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## Income guarantees and the equity-efficiency tradeoff

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# **Luxembourg Income Study Working Paper Series**

**Working Paper No. 348**

**Income Guarantees and the Equity-Efficiency Tradeoff**

**Steven Pressman**

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## Chapter 10

# Income Guarantees and the Equity-Efficiency Tradeoff

Steven Pressman

### Introduction

This chapter examines the tradeoffs inherent in guaranteed income proposals. Its perspective is international, using standardized income data across nations and asking whether economic efficiency suffers when governments make greater efforts to protect the poor. It is recognized that this is not a perfect test of the guaranteed income plan, in large part because we are not actually testing anything about a guaranteed income plan. Nonetheless, we are testing one of the main issues surrounding guaranteed income plans, the equity–efficiency tradeoff raised by Okun—if governments do provide greater income supports, will economic efficiency suffer?

The first section provides a brief history of the rise and fall of guaranteed income plans. Then the Luxembourg Income Study (LIS), the main database for the empirical work of this chapter, is described. Using the LIS we see how governments of different countries affect income equality, and how this effort has changed over time. Section 4 examines whether those countries putting more fiscal effort into maintaining the incomes of its citizens operate less efficiently. Finally, Section 5 summarizes our findings and concludes.

### 1. Guaranteed Income and Its Critics

Guaranteed income plans and the negative income tax first began to attract attention in the United States during the 1960s. Robert Theobald (1963, 1966) pushed for guaranteed incomes arguing that automation would make it impossible to create enough jobs with decent incomes for the large majority of the labor force. As technology made workers redundant, unemployment would rise. Even those able to keep their jobs would receive lower wages. For this reason, Theobald concluded, the government would have to make some basic income floor a right for all citizens.<sup>1</sup> It could do this in a number of different ways; but the main options were government transfer payments or tax rebates (leading to negative taxes owed) to low-income households.

Conservative economist Milton Friedman (1962: 177–195) gave a big boost to the negative income tax when he came out in favor of it. Friedman saw this policy as a way to end the stigma of welfare, mitigate the disincentives associated with the United States welfare system, and reduce the confusing panoply of welfare programs. The main objection to the negative income tax for Friedman was political rather than economic—people were unlikely to vote for a redistributive scheme whose main beneficiaries would be a small minority of citizens.

Not surprisingly, many liberal economists added their support. Keynesian James Tobin (1966), normally an adversary of Friedman, supported a guaranteed income for essentially the same reasons as Friedman. He even began to address some of the practical issues for designing such a plan (Tobin, Pechman and Mieszkowski 1967). Other economists supported the plan for pragmatic and humanitarian reasons—because it put income quickly into the hands of those who needed it (Hildebrand 1967) and because it helped to provide a decent and dignified existence to all families (Hayes 1969).

With the idea gaining increasing attention, President Johnson established a National Commission on Guaranteed Incomes in 1967. The commission, comprised of business leaders, labor leaders and other prominent figures, unanimously supported a guaranteed income to assist poor United States families.

But there was never unanimous support for a guaranteed income plan. Criticism came from both the left and the right; and much of this criticism involved the undesirable incentives that result from government income guarantees.

The right tended to focus on both the cost of a guaranteed income plan and the fact that the plan would destroy the American work ethic. There were also objections that the plan would make Americans overly dependent on government and that it treated the symptoms of poverty rather than the low wages that caused poverty (see Vadakin 1968).

On the left, Robert Lekachman (1971) noted that guaranteed income plans contained an important contradiction. These plans sought to help families in need, but they did not want to damage work incentives. However, the more help that needy families received, the less incentive they had to work and earn money. Lekachman thus anticipated the key issue set forth by Arthur Okun, who identified a big tradeoff between equality and efficiency. In a famous and much quoted passage, Okun (1975: 91ff.) had us consider a leaky bucket, which we use to transfer income from the wealthy to others.

First consider the American families who make up the bottom 20 percent of the income distribution. Their after-tax incomes in 1974 were less than \$7,000, averaging about \$5,000. Now consider the top 5 percent of families in the income pyramid; they had after-tax incomes ranging upward from about \$28,000 and averaging about \$45,000. A proposal is made to levy an added tax averaging \$4,000 (about 9 percent) on the income of the affluent families in an effort to aid the low-income families. Since the low-income group I selected has four times as many families as the affluent group, that should, in principle, finance a \$1,000 grant for the average low-income family. However, the

program has an unsolved technological problem: the money must be carried from the rich to the poor in a leaky bucket. Some of it will simply disappear in transit, so the poor will not receive all the money that is taken from the rich. The average poor family will get less than \$1,000, while the average rich family gives up \$4,000. As we transfer incomes from wealthy families to poor families some of the water seeps out of the bucket. This is a net loss for society.

