# A Theoretical Approach to the Equity vs. Efficiency Argument for Income Taxes

Ahmed Waris al-Majid 25-April-2013



April 2013

Submitted by: Ahmed Waris al-Majid 11375007

Department of Economics and Social Sciences
BRAC University

This thesis is submitted to the Department of Economics and Social Sciences	of BRAC University in
partial fulfillment of the degree of Master of Science in Applied Economics (1	MSAE).

Submitted to:	
	Dr. Wasiqur Rahman Khan
Associate Professor,	Department of Economics and Social Science
	BRAC Univeristy

Date of submission: 25 April 2013

## Acknowledgements

I would like to thank the company where I work for giving me the required space to continue my studies. It was also the office that was the source of what ignited my thoughts centering this whole topic, Robert B. Reich's book, "Supercapitalism".

My parents, for having been my support throughout, this paper will not have been if not for them.

# **Table of Contents**

Abstract	2
1. Introduction	
2. Methodology	5
2.1 Theoretical Aspect of Income Taxes	5
2.1.1 Assuming constant inequality	7
2.1.2 Assuming inequality that is not constant	8
2.1.3 Taxing Inequality	13
2.1.4 Role of a Government	17
2.1.5 The People's Reaction	17
3. Conclusion	18

## **Abstract**

Since the start of the economic crisis, many economists had wondered about the best way to get out of this situation. Seeing the massive movements directed at inequality, this author wondered if inequality was built into the system or a consequence of policy decisions. This paper was written in the hope of, atleast partially, answering this question.

#### Introduction

The rising inequality through the 19th century in the United States was seemingly answered following the Great Depression of the 1930s by what is known as the New Deal. It was a period when inequality was one of the major issues to be tackled. The highest incomes were taxed at rates of 90%+. It is during this period that saw inequality, both income and wealth, not being focused on as the terms of the New Deal meant that there were fewer people who were suffering the consequences of inequality. The consequent rise of what is referred to as neoliberal economics saw tax rates for the top earners being slashed as economists of that period argued that high taxes were detrimental to economic efficiency. However, the arguments for efficiency may have had an unseen and non-forecast side effect of worsening inequality as the periods since the New Deal was repealed saw inequality worsening. In the same period, the United States government saw ever increasing deficits, with calls by economists to cut what is referred to as entitlement programs.

The debate to ensure that taxation is fair, equal and proportionate has been a constant topic of discussion amongst economists. Issues of who should pay, what is to be paid for, and how the payments are to be made, have various economists of different schools for and against them to varying degrees. Thus the arguments are invariably a reflection of the school of thought that the economist making the arguments subscribe to.

The source of inequality is not exactly known, however, numerous studies have been conducted in this regard and there are a few hints as to what leads to income inequality. "Expertise, productiveness and work experience, inheritance, gender, and race have had a strong influence on distribution of personal income", according to the US Census Bureau (2006), "in the United States as many other countries." This, however, fails to tell the actual story. Is income inequality just a result of these factors or is it built into the economic system itself?

The primary method of achieving economic equality has been taxation. In finer detail, it is not taxation in and of itself that alone can be used to achieve parity in economic status. Any mechanism that seeks to redistribute the share of costs incurred and benefits gained in carrying out any economic activity can be seen as a redistribution mechanism. In that respect, taxation policy is a redistribution mechanism that has, among its aims, that of reducing inequality. Redistribution can be achieved not just by direct transfers, but also through many government services, many of which are funded by taxes or payments to the government.

The type of inequality needs to be defined here. Inequality can be of two types – income and wealth. One relates to the periodic flow of "exchange value", while the other to the stock of "exchange value" accumulated over time.

The flow of income to wealth can be easily seen and understood, however, the conversion of wealth to income is open to a wide number of conditions that make the conversion of wealth to larger flows of income an uncertain factor. Levying an income tax can, from an administrative point of view at the least, be much simpler compared to a wealth tax. It is for this reason, primarily, that income taxes are preferred to wealth taxes. However, in this era of free - flow of information and the numerous technologies devised to enable the collection and exchange of information, it is entirely possible that one's economic status at any one period can be determined with a high degree of precision, given the rules are properly defined. This means that a wealth tax should, from an administrative point of view, be an enforceable policy.

