The Cause of Fewer Hours Worked in Europe Compared to the United States

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There tends to be a preconception amongst Americans that Europeans work far less and enjoy more downtime than those in the United States. Americans work 50% more than the French, Germans, and Italians, but this hasn't always been the case; it wasn't until the 1970s that Americans surpassed the average European in the number of hours they work each week (Prescott, 2004). There has been much debate in the economic community surrounding the existence of the large gap: many studies point to European culture as an explanation, while others assert that an increase in taxes across Europe is the primary cause of a reduction in labor supply. In this paper, we will analyze the relationship between the divergence in working hours between the United States and Europe since the 1970s. Specifically, we will narrow our focus to European G-7 members and other advanced European members of the OECD. Although taxes may be driving the change in labor supply, we will investigate how culture, leisure, and government policy also play a significant role.

Calibrated Models Explaining Taxes as Primary Explanation for Reduction in Labor Supply

Many papers create models to examine the relationship between taxes and labor supply, especially when comparing the United States with Europe. *"Why Do Americans Work So Much More than Europeans"* (Prescott, 2004) is the most popular study citing higher taxes as the primary reason for the gap in the number of hours worked between Europeans and Americans. Prescott's model compares G-7 countries between 1970-1974 and 1993-1996, the period in which the divergence of labor supply began. By comparing the variation explained between

multiple models with different explanatory variables, Prescott found that tax rates explain most, if not all, of the changes in working hours from the baseline period. Prescott attributes this occurrence to high labor supply elasticity. When tax rates are similar between two regions, working hours are also similar. As tax rates increase, income is reduced, thereby reducing working hours. These results coincide with the relationship between Europe and the US, as taxes are higher in Europe. Prescott further claims that if the effective tax rate were reduced in a European country, then citizens would be willing to work more. Although Europeans work less, their productivity isn't lower, so an increase in labor supply would generate more output. As a result, tax revenue wouldn't decrease significantly: while the tax rate is lower, it is being applied to a higher cumulative base and would therefore produce an approximately equal amount of inflow for the government (Prescott, 2004).

By expanding on Prescott's ideas, other calibrated models have also shown the inverse relationship between working hours and tax rates. This relationship was especially evident in *"Long-Term Changes in Labor Supply and Taxes: Evidence from OECD Countries, 1956-2004"* (Ohanian et al., 2006), which investigates the differences in the number of hours worked across 21 member countries of The Organization for Economic Cooperation and Development from 1956 to 2004. Using the first-order condition from the neoclassical growth model, the authors found that most of the variation of hours worked across time and countries was explained only when changes in taxes were included in the model. When analyzing the large trend decreases in hours of work using the standard version of the growth model, only a small fraction of the decline was explained; however, once incorporating taxes on consumption and labor income, the model accounted for almost all the average decreases in hours of work over the sample period. The authors created four groups of OECD countries based on the trends they exhibited. Group 1

consisted of Austria, Belgium, Denmark, Finland, France, Germany, and Italy: they saw the steepest decline in the number of hours worked during the postwar period until their hours leveled off in 1990. Group 2 contained Norway, Japan, Portugal, Sweden, and the UK: they saw a decrease smaller than group 1, and their hours leveled off in 2004. Group 3's members were Australia, Canada, New Zealand, and the US: this group saw no major trend. Lastly, Group 4 consisted of Greece, Ireland, the Netherlands, Spain, and Switzerland: they exhibited decreases, but not the monotonic trends seen in Groups 1 and 2. The groupings of the OECD countries contribute to the argument that taxes are a significant reason why Europeans work less than Americans: Groups 1 and 2 saw the biggest increase in taxes from 1956-2004, and the average number of hours worked in these European countries decreased by about 20%; contrarily, Group 3 saw smaller increases in taxes during the same period and exhibited no major trends in the number of hours worked. While this evidence is strong, the writers acknowledge other factors besides taxes that may explain the lack of decline in work hours for Group 3, particularly time devoted to home production. They state that the increase in the number of hours worked in the US may reflect "a decrease in time spent in home production and not a reduction in leisure," as European countries spend more time devoted to home production, thus reducing the number of hours worked (Ohanian et al., 2006).