In the real world this loss is due to several factors (see Okun 1975: 96–100), but the basic problem is that guaranteed incomes reduce work effort and work incentives. First, with a guaranteed income, many people will opt for leisure rather than work. Less will get produced and therefore fewer goods will be available for all of us to share. Second, guaranteed incomes reduce the cost to workers of being fired. This threat serves as a “stick” that firms hold over workers and that forces them to work harder (Gordon 1996). With guaranteed incomes, workers should put in less effort since the financial consequences of losing a job is lower. Productivity is likely to suffer as a result. Third, generous benefits paid to those with low incomes will have to be paid for somehow. This means a rise in the top marginal tax rates, which reduces incentives to work, save and invest. Finally, redistribution may have psychological and sociological consequences. People dependent on government handouts become less self-reliant and more lazy (see Butler and Kondratas 1987; Murray 1984), causing productivity growth to suffer.

The death knell for guaranteed income plans, however, came in the late 1970s when results of the income maintenance experiments were made public. These experiments were conducted over a number of years in selected areas across the United States: New Jersey and Pennsylvania (1968–1972); rural areas in North Carolina and Iowa (1970–1972); Gary, Indiana (1971–1974); and Seattle and Denver (1970–1978). In each area, both a *control* group and an *experimental* group were selected. The experimental group received negative income tax payments and the control group did not. Payments to the experimental group varied so that it might be possible to measure the effect of greater income guarantees on work effort and other factors. The explicit purpose of this experiment was to see how behavior was affected by income guarantees.

As Robert Solow (1986) pointed out, the fact that these studies took place almost assured negative results. Economists know that giving people money will reduce labor supply. Both the income effect and the substitution effect guarantee this result. So, according to Solow, it was inevitable that the experiments would find that guaranteed incomes negatively affected work efforts; and it was also inevitable that the opponents of guaranteed incomes would use this to defeat any guaranteed income plan for the United States.

And this is exactly what happened. All of the four experiments found that a negative income tax reduced work effort. Husbands, on average, reduced their labor supply by 7 percent, while wives and female heads of house reduced their labor supply by 17 percent on average.

There are a number of problems, however, with these studies. First, as Burtless (1986) points out, because the experiments were temporary they may have caused

more people to opt for leisure than would be the case with a permanent guaranteed income. For short periods of time people may be willing to give up some income for greater leisure and not work due to the income guarantee. But over longer periods, people may not be willing to sacrifice the lower standards of material living associated with lower pay and more leisure. Also, employment provides psychic benefits beyond income that people are less likely to part with in the long run.

A second and related problem concerns the selection of participants, and whether a true controlled experiment was conducted. In a real experiment, subjects in the control group and the treatment group would be identical. But the guaranteed income experiments required people who were willing to be part of the study. It is reasonable that those people wanting to take advantage of income guarantees would more likely agree to participate in such a study. Thus the results from the experiment would be larger than real world results due to this flaw in experimental design.

A third problem with guaranteed income experiments is that they failed to control for various important factors known to affect labor supply decisions. As noted above, Solow (1986) pointed out that higher income in the private sector leads to reduced work efforts, so they failed to distinguish income and substitution effects.

Finally, as O'Connor (2001: 221) points out, the experiments were designed to test only for the negative consequences of the program. Any positive effects on morale, productivity, health, social relationships, etc. were deliberately not examined. More specifically, guaranteed incomes might allow women to end abusive marriages or allow parents to spend more time with their children.

As these debates over the income maintenance experiments were taking place, there was also a resurgence of interest in guaranteed income plans.<sup>2</sup> This renewed interest was sparked by practical as well as theoretical and moral concerns. At the practical level, Clark and Healy (1997) developed a set of possible guaranteed income plans for Ireland. Nobel laureate James Meade (1995) suggested such a plan for the United Kingdom; and the former Finance Minister of New Zealand included a guaranteed minimum income as part of his recent reform proposals (Douglas 1995).

From a moral perspective, some of this renewed interest probably stems from concerns about rising poverty and inequality in the late twentieth century and a sense that something must be done about these problems. Rising productivity growth in the late 1990s as well as large budget surpluses also made these proposals more viable. They gave the government two key sources of funds to finance a guaranteed income plan—the higher incomes of its citizens and its own budget surpluses.

## **2. The Luxembourg Income Study**

The Luxembourg Income Study began in April 1983 when the government of Luxembourg agreed to develop, and make available to social scientists, an international microdata set containing a large number of income and sociodemographic

variables. Until that time, most cross-national studies of income distribution and poverty were plagued with data problems because the national data that they employed defined key terms differently. For example, transfer income and in-kind benefits can be treated differently by different nations when they gather and report income data. More importantly, different nations can define income differently. Likewise, different nations can have different notions of what constitutes a family or household (e.g., do you actually have to be married to be a family?).

One goal in creating the LIS database was to employ common definitions and concepts so that variables are measured according to uniform standards across countries. As a result, researchers can be confident that the cross-national income data and socioeconomic variables that they are analyzing have been made as comparable as possible.

By early 2002, the LIS contained information on 26 nations: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Luxembourg, Mexico, the Netherlands, Norway, Poland, Russia, the Slovak Republic, Spain, Sweden, Switzerland, Taiwan, the United Kingdom, and the United States. Data for each country was originally derived from national household surveys similar to the United States Current Population Reports, or (in a few cases) from tax returns filed with the national revenue service. Datasets for additional countries are in the process of being added to the LIS.