Taxation is carried out primarily to fund various government activities. Defense, both civil and military, healthcare, social safety nets, and education, are just some of the ends towards which all state revenue is channeled. The aim of any government program is to ensure that the needs of the inhabitants of that nation are properly met.

Taxing wealth directly is a fairly straightforward proposition. Arguably, a wealth tax would seemingly fail to target the source of economic inequality. For this reason, progressive forms of taxation have been devised so as to ensure that inequality itself is reduced or does not increase. However, progressive income taxation has simply slowed the rise of income inequality.

As argued by Ian Ayres and Aaron S. Edlin in their Op-Ed article, "Don't Tax the Rich. Tax Inequality Itself." in the New York Times, a form of taxation needs to be devised that will target income inequality, which by extension will target wealth inequality as well by preventing those earning a much larger income to convert their earnings to wealth. In a response to Ayres and Edlin's article, Bernie Kent, in an article on the Forbes website, titled - A response to "Don't Tax the Rich. Tax the Inequality Itself.", state, "This could be accomplished through an estate tax or an inheritance tax (or even a wealth tax, but let's not get started down that path)." This argument focuses on a wholly different philosophical standpoint that this paper is not designed to look into. This paper is written to try and answer a question that precedes arguments for and against wealth taxes – Is inequality a byproduct of the income tax regime itself with the size of the effect varying on the manner the policy is designed?

almost as old as income taxes. In recent times, income taxation regimes have become simpler as arguments for efficiency have prevailed over arguments for equity.

However, a government's primary mandate is the welfare of the citizens, and inhabitants, of that nation. Therefore, to sacrifice equity for efficiency means the government may not fulfill the obligations required to meet the mandate.

Before proceeding further, a clarification needs to be made. While this paper talks about inequality mostly, it is inequality that leads to inequity that should be viewed as the problem and not only inequality itself. It is of little consequence that there is inequality between a millionaire and a billionaire but the effects of the inequality between a millionaire and someone who earns the minimum wage can be of great social significance.

### Methodology

#### **Theoretical Aspect of Income Taxes**

We begin by looking at income taxes from a theoretical standpoint. We will assume a simplified setup, three classes of labor earning according to their endowed capital, a constant population, no inflation, and fixed earnings for the two types of endowments, capital and labor. The three classes of labor are divided by the type of productive capital owned – hard capital, human capital and no capital. This represents the three classes as:

- 1. Those who have access to the actual productive means land, machinery, valuables, etc. This class of people also have skilled labor to offer.
- 2. Those who have only skilled labor to offer.
- 3. Those who have only unskilled labor to offer.

The next simplification is that returns to capital and skilled labor are equal and assumed to be w.

Returns to unskilled labor are a fraction of the normal rate of return and are  $\frac{w}{m}$ 

Taxes are imposed on the three classes in the following manner -

- $-t_k$  on the class earning from both capital and human capital (upper or capital-owning class)
- $-t_l$  on the class earning from only human capital (middle or skilled labor owning class)

- no income taxes imposed on the class earning a fraction of the normal rate of return (unskilled labor owning class)
- $t_l < t_k$

Furthermore, income tax proceeds will be used to fund government activities that will affect the welfare of eligible individuals in the economy. In this example, for simplification, it will be assumed that tax proceeds will go to complementing the incomes of the lowest class from  $\frac{w}{m}$  to  $\frac{w}{5}$ .

A further assumption will be made here. The population distribution will be taken to be fixed for the three classes described, and are distributed in the following manner:

$$P = P_{k} + P_{l} + P_{u}$$

$$1 = \frac{(P_{k} + P_{l} + P_{u})}{P} = p_{k} + p_{l} + p_{u}$$

The population distribution will be distributed thus, with  $p_i$  denoting the population share that the particular economic class makes up. To complete the set of assumptions,  $p_k < p_l << p_u$ .

Proceeding with the analysis:

 $p_k$  of the population is composed of capital owners and therefore earn 2w (return from both capital owned and their own skilled labor). The income tax receipt from this class is then simply  $2t_kw\,p_kP$ .  $p_l$  of the population is middle class and their tax receipts amount to  $t_lw\,p_lP$ .

Finally, the lowest economic class receive the tax payments, in the form of various government programs. The lowest class is assumed to earn  $\frac{w}{m}$  and tax receipts are to be utilized such that their

incomes are complemented to  $\frac{w}{5}$ .