Criticism of Prescott

While Prescott's model provides important insight into the relationship between taxes and employment levels, other studies have contradicted his results. Ljungqvist and Sargent presented an opposing view in their paper "*Do Taxes Explain European Employment? Indivisible Labor, Human Capital, Lotteries, and Savings"* (Ljungqvist & Sargent, 2007). To explain how the number of hours worked changed across different countries, Prescott used the standard growth

model with a high labor elasticity to make employment vary over the business cycle. Ljungqvist and Sargent argue that this choice alludes to an employment lotteries model, which allows Prescott to justify a representative household whose choices reflect a high labor elasticity. However, they argue that this assumption leads to the disintegration of his model. The high labor elasticity makes people sensitive to government-supplied benefits for people not working, and Prescott's assumption that workers finance their nonemployment with either private insurance or private savings disregards the existence of social insurance. This is especially erroneous in the case of Europe, as the non-employed are financed through generous government benefits. In 2000, the OECD reported that 11.1% and 16.1% of the working-age population in France and Germany respectively lived in a working-age household in which no one was employed. In comparison, only 4.9% of the United States working-age population reported a similar occurrence. This shows that non-employment is more possible in Europe due to the benefits given to workers in times of unemployment. When Ljungqvist and Sargent added these government benefits to the model while maintaining Prescott's calibrated labor supply elasticity, they found that European employment should have *increased.* Ultimately, the authors conclude that the large employment effects of taxation that Prescott derived did not come from his assumption of high labor elasticity as he claimed, but rather from his assumptions of high disutility of labor and returning tax revenues from the government. Ljungqvist and Sargent state: "Because generous social insurance is indeed a pervasive phenomenon in Europe, accounting for cross-country employment differences with any model that ignores it is naturally subject to the suspicion that one has miscast other parameters to fit the employment observations" (Ljungqvist & Sargent, 2007). In conclusion, Ljungqvist and Sargent state that Prescott's conclusions begin to fail once Europe's government-supplied benefits are considered.

Quasi-Experimental Studies

Quasi-experimental studies show similar results to Prescott. Data reported by different countries exhibit large responses in labor supply from changes in tax rates. *"Productivity, Taxes, and Hours Worked in Spain: 1970-2015"* (Conesa & Kehoe, 2017) examined the unique case of Spain in which the number of hours worked fell significantly after a dramatic tax reformation in the 1970s. Before 1975, Spain's total tax revenues as a percentage of total GDP was less than 20%. By 2002, this number converged to over 35%, which was higher than the OECD average of 31% at the time (Martinez-Vasquez, 2007). Before this tax reformation, the hours worked per working-age person in Spain were higher than in the US, however, after the tax reformation, the number of hours worked fell by 40%. Using the neoclassical growth model, Conesa and Kehoe found that 80% of the decrease in working hours was accounted for by the evolution of taxes in Spain from 1970 to 2015. Such a dramatic increase in taxes in a short period is uncommon and provides a valuable opportunity to examine how labor supply is affected, as done by Conesa and Kehoe. While the results of this analysis cannot be broadly applied to Europe as a whole, it establishes a strong foundation in the argument that stronger tax rates negatively impact labor supply. However, both authors acknowledge the limitations of their research. The impact of taxes on the number of hours worked was lessened if labor supply elasticity was lower; in other words, taxes didn't affect workers' decisions to supply labor if their quantity of labor supplied was more unresponsive to changes in wages (Conesa & Kehoe, 2017). Regardless, the evolution of taxation in Spain still accounted for the overall trending decrease in the number of hours worked from 1970 to 2015.

Conesa and Kehoe were able to provide valuable insight into the relationship between taxes and working hours due to Spain's dramatic tax reform implemented in the 1970s. Such experiments in which control conditions are determined by natural events are rare. Yet, Tazhitdinova was able to find a similar opportunity by studying moonlighting (a common phrase for holding a secondary job) in Germany (Tazhitdinova, 2020). Since 2003, full-time or part-time workers in Germany are allowed to hold secondary jobs tax-free if their primary job earns more than €400 a month and their secondary job earns less than €400 a month. Tazhitdinova found that this reform has increased the number of low-pay secondary jobs: within the first two years, the number of individuals holding secondary jobs increased from 2.3% to 5%, and by 2010, nearly 7% of workers held secondary jobs. This increase in the holding of secondary jobs represents a real increase in working hours rather than a shift of primary working hours into secondary jobs, as primary earnings did not fall. Tazhitdinova's findings imply that tax breaks "may result in a cost-effective approach to incentivizing longer working hours for low-income employed individuals" (Taxhitdinova, 2020). Once workers were able to hold a second job tax-free, the number of moonlighting workers increased, leading to an overall increase in the number of hours worked. However, the author acknowledges other factors that challenge her findings. Recent evidence suggests that the margin between income tax cuts and increasing working hours is unresponsive even to large financial incentives because of hour constraints: many jobs only offer a fixed number of hours per week and employers are often unwilling to negotiate changes to the standard number of hours offered. Thus, even if employees are willing to work more, they are often unable to, severely limiting their weekly average in comparison to the United States, where these restrictions are less common. Regardless, Tazhitdinova's paper is important when analyzing the relationship between taxes and labor supply as it naturally creates a control and