Currently four waves of data are available for individual countries. Wave #1 contains datasets for countries for some year in the late 1970s or early 1980s. Wave #2 contains datasets for the mid-1980s. Wave #3 contains datasets for the late 1980s and early 1990s. Wave #4 contains country datasets for the mid-1990s. Wave #5, centered around the year 2000, just began to come online in 2002. Finally, historical data from the late 1960s and/or early to mid-1970s is available for a few countries.

LIS data is available for more than 100 income variables and nearly 100 socio-demographic variables. Wage and salary incomes are contained in the database for households as well as for different household members. In addition, the dataset includes information on in-kind earnings, property income, alimony and child support, pension income, employer social insurance contributions, and numerous government transfer payments and in-kind benefits such as child allowances, Food Stamps and social security. There is also information on five different tax payments. Demographic variables are available for factors such as the education level of household members; the industries and occupations where adults in the family are employed; the ages of family members; household size, ethnicity and race; and the marital status of the family or household head.<sup>3</sup>

This wealth of comparable information permits researchers to do cross-national studies of poverty and income distribution, and to address empirically questions about the causes of poverty and changing income distribution, with the knowledge that the cross-national data they are using is as comparable as possible.

This data provides a good *natural experiment* of the impact that guaranteed incomes will likely have on efficiency. Countries differ considerably in the

benefits they provide to their citizens and the degree to which they reduce income inequality. The effort that individual countries have made in this direction also differs over time. Using the LIS we will test whether increased government efforts to increase equity and maintain incomes has had an impact on economic efficiency.

### 3. Government Policy and Income Distribution

There are various different ways to measure income inequality. The Gini Coefficient and the coefficient of variation are two of the most familiar and the most popular inequality measures. The Gini Coefficient measures the distance between the Lorenz Curve and the diagonal of perfect income equality. The coefficient of variation measures the standard deviation relative to the mean. But these two popular measures of income inequality, as well as other attempts at measuring income inequality, suffer from one defect or another. Some of these problems are conceptual; other are statistical. Statistically, the Gini Coefficient cannot be decomposed to distinguish between within group causes of rising inequality and changes in inequality due to changes in the size of various groups. Conceptually, the Gini coefficient gives greatest weight to the densest part of the income distribution while the coefficient of variation gives extra weight to the top part of the income distribution (Lyngstad et al. 1997: 13).

For purposes of evaluating guaranteed income programs, focus should not be on the entire income distribution; rather focus should be on those at the bottom of the distribution. These are the people most likely to be helped as a result of guaranteed incomes. And these are the people whose behavior will most likely be affected by a guaranteed income plan.

Guaranteed income plans differ in terms of who is affected and the extent to which they are affected by any program. We will examine the population receiving below 50 percent of *adjusted* income. This is the Organization for Economic Cooperation and Development (OECD) definition of poverty, and is also a reasonable goal for a guaranteed income program—bringing the income level of every household up to the poverty line.

Income must be adjusted to take account of the different income needs of households of different sizes. A family of four needs more income than a single individual. But does it need four times more, or are there economies of scale in consumption? If there are *no* economies of scale, we look at *per capita* household income. If there are some economies of scale, we need to make some adjustment for these. We employ the recommended Organisation for Economic Co-operation and Development (OECD) (1982) adjustments for family size in studies of income distribution and family size adjustment that are implicit in the Orshansky (1969) definition of poverty. That is, it is assumed that additional adults in the household need 70 percent of the income of the first adult and that each child requires 50 percent of the income of the first adult.<sup>4</sup>

Tables 10.1 and 10.2 begin by presenting some basic data on the size of the low-income population both before (Table 10.1) and after (Table 10.2) the govern-



ment has impacted household income.<sup>5</sup> The 11 countries included in these tables were chosen because these are the LIS countries for which standardized manufacturing productivity data is available, and so will allow us to compare redistributive efforts with efficiency issues in a cross-national context.

Several things are noteworthy in these two tables. First, looking at just factor income (Table 10.1), poverty rates are both very high and relatively stable across nations. For our 11 countries, pre-fiscal policy, the average (unweighted) poverty rate is more than one-third. Over time there appears to be an upward trend in household poverty, not surprising given the rise in inequality over this time period. What is surprising, however, is the fact that the two countries (Canada and the United States) with the lowest poverty rates pre-fisc, or using factor income, have the highest poverty rates post-fisc or using disposable income (see Table 10.2). Tables 10.1 and 10.2 also show the greater fiscal policy efforts at reducing poverty over time. Although poverty rates still increase over time in Table 10.2, the magnitude of that increase has diminished. Based on factor incomes, average (unweighted) poverty rates rise by 4.8 percentage points from Wave #1 to Wave #4. But based on disposable incomes, the increase is only 1.5 percentage points. Thus fiscal policy throughout the world has countered a rise in income inequality at the lower end of the distribution.