Income is to be complemented by  $\frac{w}{5} - \frac{w}{m} = \frac{w(m-5)}{5m}$  amount.

Payment for this is to be  $\frac{p_u P w (m-5)}{5 m}$ 

Then assuming equality of transfer:

$$2t_{k}w p_{k}P + t_{l}w p_{l}P = \frac{p_{u}Pw(m-5)}{5m}$$

$$2t_{k}p_{k} + t_{l}p_{l} = p_{u}\frac{(m-5)}{5m}$$

$$10mt_{k}p_{k} + 5mt_{l}p_{l} = p_{u}(m-5)$$

Taking a full derivative of the result gotten above:

$$p_{u} d m + (m-5) d p_{u} = 10 m (p_{k} d t_{k} + t_{k} d p_{k}) + (10 t_{k} p_{k} + 5 t_{l} p_{l}) d m + 5 m (p_{l} d t_{l} + t_{l} d p_{l})$$

$$\Rightarrow [p_{u} - (10 t_{k} p_{k} + 5 t_{l} p_{l})] d m + (m-5) d p_{u} = 10 m p_{k} d t_{k} + 5 m p_{l} d t_{l}$$

#### **Assuming constant inequality**

Assuming a constant equilibrium hence unchanging population share,

d 
$$p_i = 0$$
 therefore  
 $[p_u - (10t_k p_k + 5t_l p_l)] d m = 10m(p_k d t_k) + 5m(p_l d t_l)$ 

Assuming that the income inequality parameter, m, does not change, dm = 0, the equality reduces to  $\left(\frac{dt_l}{dt_k}\right) = -2\frac{p_k}{p_l}$ 

The result says that the tax policy at the static equilibrium should be such that tax rates move in the opposite directions and be directly proportional to the population shares of the class of people who own capital and those who do not. The factor 2 is a remnant of our assumption that those owning physical capital earn from their capital as well as their labor efforts and that it is equal to the labor return. In reality, those who own capital often earn a large amount more than those who have only labor to offer, both skilled and unskilled. For a tax rate decrease for the capital owners of 1%, taxes on the middle class need to be raised by ratio of population proportion of physical capital owners to middle

class \* income multiple that capital owners make. Explicitly,

$$\mathrm{d}\,t_l = -2 \star \frac{p_k}{p_l} \star (-0.01)$$

Assuming  $p_k = 0.05$  and,  $p_l = 0.4$  taxes will need to be raised by

$$dt_1 = -2*\frac{0.05}{0.4}*-0.01 = 0.0025$$

That is a 0.25% increase in taxes for the middle class given a 1% decrease in taxes on the upper class. This result is specific for the assumptions made here, that the capital owners make twice the normal rate of return and the population shares held by the respective classes, that the population is distributed with 5% of the people being capital-owners and 40% being middle class. This result argues against cutting taxes for the capital-owning class as it means that taxes will need to be raised for the middle class, perhaps even significantly so if capital returns are much larger than returns to labor, which is true for a large section of the returns to capital.

Turning to some real data from the Mean Household Income Received by Each Fifth and Top 5 Percent, All Races: 1967 to 2011 by the US Census Bureau, we see that average incomes for the year 2010 of the top 5% was USD 287,201, USD 78,877 for the fourth fifth of the population and USD 49,167 for the third fifth of the population. This gives us an estimate of the earnings ratio to be 4, which was 2 in our example. Putting in the population parameters, we have 5% as the upper class, 40% as the middle class, and 40% as the lowest class. 15% of the population, from the upper class, is left out due to the simplicity of the method used here. Assuming a 1% tax rate cut on the top class,

$$dt_{l} = -4 * \frac{0.05}{0.4} * dt_{k}$$

$$\Rightarrow -4 * \frac{0.05}{0.4} * (-0.01) = 0.005$$

A 0.5% tax rate increase on the middle class will be needed to keep the transfer payment balanced.

