Discussion of "Do taxes explain European employment? Indivisible labor, human capital, lotteries and savings," by Lars Ljungqvist and Thomas Sargent

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There are two ways to read the paper by Ljungqvist and Sargent (and these two ways are reflected in the two parts of the title). First, as a response to Prescott's argument about labor supply and taxes. Second, as an exploration of the implications of heterogeneity for aggregate labor supply. While the first clearly provided the motivation for the paper, I believe the second is likely to prove the more important contribution.

First a bit of background. In a now famous paper, Prescott (2004) presented yet another example of what he sees as the power of the representative agent neo-classical model to explain facts. Relying on the preferences already used in the RBC model, he argued that the model naturally explained differences in hours worked in the United States and Europe. The difference he argued, was exactly what one would expect, given labor and consumption taxes.

Just as for his claim that the neo-classical model could fully explain fluctuations, this argument has generated controversy and further research. There are many ways to disagree with Prescott. First, one may question the assumptions about individual preferences and taxes. Second, one may want to question the representative agent assumption, and explore the implications of various types of heterogeneity. Third, one may want to introduce distinctions between various types of non-market work, from leisure, to home work, to job search.

The focus of LS is partly on the first, and mostly on the second. As a discussant, I am tempted to take up both the original Prescott argument as well as the LS response and contribution. I shall do a bit of both, starting with an issue not taken by LS, namely the assumptions about preferences.

1   Preferences, income effects, and taxes

In his computation of U.S. and European labor supply response to taxes, Prescott worked under two maintained assumptions about preferences—and these assumptions are maintained by LS. The first is that there are no differences in preferences across the two sides of the Atlantic. The second is that preferences are such that income and substitution effects cancel, and labor supply remains constant along the growth path.

The usual Occam's razor argument tells us this is clearly the right starting point. But it may not be the right end point. I have argued elsewhere for different preferences across countries, not for intrinsic or genetic reasons but because of different social arrangements and so on. I admit however not to have hard evidence—nor am I sure how to get it. On the issue of preferences such that hours worked per worker are constant along a balanced growth path, I think however the contrary evidence is fairly strong.

Let me give one piece of evidence, the evolution of hours worked per week by employed males in manufacturing in the United States, for various years from 1909 to 1940. I choose that period, because it largely predates the increase in the tax wedge emphasized by Prescott. The evolution of hours is striking. In 1909, only 8% of the workers worked less than 48 hours; by 1940, more than 92% worked less than 48 hours. In the absence of other compelling explanations, I see this as fairly convincing evidence of strong income effects, and of preferences such that higher productivity comes with a higher demand for leisure. This does not by itself provide a ready explanation for the difference in the evolution of hours worked in the United States and Europe, but it opens the possibility that Europe, and its negative trend for hours worked, may be the "normal" economy, and the abnormality lies with the United States.

Hours worked per week, male workers, U.S. manufacturing, 1909-1940

Hours	1909	1919	1929	1940
≤ 48	7.9	48.6	46.0	92.1
49-59	52.9	39.3	46.5	4.9
≥ 60	39.2	12.1	7.5	3.0

John Pencavel [1986], from Census data.

2 Heterogeneity and labor supply

The representative agent version of the Prescott model focuses on the labor supply choice at the intensive margin, i.e how many hours to work. It is clear that individuals also make a choice at the extensive margin, i.e. whether to work or not.

As soon as one recognizes this second choice, things become more complicated and endogenous heterogeneity arises. People now have different work histories, thus different asset levels, and by implication different reservation wages. This heterogeneity in turn affects the response of aggregate labor supply to taxes.

There are two ways of, in effect, avoiding the issue. The first is to rely on the fiction of very large households, who can fully diversify individual labor income risk—an approach typically followed in New Keynesian models—or, equivalently, allow for work lotteries combined with insurance—the approach followed by RBC models. The second is to assume linear utility, so wealth does not affect the reservation wage, the approach followed in Diamond-Mortensen-Pissarides (DMP) models. Either approach works in getting us out of the difficulty and delivering a tractable characterization of labor supply; but, from a descriptive viewpoint, neither is appealing.