Fiscal policy achieves this in two ways. First, governments tend to prop up the incomes of the poor through numerous spending programs, and second, governments employ progressive tax structures. In previous work (Pressman 2002), I have shown how these two redistributive tools differ from one nation to

**Table 10.1 Poverty rates based on factor income (pre-fiscal policy)**

Country	Wave #1	Wave #2	Wave #3	Wave #4	Average
<b>Belgium</b>	N.A	34.0%	37.7%	37.7%	36.5%
<b>Canada</b>	26.8%	29.6%	31.1%	33.7%	30.3%
<b>Denmark</b>	N.A	36.6%	38.9%	40.0%	38.5%
<b>France</b>	31.0%	35.2%	35.6%	36.5%	34.6%
<b>Germany</b>	33.8%	35.2%	32.0%	37.0%	34.5%
<b>Italy</b>	N.A	32.2%	30.7%	37.5%	33.5%
<b>Netherlands</b>	39.6%	39.8%	39.7%	39.4%	39.6%
<b>Norway</b>	33.0%	31.3%	33.0%	36.3%	33.4%
<b>Sweden</b>	35.0%	36.0%	38.2%	41.0%	37.6%
<b>U.K.</b>	33.5%	40.0%	38.4%	41.4%	38.3%
<b>U.S.</b>	29.7%	30.8%	32.0%	32.6%	31.3%
<b>Average</b>	32.8%	34.6%	35.2%	37.6%	35.0%

Source: Luxembourg Income Study

Note: Column averages are unweighted averages.

**Table 10.2 Poverty rates based on disposable income (post-fiscal policy)**

Country	Wave #1	Wave #2	Wave #3	Wave #4	Average
<b>Belgium</b>	N.A	4.8%	5.5%	8.7%	6.3%
<b>Canada</b>	12.5%	11.8%	11.7%	11.7%	11.9%
<b>Denmark</b>	N.A	7.7%	6.9%	8.9%	7.8%
<b>France</b>	7.9%	12.7%	9.8%	8.4%	9.7%
<b>Germany</b>	6.6%	6.3%	5.9%	7.8%	6.7%
<b>Italy</b>	N.A.	9.8%	9.0%	12.8%	10.5%
<b>Netherlands</b>	7.3%	6.5%	6.2%	8.0%	7.0%
<b>Norway</b>	5.3%	4.7%	4.6%	5.8%	5.1%
<b>Sweden</b>	5.6%	8.0%	7.3%	8.7%	7.4%
<b>U.K.</b>	5.7%	7.1%	11.7%	10.6%	8.8%
<b>U.S.</b>	17.0%	18.6%	18.3%	19.0%	18.2%
<b>Average</b>	8.5%	8.9%	8.8%	10.0%	9.0%

*Source:* Luxembourg Income Study

another; but despite these differences, in virtually every nation it is government spending more than taxes that achieves the largest part of any redistribution by the state.

Tables 10.3 and 10.4 attempt to summarize the data in Tables 10.1 and 10.2 by looking at the extent to which poverty was reduced across countries and over time. Table 10.3 is derived by subtraction from Tables 10.1 and 10.2. It shows the extent to which fiscal actions reduce national poverty rates in the aggregate. Table 10.4 takes a more microeconomic approach. After identifying particular poor households based on their factor incomes, it calculates what fraction of these poor households escape poverty due to fiscal actions.

Tables 10.3 and 10.4 tell an identical story. They show that the United States and Canada make the least effort at propping up the incomes of the poor, while the four Scandinavian countries make the greatest effort. In the aggregate, over time there is slightly greater effort at mitigating poverty by the use of fiscal policy. Table 10.3 shows that in Wave #1 fiscal policy reduced poverty on average by 24.3 percentage points. This slowly increased with each wave, so that by Wave #4 fiscal policy was reducing poverty by 27.5 percentage points. Table 10.4 also shows that over time fiscal policy has brought a greater percentage of households out of poverty—75.3 percent in Wave #1 versus 76.1 percent in Wave #4—although here the increase has not been continuous.

National efforts at poverty reduction also differ over time. Most European nations have exerted more effort at reducing poverty over time. Especially noteworthy is the large increase in Canada's fiscal efforts—from 14.3 percentage points in Wave #1 of the LIS to 22 percentage points in Wave #4 (Table 10.3). This is paralleled by the rising percentage of poor households removed from

poverty due to fiscal policy—from 53.6 percent in Wave #1 to 66.8 percent in Wave #4 (Table 10.4).

**Table 10.3 Poverty rate reduction due to fiscal policy**

Country	Wave #1	Wave #2	Wave #3	Wave #4	Average
<b>Belgium</b>	N.A.	29.2%	32.2%	29.0%	30.1%
<b>Canada</b>	14.3%	17.8%	19.4%	22.0%	18.4%
<b>Denmark</b>	N.A.	28.9%	32.0%	31.1%	30.7%
<b>France</b>	23.1%	22.5%	25.8%	28.1%	24.9%
<b>Germany</b>	27.2%	28.9%	26.1%	29.2%	27.9%
<b>Italy</b>	N.A.	22.4%	21.7%	24.7%	22.9%
<b>Netherlands</b>	32.3%	33.3%	33.5%	31.4%	32.6%
<b>Norway</b>	27.7%	26.6%	28.4%	30.5%	28.3%
<b>Sweden</b>	29.4%	28.0%	31.9%	32.3%	30.4%
<b>U.K.</b>	27.8%	32.9%	26.7%	30.8%	29.6%
<b>U.S.</b>	12.7%	12.2%	12.7%	13.6%	12.8%
<b>Average</b>	24.3%	25.7%	26.4%	27.5%	26.2%