#### Assuming inequality that is not constant

The above analysis was done assuming that inequality does not change, assuming it does change, i.e.  $d m \neq 0$ 

$$[p_{u} - (10t_{k}p_{k} + 5t_{l}p_{l})] dm = 10m(p_{k}dt_{k}) + 5m(p_{l}dt_{l})$$

$$\Rightarrow dm = \frac{10m(p_{k}dt_{k}) + 5m(p_{l}dt_{l})}{p_{u} - (10t_{k}p_{k} + 5t_{l}p_{l})}$$

To see the effects of different tax policies on inequality, i.e. whether d*m* is greater or less than zero, the term on the right hand side of the equality needs to be analyzed. Assuming the numerator to be equal to or greater than 0, the denominator is

$$p_u - (10t_k p_k + 5t_l p_l)$$

Simplifying it,

$$p_u - (10t_k p_k + 5t_l p_l) = p_u - 5(2t_k p_k + t_l p_l)$$

Recall that the parameters 2 and 5 were encountered using the assumptions that those who own physical capital earn twice the normal rate of return and those earning a fraction of the normal rate of return will have their incomes complemented to a fifth of the normal rate of return, respectively.

The denominator being positive or negative depends on whether  $p_u > (10t_k p_k + 5t_l p_l)$  is true or not.  $t_i$  and  $p_i$  are between 0 and 1, hence their products will always be a tenth of an order smaller than  $p_i$  alone. To see the effect of this, we will assume some parameter values and evaluate the expression.

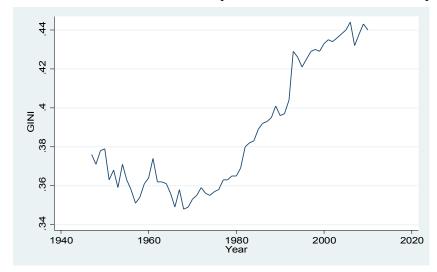
The effect of changing the tax policy in effect is to be seen. Hence, certain assumptions are required to keep the analysis reasonable.

Assuming fixed population,  $p_k = 0.05$ ,  $p_l = 0.4$  and  $p_u = 0.55$ , which is roughly the population distribution of a low or middle income country,

$$d m = \frac{10 m (0.5 d t_k) + 5 m (0.4 d t_l)}{0.55 - (10(0.05 t_k) + 5(0.04 t_l))}$$

$$\Rightarrow \frac{5 m d t_k + 2 m d t_l}{0.55 - (0.5 t_k) + 0.2 t_l}$$

According to the graph of US GINI shown below, GINI was on a slight downward trend during the period late-1940 s to the early-1970s, followed by a sharp upward trend since the mid-1970s. It should be noted that the period when GINI was on a downward trend was a time when there were 20 - 40 tax brackets defined and the difference between the top tax rate and lowest tax rate imposed was large.



The effect of having a larger and a smaller tax rate difference will be seen, hence, the following tax rates spreads are assumed,

1. 
$$t_k - t_l = 0.7$$
  
 $\Rightarrow t_l = 0.7 - t_k$   
2.  $t_k - t_l = 0.2$   
 $\Rightarrow t_l = 0.2 - t_k$ 

The first constraint comes from when the gap in the tax rates between the top bracket and the lowest bracket was greater than 60 percentage points. The second constraint comes from post early-1970s, when tax rates fell to reduce the gap sharply. Modifying the above,

$$d m = \frac{5 m dt_k + 2 m d(x - t_k)}{0.55 - (0.5t_k) + 0.2(x - t_k)}$$

$$\Rightarrow \frac{3 m dt_k + 2 m dx}{0.55 + 0.2x - 0.7t_k}$$
where x can be 0.7 or 0.2

The numerator is a fairly straightforward subject of analysis, it can be positive or negative depending on the whether the dx or  $dt_k$  term is positive or negative and which term is greater in magnitude.

Analyzing the denominator, it is  $0.55 + 0.2x - 0.7t_k$ , which can be positive or negative. Rewriting it in mathematical notation,

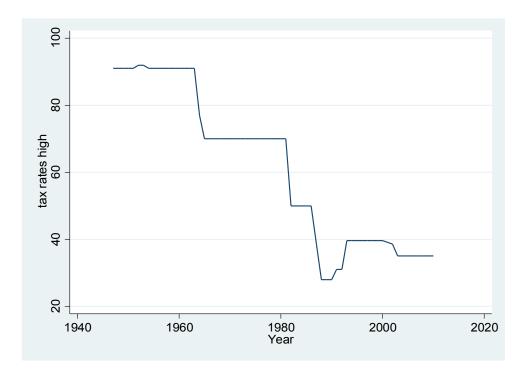
$$0.55 + 0.2x - 0.7t_k > 0 \lor 0.55 + 0.2x - 0.7t_k < 0$$

This condition will depend on whether the negative term is larger or smaller in magnitude than the positive terms, i.e. whether  $0.55 + 0.2x > 0.7t_k$  is true or not.

