	-0.596
Children	0.007	0.015	0.479	-0.010	0.013	-0.774
Occupation-Laborers	-0.063	0.069	-0.916	0.020	0.114	0.173
Occupation-Managerial	-0.050	0.070	-0.720	0.189	0.115	1.642
Occupation-Service	-0.085	0.067	-1.264	0.028	0.114	0.248
Occupation-Technical	-0.020	0.068	-0.293	0.074	0.111	0.666
Industry-Construction	0.008	0.048	0.164	0.074	0.090	0.825
Industry-Finance	0.040	0.055	0.714	-0.034	0.109	-0.312
Industry-Government	-0.157	0.056	-2.822	-0.075	0.096	-0.783
Industry-Manufacturing	-0.078	0.038	-2.031	-0.039	0.089	-0.435
Industry-Mining	0.131	0.098	1.332	0.156	0.298	0.523
Industry-Service	-0.029	0.037	-0.772	0.027	0.069	0.388
Industry-Transport	-0.010	0.052	-0.199	0.091	0.148	0.612
Industry-Trade	-0.075	0.036	-2.085	0.064	0.078	0.815
Observations	1771			759		
R^2	0.239			0.345		
Adjusted R^2	0.230			0.326		

Table 4**Secondary Hours Estimate****Dependent Variable: H_m**

Tobit	1984			2004		
	Coefficient	Std. Error	Z-Statistic	Coefficient	Std. Error	Z-Statistic
Fitted Reservation Wage (Fitted Reservation Wage)*(Tax)	35.933	9.808	3.664	20.676	15.513	1.333
Primary Hours	-16.265	3.827	-4.250	-19.420	10.242	-1.896
Log of Primary Wage	0.017	0.046	0.378	-0.107	0.116	-2.858
Children	-19.995	3.746	-5.337	-18.588	6.503	-0.928
Women	-2.232	0.815	-2.739	1.879	0.883	2.127
Non-white	-3.848	1.530	-2.514	-4.975	3.236	-1.537
Age	-3.475	1.440	-2.414	2.865	3.160	0.907
Age Squared	-0.950	0.646	-1.470	-1.727	0.831	-2.079
Not Married	-0.007	0.014	-0.509	0.014	0.014	1.033
Education	4.105	1.336	3.072	10.101	2.886	3.500
Rural	0.186	0.330	0.563	1.313	1.165	1.128
Observations	0.227	1.716	0.132	-3.187	2.876	-1.108
	6751			3400		