Source: Luxembourg Income Study

**Table 10.4 Percent of factor income: Poor who escape poverty due to fiscal policy**

Country	Wave #1	Wave #2	Wave #3	Wave #4	Average
<b>Belgium</b>	N.A.	87.9%	86.5%	78.4%	84.3%
<b>Canada</b>	53.6%	61.2%	63.5%	66.8%	61.3%
<b>Denmark</b>	N.A.	80.4%	83.3%	80.7%	81.5%
<b>France</b>	78.7%	68.5%	76.9%	81.7%	76.5%
<b>Germany</b>	83.4%	84.0%	83.5%	81.6%	83.1%
<b>Italy</b>	N.A.	77.6%	79.6%	76.2%	77.8%
<b>Netherlands</b>	82.7%	86.9%	86.1%	80.7%	84.1%
<b>Norway</b>	84.9%	85.7%	87.4%	85.6%	85.9%
<b>Sweden</b>	89.3%	84.7%	84.0%	82.3%	85.1%
<b>U.K.</b>	84.3%	84.9%	71.7%	77.0%	79.5%
<b>U.S.</b>	45.1%	44.3%	47.8%	46.6%	46.0%
<b>Average</b>	75.3%	76.9%	77.3%	76.1%	76.8%

Source: Luxembourg Income Study

#### **4. Does Greater Equity Entail Greater Inefficiency?**

We have seen that some countries put greater effort into equalizing incomes. And we have also seen that efforts at reducing poverty have generally increased over time. The big question raised by Okun (1975) is whether any relationship exists between such efforts and overall economic efficiency.

Productivity is the main measure of efficiency used by economists. As many people have pointed out (see Blinder 1990, Seidman 1990, Madrick 1995), more than anything else it is productivity that determines national living standards. And it is the growth of productivity that determines how much living standards will improve from year to year. Given the importance of compounding, higher rates of productivity growth over a long period of time will lead to much larger future living standards. Stagnant, or slowly growing productivity growth, in contrast, will lead to slow improvements in material well-being. Our children and grandchildren will do only slightly better than we do if our efficiency in production fails to grow by very much.

Secondarily, there is the question of whether work incentives will be affected adversely. Guaranteed incomes may reduce the willingness of people to work. In addition, the financing of any redistributive scheme may create an incentive problem as a result of the fact that taxes must go up to finance the redistribution.

This section focuses on whether a guaranteed income plan might adversely affect productivity growth.<sup>6</sup> We look at individual countries over time, comparing their productivity performance to their efforts at redistribution (as measured in the previous section). We also look at cross-country differences in redistribution in order to see whether or not those countries tending (over a long time) to make greater redistributive efforts suffer from any loss of efficiency.

Table 10.5 helps us in this endeavor. Due to the suspect nature of productivity measures in services, it presents data on productivity growth in the manufacturing sector only for our 11 nations over the time period covered by the LIS.

The data in Table 10.5 was constructed to make the comparisons with earlier tables as easy as possible to follow. For example, for Sweden the first data point in Tables 10.1–10.4 came from 1980, the Wave #1 LIS data set for Sweden. Since 1980 was used in Tables 10.1–10.4, 1980 was chosen as the focal point for Sweden in the column of Table 10.5 labeled “Wave #1.” The productivity growth data reported there is the five-year average surrounding 1980 (the years 1978 through 1982). This was done for several reasons. First, productivity growth is known to vary over the business cycle (Basu and Fernald 2000), so taking five-year average growth rates will control for this. Second, tax and spending policies change only slowly over time. Thus, the programs in effect in Sweden in 1980 were likely to be quite similar to those in all the years between 1978 and 1982. Similarly, for Sweden in Wave #2, 1987 is our focal point, and the figure reported in Table 10.5 represents average manufacturing productivity growth rates from 1985 to 1989. All the figures in Table 10.5 were calculated in this manner.

Comparing Table 10.4 (as well as Table 10.3) with Table 10.5 it is hard to find any correlations between government income guarantees and productivity growth.

From a cross-sectional perspective, the two countries that do the least to assist poor households (the United States and Canada) do not experience greater productivity growth. The United States, which does the very least to help the poor, has slightly below average productivity growth rates. Canada does poorly on productivity growth as well as on redistributive fiscal policy. At the other extreme, three of the four countries that do the most to guarantee poverty-level incomes—Belgium, the Netherlands, and Sweden—also do very well in terms of productivity growth. The fourth country with strong redistributive efforts, Norway, actually does close to the worst in terms of productivity growth.