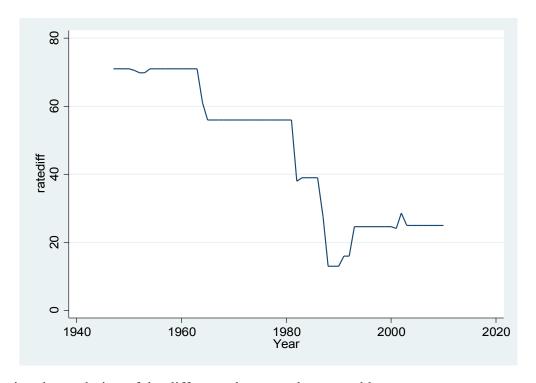
Using the assumption that x = 0.7, we find  $0.69 > 0.7t_k$  to be our condition for the denominator to be positive,

$$t_k < \frac{0.69}{0.7}$$
$$\Rightarrow t_k < 0.9857$$

The result above tells us that the highest tax rate has to be under 98.57% for the denominator to be positive and above if it has to be negative. From the period that led to this assumption, tax rates on the top class exceeded 70%. The difference between the top and lowest rates was more than 60 percentage points.



Graph of the top tax rate



Graph showing the evolution of the difference between the top and lowest rates

Using the assumption that x = 0.4, we find  $0.63 > 0.7t_k$  to be our condition for the denominator to be positive,

$$t_k < \frac{0.63}{0.7}$$
$$\Rightarrow t_k < 0.9$$

The tax rate has to be less than 90% for the denominator to be positive. Current tax rates on the top earners is around 35%, giving us a result of  $t_k < \frac{0.6}{0.7} \approx 0.8574$ . As the denominator is positive, change in inequality, dm, will also be positive in many cases as efforts to decrease inequality by raising taxes and widening the gap will lead to a growth in inequality. This analysis does leave out a very important

and widening the gap will lead to a growth in inequality. This analysis does leave out a very important thing that must be included in any analysis of inequality, government social safety nets sponsored using the tax revenues.

During the period when inequality was on a steady downward trend, before the 1970s, tax rates on the top bracket exceeded 70% and the gaps between the top and the bottom brackets were 60 percentage points or more.

Setting income tax rates at the levels suggested here would give rise to the arguments that Okun had made, that incentive effects could lead to lower economic performance.

The results here are simply highlighting the efficiency-equity tradeoff Okun had highlighted. Unlike Okun's argument though, which was based primarily on human behavior to income taxes, the results here seem to indicate that the system itself may be causing inequality, depending on the conditions created by the tax policy for the current period and future periods.

This dichotomy is a well-known one, that income taxes can either be more efficient – by having fewer brackets and lower rates thereby letting inequality grow, or that they will lead to greater equality – by having a larger number of brackets and progressively higher rates and slowing down or reversing the growth of inequality.

This has been an actively debated topic for over sixty years, the first mention was by Arthur Okun, who realized that there could be incentive effects of the economic entities involved that will reduce the overall economic performance, the poor will have a lower incentive to work as their needs will be met by the government, the rich will have a lower incentive to work as their income will be taxed by the government. The result of this lower incentive to work will be overall lower economic output as

enough individuals act as per their incentives and reduce their work.

Okun had based his arguments on the premise of an income tax. It is through an income tax, properly channeled by the government, that a more equitable distribution can be achieved.

#### **Taxing Inequality**

The current economic thought is one of efficiency with not much, if any, importance attached to equity. In the words of John Steinbeck, in *The Grapes of Wrath (1939):* 

"There is a crime here that goes beyond denunciation. There is a sorrow here that weeping cannot symbolize. .... And children dying of pellagra (a vitamin deficiency disease) must die because a profit cannot be taken from an orange. And coroners must fill in the certificates—died of malnutrition—because the food must rot, must be forced to rot ... and in the eyes of the people there is a failure; and in the eyes of the hungry there is a growing wrath. In the souls of the people the grapes of wrath are filling and growing heavy, growing heavy for the vintage."

