

Example 16.2

Income Taxation and the Trade-off Between Efficiency and Equity*

The tax reforms that took place in the Organization for Economic Cooperation and Development (OECD) countries in the 1980s and 1990s involved a sharp movement away from highly progressive income taxes. In some countries, the marginal tax rates on the highest incomes dropped from 70%–80% to around 40%–50%. These reforms were motivated by a growing concern that the costs of redistributing income were too high. Their primary purpose was to reduce the perceived strong disincentives to work resulting from high marginal tax rates, and hence to reduce the inefficiencies of the income taxes. The reformers understood that the efficiency gains would come at the cost of some increase in inequality. Economic theory has long predicted that there is a trade-off between efficiency and equality in the setting of income tax rates, as described in Chapter 16 of the textbook.

Is it true, however, that there is an inescapable trade-off between equality and efficiency in taxation? As often in economics, the answer is “it depends”. In this case, it depends on the relative responses of high-wage and low-wage workers to changes in tax rates – that is, on the elasticities of their labor supplies with respect to their after-tax wages. Recall that the (compensated) labor supply elasticities are the source of the deadweight efficiency loss from income taxes. If both high-wage and low-wage workers have the same labor supply elasticities then the predicted trade-off between efficiency and equity in setting tax rates would apply. This was the implicit assumption about the labor supply elasticities in the textbook discussion. But suppose that the labor supply elasticities of the high-wage workers are lower than the labor supply elasticities of the low-wage workers. Then by lowering tax rates on the low-wage workers and raising tax rates on the high-wage workers, the government can collect the same amount of tax revenue while

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simultaneously reducing inequality, increasing the overall supply of labor, and reducing the deadweight efficiency loss of the tax system. The twin goals of promoting equality and efficiency in taxation would no longer be in opposition. Furthermore, this pattern of labor supply elasticities would imply that the OECD tax reforms of the 1980s and 1990s were misguided. Lowering the tax rates on the highest incomes would not improve the efficiency of the tax system if taxes had to be raised on those with low incomes to keep the revenues collected constant. Instead, these reforms would generate lower labor supplies, more deadweight efficiency loss, and more inequality. They would represent exactly the wrong policy in the pursuit of efficiency and equity.¹

Are high-wage workers less responsive to changes in marginal tax rates than low-wage workers? In thinking about this question, economists distinguish between labor supply responses on the extensive and intensive margins. The *extensive margin* refers to the decision to enter the labor market or no – to work or not to work – in response to a change in after-tax wages. The *intensive margin* refers to the decision of how many more or fewer hours to work in response to a change in after-tax wages, given that the individual has already entered the labor market. High-wage workers may well be less responsive than low-wage workers to changes in marginal tax rates along both margins.

Consider, first, the intensive margin. High-wage workers tend to be much better educated than low-wage workers, in part because they generally had better educational opportunities when they were younger. In addition, high-wage workers tend to hold more interesting and challenging jobs, precisely because they are better educated.

Consequently, it is not surprising that high-wage workers often work long hours even when faced with very high marginal tax rates. (For example, individuals working in academia are often observed to work long hours even though their pay is rather low compared with what they could have earned in other jobs that are also available to them.) Given the nature of high-wage jobs, it would also be reasonable to suppose that workers do not change the number of hours they work as much as low-wage workers do in response to changes in their marginal tax rates.

The extensive margin applies more to women than to men because they enter and leave the labor force more frequently than men do. This is especially true of married women. A

¹ The trade-off between efficiency and equity in taxation remains if the labor supply elasticities of the high-wage workers are higher than the labor supply elasticities of the low-wage workers. Another issue is whether high-wage workers necessarily face higher marginal tax rates than low-wage workers, even if the graduated tax rate schedules in the OECD countries' income taxes would appear to suggest that they do. Income taxes are riddled with exclusions and deductions that lower the effective marginal tax rates as incomes rise, as described in Chapter 14 of the textbook. (See Røed and Strøm (2002) for more details on effective marginal income tax rates in the OECD countries). We ignore this possibility here to focus on the difference in labor supply elasticities among high- and low-wage workers.

common result found in labor market studies is that married women respond far more to changes in wages on the extensive margin than on the intensive margin. In addition, marriages are not random. High-skilled, high-wage women are more likely to marry high-skilled, high-wage men, and low-skilled low-wage women are more likely to marry low-skilled, low-wage men. Therefore, it is reasonable to suppose that high-wage married women would be less responsive to changes in marginal tax rates on the extensive margin than low-wage married women because they have less need to supplement family income.

A study of married couples in Italy by Aaberge, Colombino and Strøm (2000) supports these suppositions. The table below reports their estimates of the men's and women's labor supply elasticities on the intensive and extensive margins. The elasticities are defined as the relative change in labor supply when the wage rate is increased by 1%. In the calculation of the elasticities, all details of the tax system are taken into account and also that not all hours in the market are equally available for some couples.

Notice that men and women in the poorest households respond more to changes in wages on both margins than do men and women in the richest households. The really substantial differences are between the poorest and richest women, however, and the differences are far greater on the extensive than on the intensive margin.² Given this pattern of elasticities, it would appear that reducing the tax rates on the poorest households and compensating for the loss in tax revenue by increasing the tax rates on the richest households may increase labor supply, reduce deadweight efficiency loss, and also reduce inequality, at least in Italy. A more progressive tax system may improve both efficiency and equality, mostly because of the labor supply responses of married women.

Table E16.2: Labor supply elasticities - Married couples (Italy, 1987)

	Male	Female
Extensive margin:		
Mean	0.04	0.65
10% poorest households	0.05	2.83
10% richest households	0.00	0.03
Intensive margin:		
Mean	0.01	0.08
10% poorest households	0.02	0.47
10% richest households	-0.03	0.01

² While the entries in the table are actual rather than compensated labor supply elasticities, the differences in the women's elasticities are large enough on both margins to suggest that the compensated elasticities are also substantially different.

The prospect of simultaneous gains in efficiency and equity must be tempered, however, by one other consideration. Studies by Aaaberger, Colombino, Strøm and Wennemo (1998) and Dagsvik and Strøm (2006) find that high-skilled workers tend to select higher paying jobs when their marginal tax rates are reduced. Assuming that wage rates reflect workers' productivity, this suggests that less progressive taxes may increase the productivity of the economy. Therefore, it is not clear whether an increase in the highest marginal income tax rates coupled with a decrease in the lowest marginal income tax rates really would increase economic efficiency. The trade-off between efficiency and equity in income taxation remains an open question.

Questions

- 1) Give examples of factors other than after-tax wages that may affect an individual's supply of labor at the extensive as well as the intensive margin.
- 2) What is the definition of a progressive income tax?
- 3) What is the interpretation of the negative labor supply elasticity on the intensive margin for married men in the 10% richest households?

References

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