Examining the set of 11 countries over time also shows little relationship between income supports and economic efficiency. Between Wave #1 and Wave #2 government fiscal policy brings *more* households out of poverty while at the same time productivity growth rises substantially. Between Wave #2 and Wave #3 government income supports increase slightly but productivity growth declines slightly. Finally, between Wave #3 and Wave #4, income support declines (on Table 10.4) while productivity growth rises. However, the rise in productivity growth on average here is due primarily to the absence of data for Denmark, by far the worst performer in terms of productivity growth. Adding Denmark's average productivity growth over the period from 1985–1993 would have given us a figure of 2.9 percent at the bottom of the Wave #4 column, not substantially different from the Wave #3 average.

Looking at particular countries over time also reveals little equity–efficiency tradeoff. For Belgium, as government efforts to reduce poverty decline between Wave #2 and Wave #4, productivity growth first drops sharply and then rebounds somewhat. For Canada, government efforts to reduce poverty rise over time, but

**Table 10.5 Productivity growth rates in manufacturing**

Country	Wave #1	Wave #2	Wave #3	Wave #4	Average
<b>Belgium</b>	N.A.	5.8%	2.3%	3.6%	3.9%
<b>Canada</b>	1.7%	1.3%	2.4%	1.8%	1.8%
<b>Denmark</b>	N.A.	0.7%	1.2%*	N.A.	0.9%
<b>France</b>	3.7%	3.2%	3.8%	3.5%	3.6%
<b>Germany</b>	1.9%	2.6%	2.6%	2.5%	2.4%
<b>Italy</b>	N.A.	4.2%	3.5%	2.5%	3.4%
<b>Netherlands</b>	5.2%	2.5%	1.7%	4.6%	3.5%
<b>Norway</b>	1.3%	2.3%	1.8%	0.4%	1.5%
<b>Sweden</b>	3.9%	1.8%	4.4%	5.9%	4.0%
<b>U.K.</b>	1.4%	4.1%	4.8%	2.3%	3.2%
<b>U.S.</b>	1.1%	3.3%	2.5%	3.7%	2.7%
<b>Average</b>	2.5%	2.9%	2.8%	3.1%	2.8%

Source: U.S. Bureau of Labor Statistics website, international statistics

there is little overall change in productivity growth. For the Netherlands and Sweden, a fall in government poverty-reduction efforts between Wave #3 and Wave #4 increases productivity growth. But similar declines in Germany have no impact on productivity growth, while in France it appears that greater government efforts at reducing poverty are associated with rising productivity growth rates.

Regressing our equity and efficiency measures from Tables 10.4 and 10.5 yields an  $R^2$  of only .01, a regression coefficient of 1.16, and a standard error of 1.72. Although not statistically significant, this analysis points to a *positive* relationship between equity efforts and efficiency. We can conclude from this that there does not seem to be a noticeable equity–efficiency tradeoff across nations and over time.

Table 10.6 employs a slighter broader view of productivity growth. Table 10.6 is broader than Table 10.5 in several respects. First, it looks at the whole economy rather than just the manufacturing sector. Second, it indirectly takes account of some work disincentives in guaranteed income plans. If people prefer leisure to labor, greater redistribution should reduce labor and increase leisure.<sup>7</sup> Greater redistribution also requires higher taxes on the well-to-do, and people with high earnings may relocate to other countries that impose lower taxes. If raising the top tax rate causes workers with high and rising incomes to emigrate, GDP growth and GDP growth per worker will be adversely affected, since removing high income (and more productive workers) from an average will lower that average. Some possible real-world examples of this are Sweden and the United Kingdom in 1960s, where marginal tax rates over 90 percent may have led to talented individuals to leave the country. High tax rates can also lead people to focus on tax avoidance rather than production, and this too may adversely affect productivity growth.

Like Table 10.5, Table 10.6 was constructed to make comparisons with earlier tables easy to follow. The data reported are five-year averages for the year surrounding our LIS data points. Again, this was done on the assumptions that government tax and spending policies change slowly over time, and that the programs prevailing in any one year were similar in contiguous years.

**Table 10.6 Growth of real GDP per worker**

Country	Wave #1	Wave #2	Wave #3	Wave #4	Average
Canada	-0.2%	3.2%	0.4%	1.2%	1.2%
France	0.6%	0.8%	1.3%	1.4%	1.0%
Germany	0.3%	0.9%	1.8%	2.5%	1.4%
Italy	N.A.	2.5%	1.7%	2.3%	2.2%
U.K.	0.6%	3.8%	1.9%	1.6%	2.0%
U.S.	0.6%	2.8%	0.9%	1.3%	1.4%
Average	0.4%	2.3%	1.3%	1.7%	1.5%

Source: Penn World Tables; IMF, *World Economic Outlook*, May 1999.

Comparing Tables 10.4 and 10.6 indicates little correlation between the growth of GDP per capita and government redistribution efforts. The United States and Canada, which do the least to protect the living standard of its households, do not experience superior levels of economic growth per capita. In fact, both the United States and Canada perform below the average of the six countries in Table 10.6. At the other extreme, of the six countries for which data is available on GDP growth per worker, three made above average efforts in removing households from poverty: Germany, Italy, and the United Kingdom. Two of these had the highest growth rates in Table 10.6.