Paraphrasing and generalizing this argument, the current economic thought calls for equity to be sacrificed for efficiency and regards the issue of equity as an adjunct to efficiency. It is mostly shown and argued that efficiency leads to greater equity. However, what is efficient may not always be equitable and does not always lead to greater equity.

To understand why, imagine the case of a perfect price-discriminating monopoly. This will be sufficient an example to demonstrate that what is efficient may not lead to equity. As this monopoly is able to capture all consumer surplus by charging each buyer the maximum amount the buyer is willing to pay, the entire social surplus is captured by the monopoly. This is not inefficient, as everyone is able to trade at the price they are willing to commit the exchange. However, equity considerations do arise as all of the social surplus, the producer and consumer surplus, is captured by the monopolist.

The common argument amongst economists is the issue of equity is one to be decided by society at large and one that is to be implemented by the government. However, when thought is being developed and built up by economists who argue only for efficiency with equity being sidelined, the prevailing economic thought ignores the effects of inequality on the economy and, perhaps more importantly, the social psyche. A glance through history shows some disturbing events that were caused, if not entirely, partly by inequality.

• The French Revolution: This was caused almost entirely caused by inequality, as society was divided into the aristocrats, the *bourgeoisie*, and the working class, the peasants. The working

class was taxed heavily for financing the expensive lifestyles of the aristocrats. The working class eventually rose up against French nobility, inspired by the Enlightenment Period's ideas, and replaced nobility with a representative government. (The Origins of the French Revolution; Causes of the French Revolution)

• The Russian Revolution: This revolution was primarily caused for political reasons. The citizens of Russia revolted against the increasingly authoritarian ruling czars but due to there being multiple groups having different ideas on what the government should be and how the economy should be defined, the revolution passed through many stages over 18 years. It is interesting to note, that each phase of the social turmoil was caused or fueled by the economic conditions prevailing then. The cycle of revolutions ended in 1920 when the Bolsheviks came to power and communism became the blueprint for the economy. (The Socialist Party of Great Britain)

The above two examples were extreme, in that revolutions that occurred during that period were marked by the high incidence of violence. The point of highlighting the two revolutions is that economic insecurity of a part of the population gave rise to changes, that were also violent, in the entire political setup. In more recent times, where the political system has been satisfactory for the population, any economic changes that could be carried out by the government were enforced. Two examples of the government acting as soon as specific information were provided to it are:

- Tobacco: The negative health effects of smoking came to light around the 1920s. There were warnings by several other groups throughout history but none had the impact that the statistical studies did. Based on the studies, which began to emerge right after World War I with several studies coming to the same conclusion over the next two to three decades, many Western governments imposed stringent regulations regarding the use and marketing of tobacco products to the general public as well as taxes on the sale of tobacco products. (Doll, R.; Hill, A. B., 1950; United States Congress, 1970)
- Engine fuel: The internal combustion engine has a history that is centuries old and so does petroleum. Yet, it was not until the Industrial Revolution that the industrial production of petroleum had started and the internal combustion engine was developed further and used so widely. In developing this engine, widely used in all forms of transportation modes, engineers found that to have the engine perform at the maximum potential they designed it for, the fuel needed to have some properties which enabled the fuel to burn quickly and completely. Such

fuel was expensive to produce compared with the regular fuel that the oil companies produced. To make regular fuel have the same behavior as the more expensive, refined fuel, referred to as having a higher octane rating, an additive by the name of TEL (tetraethyllead) was used (How Gasoline Works). This additive was used mainly in automotive fuels, and in the process of burning fuel, fuel containing this additive would produce lead and lead oxides as by-products. The toxic effects of lead was the topic of debate since olden times, since the time of the Roman Empire, gaining prominence sometime around the 1960s – 1970s (A Guide to Home Safety). The Western governments took steps to phase out fuel with TEL as an additive, and in most developed countries it has been already phased out (Lead Replacement Petrol; Leaded Petrol). As TEL was a banned fuel additive, replacement additives were researched and introduced. Some were banned as they were thought to be harmful to the environment, and most of the additives that replaced TEL had significant drawbacks (Automotive Fuel Requirements – Current and Future) compared to TEL. This led to a slight increase in overall engine maintenance costs for some of the consumers, which would reduce the consumer surplus.