It is clearly worthwhile it to tackle the complexity head on, i.e. to see how much agents can self insure through asset accumulation and decumulation, and then derive the implications for individual and aggregate labor supply. This is what LS start to do. In doing so, they can potentially answer two types of questions: The effect of taxes on labor supply. And how the answer differs from those obtained under the shortcuts described above, either the assumption of

a representative agent and variations at the intensive margin, or variations at the extensive margin with full insurance cum lotteries.

Much of the LS paper is spent comparing the equivalence—or lack of—between insurance cum lotteries, and self insurance through asset decumulation and accumulation. Given Prescott's rationalization, it is again a natural starting point. And knowing when the two are equivalent is obviously useful (just as knowing when Ricardian equivalence holds). It is clear however that the distance between the two is likely to be substantial in practice. Human capital accumulation through work, which LS focus on as the source of non-equivalence, would not have been my starting point (I suspect the motivation was internal, coming from the earlier work by LS on European unemployment, in which skill acquisition and skill loss play an important role). I would have focused instead on the implications of finite horizons, of the life cycle, and of the fact that workers face substantial uncertainty, both about income when employed, and about employment. The evidence is that workers can smooth only a limited proportion of their idiosyncratic labor income risk. I read for example the papers by Heathcote et al (2004) and by Blundell et al (2003) as suggesting that they are able to insure about half of the permanent changes in their labor income.

LS however give us a clear agenda (and take the first few steps in a model which was originally part of the paper presented at the conference, and is now developed in LS 2006a): Write down a model in which workers self insure through asset accumulation and decumulation. Fit the facts about labor supply, consumption, and saving across the life cycle (extending to labor supply the work of Gourinchas and Parker (2002) on consumption). Then, look at the effect of an increase in labor taxes.

There are many interesting issues to explore here. Let me just mention one. In this paper and the general equilibrium extension (2006a), LS look at decisions to work or not work in a model without labor market frictions, so all non work is voluntary. But in the presence of frictions, the layoff rate and the exit rate from unemployment affect asset accumulation, which in turn affect the reservation wage, and the decision to quit or to look for a job if unemployed. In other words, layoffs affect asset accumulation, which in turn affect quits. This in turn affects the effects of the tax rate on aggregate labor supply; these implications are both complex and extremely relevant to the issue at hand.

3 Heterogeneity. Back to the comparison between the United States and Europe

LS point to the importance of heterogeneity in understanding the effects of taxes on labor supply, in characterizing both whose decision is affected, and what the overall effect on labor supply is likely to be. While their model is admittedly only a rough beta version, it is tempting to speculate as to whether it or later versions—will fit some of the aspects of the disaggregated data.

First, let me again give some background. The first basic fact about relative labor market evolutions in Europe versus the United States is that there has been a steady decline in hours worked per capita in Europe relative to the United States since the early 1970s. The second basic fact is that this relative decline has taken place mostly at the intensive rather than at the extensive margin. True, unemployment has increased in most European countries since 1970, and in some cases, participation has decreased, but most of the decline in hours worked per capita has come from a decrease in hours worked per worker: Good news for the Prescott focus on the intensive margin, less good news for LS and the focus on the extensive margin.

Given the focus of LS, let me concentrate nevertheless on the extensive margin. The table below gives participation rates, overall, and by sex and by age, for France (my usual stand-in for continental Europe, when I have to choose one country) and the United States, in both 1968 and 2004. The table has a number of (perhaps surprising) features:

First, the overall participation rate has been roughly flat in France (+1.1%), up in the US (8.8%). This is not good news for the "higher taxes" hypothesis, at least on its own. That is, higher taxes must have been counteracting a positive trend.

Second, there have been sharply contrasting trends by sex. A decline for men, larger in France than in the United States (-12.9% versus -6.9%), and a sharp increase for women, smaller in France than in the United States (14.7% versus 22.6%). Again, not very good news for the "higher taxes" hypothesis, at least on its own. The differential increases in the participation rate for women suggest a role for education, intra-family insurance, perhaps differences in joint taxation, in addition the factors emphasized by Prescott or by LS.