Looking at productivity growth and government income support over time also reveals little tradeoff between these two variables. When fiscal policy did the least to remove households from poverty (Wave #1) GDP growth per worker was the lowest. Higher income supports in Wave #2 led to higher GDP growth per worker.

**Table 10.7 Equity efforts and efficiency**

Country	Equity Efforts	Efficiency Measure
Australia	68.1%	1.04%
Belgium	87.2%	1.54%
Canada	59.4%	1.56%
Denmark	81.9%	1.29%
Finland	86.3%	3.00%
France	74.7%	1.31%
Germany	83.6%	1.04%
Ireland	77.4%	2.56%
Italy	78.6%	2.10%
Luxembourg	88.6%	2.56%
Netherlands	85.2%	0.60%
Norway	86.0%	1.69%
Spain	72.8%	1.79%
Sweden	86.0%	1.44%
Switzerland	46.0%	1.55%
U.K.	80.3%	1.93%
U.S.	47.7%	0.92%
Averages	75.9%	1.64%

*Source:* Luxembourg Income Study for Equity Efforts (% poor households removed from poverty by fiscal policy); Penn World Table for Efficiency Measure (% change in real GDP per worker 1979–1990)

*Note:* Equity Efforts from Wave #1 through Wave #3 only

Looking at individual countries over time likewise provides little evidence that high income supports create productivity problems. The continual increase in Canadian income supports as we move from Wave #1 to Wave #4 are associated with mixed growth results. The increase in French income supports between Wave #2 and Wave #4 are associated with rising GDP growth per worker. In the United Kingdom, a sharp drop in income supports between Waves #2 and #3 is associated with a fall in GDP growth per worker, although an increase in income supports between Waves #3 and #4 is associated with a decline in the GDP growth per worker.

Supporting these observations, a cross-national and cross-temporal regression of data points in Table 10.6 with equity efforts in Table 10.4 finds little equity–efficiency tradeoff. Our  $R^2$  is a mere .02 indicating that redistribution efforts can explain little of the changes in productivity growth. Moreover, the relationship between productivity growth and redistribution is a positive one, although not statistically significant (the regression coefficient is 1.09, and the standard error is 1.54).

Finally, Table 10.7 provides an even broader and more inclusive examination of this question. It relies on the Penn World Tables, which contains national income and population data for virtually every country throughout the world. As with the LIS, the Penn World Tables have been constructed to make data as comparable as possible across nations and across time.

One efficiency measure contained in the Penn World Tables is the percentage growth of real GDP per worker. This variable shows how much more each worker (on average) produces in each country. The figures reported in column 3 of Table 10.7 are country averages for the years 1979–1990, roughly covering the same time period as Waves #1 through #3 of the LIS. Column 2 of Table 10.7 reports the percentage of households in each country removed from poverty due to government fiscal efforts. The figures here were calculated the same way as the figures from Table 10.4, and averaged over Waves #1 through #3 of the LIS only (since the Penn World Tables don't have efficiency data for the Wave #4 time period).

Eyeballing Table 10.7, there seems to be little relationship between these two variables. Six countries make great efforts to support incomes, bringing more than 85 percent of factor income poor households out of poverty: Belgium, Finland, Luxembourg, the Netherlands, Norway and Sweden. Of these, two perform considerably above average on our efficiency measure (Finland and Luxembourg), three perform close to average (Belgium, Norway and Sweden) and one does poorly (the Netherlands). At the other extreme, all three countries making the least effort at supporting incomes (Canada, Switzerland, and the United States), by bringing less than two-thirds of poor households out of poverty, have below average records of real GDP growth per capita. The position of the United States is noteworthy here. The United States does just about worse than every other country in Table 10. 7 in bringing households out of poverty; but it does not seem to have gained anything in terms of productivity or greater labor force participation. To the contrary, the United States also scores close to the bottom when it comes to enhanced efficiency. Regressing our equity and efficiency measures in Table 10.7 gives us an  $R^2$  of just .09 and a regression coefficient of plus .01, which although not



statistically significant, indicates a *positive* relationship between the two variables rather than an inverse relationship. While certainly not conclusive, these empirical results all point to the absence of a big tradeoff between equity and efficiency as postulated by Okun.

## 5. Summary and Conclusions

The results presented above need to be interpreted carefully, with full awareness of the data limitations used to obtain them. First, the lack of a big tradeoff between efficiency and equity only apply within the limits of the income guarantees currently provided by developed nations. It makes good sense to worry more about the impact of redistribution the greater the amount of redistribution that takes place. If income guarantees were raised to the median level of income or above, there would likely be a large disincentive effect on work effort. Yet, for countries like the United States, it appears that equity efforts can be increased substantially without any serious negative efficiency effects.

Second, the lack of a tradeoff may be due to large and important cultural differences among nations. In an important study on income distribution, Christopher Jencks et al. (1972: 227) conclude that economic success depends on luck to a large extent. Yet, "those who are lucky tend...to impute their success to skill." In those countries where people tend to recognize luck as a major component of success in economic life, or where guaranteed incomes are accepted and believed to be part of a civilized society or a needed form of social insurance, income guarantees may result in smaller work disincentives. This possibility surely requires more research, which will involve serious inquiry into national attitudes and beliefs across nations.