treatment group: people who receive lower tax rates and those who do not. Her paper also provides evidence of factors that can compound or mitigate the effects on working hours shown by models. (Tazhitdinova, 2020). This helps to corroborate the argument that increases in labor supply correspond with significant tax breaks.

The Effects of Culture, Income, and Other Variables

Schiff formulated an alternative theory that also focuses on consumption and leisure but fits better overall, which he called coordination failure (Schiff, 2014). Based on separate studies, utility falls inversely to others' income. In Europe, this negative externality is internalized through labor laws, such as minimum vacation time and maximum hours of work per week. However, in the United States, these laws are either not present or not as drastic, which results in an overworking trap. Schiff claims Americans would gain by working less and reducing work hours closer to welfare-maximizing levels. Europeans also have significantly more time off: their vacation time averages to about 5-6 weeks while in the US, there is an average of 2 weeks. Additionally, there are double the number of holidays in Europe than in the US. Individuals are unlikely to work more hours to make up for these restrictions, meaning the only option is for the total labor supply to be lower. The basis of this philosophy was tested in an experiment with US students where they were asked to choose between two options: they get paid $50,000 and their friend gets paid $25,000, or they get paid $100,000 and their friend gets paid $200,000. Surprisingly, students chose the former option, giving support to the idea of utility falling when others' income is rising (Schiff, 2014). Therefore, coordination failure is a significant roadblock to overcome when claiming taxes are the main cause for European individuals working fewer hours than those in the US.

Following the idea of alternative reasons for the discrepancy in working hours, *"Why are Average Hours Worked Lower in Richer Countries?"* (Bick et al., 2020) researched the role of income and substitution effects between rich and poor countries. While this doesn't directly relate to comparing Europe and the United States, there are several important concepts developed. The central topic of the argument is that income effects are the major factor explaining the decreasing number of hours worked. As wages rise for an individual worker, there is a corresponding increase in the demand for leisure. For this particular paper, a model was constructed with calibrated substitution and income effects based on cross-country data for statutory non-linear labor tax rates to determine the role of income effects in the decline of average hours worked in GDP per capita. Analysis of the results from the model shows that the income effect dominates and is the main factor behind the decline of working hours associated with development, whereas tax-and-transfer systems play a supporting role. However, the model created analyzed poor and rich countries; between two developed countries, it was found that the tax systems are the main reason for decreasing working hours (Bick et. al., 2020). Thus, in terms of working hours in the United States compared to Europe, this paper doesn't provide substantial evidence to the contrary. However, *"Why Work More? The Impact of Taxes, and Culture of Leisure on Labor Supply in Europe."* (Mocan, 2015) focuses on the roles of both taxes and a culture of leisure. One of the main claims made is that second-generation immigrants can be linked to the culture of leisure in their father's home country, which is significant as it perpetuates the idea of leisure contributing to working hour differences. Additionally, based on this premise, Mocan finds taxes and a culture of leisure both affect labor supply and hours worked for women, but only taxes influence the same variables for men. From this, it is reasonable to conclude that taxes have a larger effect since they can be seen for both men and

women. It was determined that the labor supply elasticity was -0.42 for women and -0.27 for men, whereas the elasticity for leisure was -0.24 for women and 0 for men. While labor income tax is a major force for determining aggregate hours worked, a culture of leisure plays a noticeable role as well. In a country in which leisure is more valued, ceteris paribus, individuals will choose to work less, decreasing the labor supply (Mocan, 2015).

Based on supporting and refuting evidence across studies analyzing the relationship between taxes and labor supply, we argue there is an inverse relationship between the two, ultimately causing the divergence in labor supply between the United States and Europe. However, after narrowing our research, we found several other factors that lead to a reduction of labor supply, including labor supply elasticity, home production, predisposition to leisure, and a fixed work week. Thus, despite our assertion that greater taxes in Europe cause Europeans to work less than Americans, we must acknowledge cultural and government policy differences that create a similar impact.

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