Participation rates, overall, by sex, by age, for France and the United States, in 1968 and 2004

	France		United States	
	1968	2004	1968	2004
overall	68.5	69.6	69.3	78.1
men	88.1	75.2	91.8	84.9
women	49.3	64.0	48.9	71.5
20-24	73.5	56.5	67.0	75.0
55-59	64.3	61.9	68.0	71.1
60-64	51.2	17.6	55.4	50.9
Men 25-54	96.8	93.7	96.3	90.5

Source: OECD Employment data set.

Third, much of the difference comes from the sharp drop in the participation rate of older workers (60-64) in France, from 51.2% in 1968 to 17.6% in 2004. This sharp increase in early retirement would appear to be good news for LS: In their simple model with human capital, as well as in their more fleshed out version (LS 2006a), most of the effect of an increase in the tax rate is through early retirement: Those workers who have accumulated substantial assets decide that work is no longer attractive, and take early retirement. But the news is less good than it looks: Most of the early retirements in France (and elsewhere in Europe) are due to a high implicit tax rate on work after age 55, a dimension of taxation neither LS nor Prescott look at. Jon Gruber and David Wise (1998) have constructed a so called "tax force" index, equal to the sum of the tax rates on working one more year, from age 55 to 69. The value of the index is equal to 1.6 for the United States, 7.3 for France. And the index correlates extremely well across countries with participation rates for the 55-64 age group.

4   Non work: Leisure versus unemployment

Neither Prescott nor LS make an explicit distinction between unemployment and leisure. This leads to some uneasiness, for example, in the way LS for-

malize unemployment benefits as paid for all non-work. True, most countries have social assistance programs even for those out of the labor force, but these programs are typically much less generous than social insurance programs.

It is becoming increasingly clear (at least to me) that, to fully understand European labor market evolutions, looking just at unemployment, or lumping home work, unemployment, and leisure into "non work", cannot do justice to the facts: Unemployment has increased and, in many countries, is higher than in the United States. Hours worked per worker have decreased, and are nearly everywhere lower than in the United States. We have little solid evidence about the evolution of home work over time, but today's numbers suggest that home work is higher in Europe than in the United States (Freeman and Schettkat 2005, and Burda et al 2006).

Why does it matter? Because payroll taxes, income taxes, consumption taxes, and unemployment benefits, affect these different margins of choice differently. Let me end with a few examples.

When looking at the effect of the tax wedge on the choice between market work and leisure, the issue is how much of the substitution effect is cancelled by the income effect. When looking at the effect of the same tax wedge on the choice between market work and home work, the income effect plays a much smaller role. If home work and market work are close substitutes, a small increase in the tax wedge may lead to a large shift from market to home work, with little or no income effect.

The effect of the tax wedge on unemployment may be very different from its effect on leisure. What happens depends very much on the frictions that generate unemployment:

In many models, where unemployment serves the role of a discipline device, an increase in the tax wedge is likely to increase unemployment. In an efficiency wage model where shirking is unobservable, an increase in payroll taxes decreases the after-tax wage that firms can pay, decreasing the utility cost of being laid off at a given unemployment rate: This in turn leads to an increase in equilibrium unemployment. Very much the same logic applies to flow/bargaining models: The reduction in the after-tax wage that firms can pay requires an increase in unemployment, so as to get workers to accept the lower real wage.

The effect may however go the other way. Think of a model of search unem-

ployment, where workers have the choice between searching for jobs or taking leisure. Then, the effects of an increase in the tax wedge will have the same qualitative effect on unemployment and employment. Anything which makes work less attractive will also make search less attractive, and thus leads to lower search effort, to lower unemployment.

We have a long way to go in understanding the effects of taxes on labor supply, especially in markets with frictions. We must thank Prescott for the challenge, and LS for taking us a bit further along.

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