Third, those countries that redistribute the most income may employ particular policies that have less effect on efficiency than those countries that redistribute little income. Haveman (1988: 24) has identified several such policies: refundable negative income taxes, guaranteed incomes for the elderly, programs that require absent parents to pay for the support of their children, employment subsidies, and capital accounts for youths to be used for training and education. The limits of this chapter prohibit an even cursory examination of the particular policies that different countries use to support incomes. But this too is a topic worth further exploration.

Fourth, the lack of relationship between redistributive effort and productivity growth may be due to missing variables that also affect productivity growth. The main such variables identified by economists are investments in physical human capital. But alternatively, there may be no big tradeoff. Clark and Healy (1997: 44f.) suggest why one reason why this might be so. Reducing the labor supply of married women may improve the educational attainment of women, thereby improving productivity growth in the long run. It also may result in less frantic and more productive married male workers. And more supervision of adolescents may reduce crime, reducing the number of workers firms must hire just to prevent

crime. Meade (1995) and Esping-Anderson (1990) argue that a basic income program would add flexibility to the labor market by improving the efficient allocation of labor. Workers will be less likely to resist changes in employment practices and structures. There also may be positive effects on worker morale (Ayres 1966), or income guarantees may encourage risk-taking entrepreneurship because the costs of failure are lower. In addition, as Arrow (1980:8f.) and Galor and Zeira (1993) note, income supports may enable the poor to invest in human capital and be more productive in the future. Furthermore, by equalizing incomes, income guarantees should increase demand and employment, which also has efficiency effects since, as mentioned earlier, productivity growth is procyclical.

Finally, the empirical findings in this chapter are supported by a growing body of empirical research that fails to find any big tradeoffs between efficiency and equity. Although the overall results are still inconclusive (see Bertola 2000; Zweimüller 2000), a number of studies (Alesina and Roderick 1992, 1994; Perotti 1996; Garrison and Lee 1992; Persson and Tabellini 1992, 1994; Cory and Glyn 1994) have found that income equality does not harm economic growth. This should give some hope that efficiency concerns are not a fatal object to guaranteed income plans.<sup>8</sup>

**Appendix 11.1 Data years and data sources**

Country	Wave #1	Wave #2	Wave #3	Wave #4	Source
<b>Belgium</b>	N.A.	1985	1992	1997	Penn Survey of the Centre for Social Policy
<b>Canada</b>	1981	1987	1991	1994	Survey of Consumer Finances
<b>Denmark</b>	N.A.	1987	1992	1995	Income Tax Survey
<b>France</b>	1981	1984	1989	1994	Family Budget Survey
<b>Germany</b>	1981	1984	1989	1994	German Transfer Survey (1981); German Social Economic Panel Study (1984, 1989, 1994)
<b>Italy</b>	N.A.	1986	1991	1995	Bank of Italy Survey
<b>Netherlands</b>	1983	1987	1991	1994	Socioeconomic Panel
<b>Norway</b>	1979	1986	1991	1995	Income and Property Distribution Survey
<b>Sweden</b>	1981	1987	1992	1995	Income Distribution Survey
<b>United Kingdom</b>	1979	1986	1991	1995	Family Expenditure Survey
<b>United States</b>	1979	1986	1991	1994	March Current Population Survey

**Notes**

<sup>1</sup> Similar arguments have been made more recently by Jeremy Rifkin (1995).

<sup>2</sup> See Widerquist and Lewis (1997); Reynolds and Healy (1995); Clark and Healy (1997); Murray (1997); Van Parijs (1992, 1995); Lerner et al. (1999); Groot and Vander Veen (2001).

<sup>3</sup> For more information about the Luxembourg Income Study, and for information on how to access the LIS databases, see Smeeding et al. (1985, 1988) and the LIS homepage at [www.lis.ceps.lu](http://www.lis.ceps.lu).

<sup>4</sup> Some recent research (Ruggles 1990) has found that there are greater economies of scale in household living arrangements than is reflected in the OECD and Orshansky adjustments. This work argues for using the square root of household members to adjust for household size. That is, adjusted household income,  $Y_A = Y_D / \sqrt{n}$  where  $Y_A$  = adjusted income  $Y_D$  = disposable income and  $n$  = household size. Sensitivity analysis performed by

the author indicates that the choice of an adjustment factor makes little difference for the overall results. Actual numbers differ, but relative positions remain pretty much the same. This is supported by other findings that cross-national measures of poverty are not very sensitive to equivalence scales used (Buhmann et al. 1988).

<sup>5</sup> See Appendix 11.1 for data years and original sources of the data.

<sup>6</sup> A companion paper (Pressman 2002–2003) looks in more detail at the labor force impact of income supports. In particular, it examines whether guaranteed incomes affect labor force participation and, thereby, economic growth. This paper finds little relationship between these two variables.

<sup>7</sup> This impact is not discussed here, but it is discussed in Pressman (2002–2003).

<sup>8</sup> The author thanks participants at the 2002 BIG conference in New York as well as Mark Setterfield for comments on an earlier version of this chapter.

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