Arguably, such measures by a government in a free market have had a large impact on the efficiency of these markets. However, the arguments supporting such measures were not based on just measures of market efficiency; the economic arguments were arrived at by estimating the potential costs and benefits of a policy to interfere in the working of a free market. The cost being the loss of social surplus due to interference in the market and the benefit being the removal or control of a harmful substance. This presents a question – To what extent should a government be committed to upholding free market principles? The examples provided here indicate that the answer cannot be a yes or a no, as the issue of undertaking a certain policy requires that the policy be enforced according to the results of studies that evaluate the costs and benefits of the policy decision. Paraphrasing the question, should the government sacrifice equity for the sake of greater efficiency? If so, how much?

As the recent economic turmoil has devastated most of the Western economies, the wealthy in Europe are demanding that a wealth tax be introduced. According to Dieter Lehmkuhl, founder of the group in Europe calling for a wealth tax, something is to be done to "stop the gap between rich and poor getting even bigger." ("Tax us more," say wealthy Europeans, The Guardian, 2011)

In their article which appeared in the New York Times Op-Ed (Ayres and Edlin, 2011), Ian Ayres and Aaron S. Edlin call for the introduction of a tax on inequality that will become effective when the income earned by the top 1% of the population exceeds a certain ratio of the median income. This ratio

is referred to by the term - Brandeis Ratio. Brandeis was a member of the US Supreme Court from 1916 to 1939 who made several observations on inequality.

The drawback to this method is that it will be the inequality of a period or two previous that will be taxed.

Further extending the thought, the argument should be – how much inequality should the government allow before it begins to take steps against inequality? The effects of inequality on a society are being highlighted even now. As the world slipped into a recession when the derivatives market collapsed, the difference between those who earn a large amount compared to those who earned much lesser became more prominent. This was because those who earned a larger amount, on losing their job, could safely fall back on their savings, which was significant and wait for a longer period of time. Those who earned a much lower amount did not have the same financial cushion to soften the loss of income as the wealthier people did. This has led to mass protests being organized in the United States and Europe as governments were forced to reduce spending on social safety nets in their drive to raise credit for the numerous projects that were undertaken to repair the damaged economies. This led to mass protests in some of the economies that were hardest hit by the recession.

Inequality directly fueled the "Occupy" protests, and their slogan "We are the 99%" made a direct reference to the large income and wealth inequality in the United States. There were a series of protests held under the banner of "Occupy" and led to numerous arrests of those who participated in the protests. (Occupy Austin demonstrators arrested after law confusion, The Daily Texan; Occupy Wall Street: 100 arrests at Boston protest, BBC News; 130 Occupy protestors arrested in Chicago, CNN.com)

In Greece, the government planned to impose austerity measures in exchange for a bailout package in 2010. The resulting protests even turned violent and in some instances led to protestors' deaths. The protests continued for two years. The protests were largely centered around the issue of inequality, those who earned and owned a few times more than the national average were not in need of the government's social safety net programs and could finance their livelihoods. This caused those who were dependent on these programs, to ensure a better standard of living, to express their opposition to the austerity measures. (Tear gas fired as Greek police clash with Athens protesters, Amnesty International, 2011; Greece urged not to use excessive force during protests, Amnesty International, 2011 and Violent Clashes in the Streets of Athens, New York Times, 2011)

In Spain, there were large protests in 2011 when the government announced austerity measures. Spain

has been one of the economies that were hardest hit by the recession, with unemployment reaching 20% levels. Hence, there were many of the population who were dependent on government assistance for ensuring that they would be able to get access to the essentials of daily living. (Spanish riot police clash in Madrid with anti-austerity protesters, The Guardian, 2011; Spanish Strikers Protest Austerity Measures, The Wall Street Journal, 2012; Spain: Madrid 'Euro-pact' protesters take to streets, BBC News Europe, 2011)

These were just three examples of social upheaval that were the result of government policies that exacerbated and highlighted social inequality.

#### Role of a Government

The reason that the social upheavals were pointed out in the previous section along with the government's role in a market, albeit in very specific circumstances, is to highlight the point that it is the government's duty to take steps that will preserve social harmony and protect the various members of society, and to show that inequality is an issue that can, and did, create social disharmony while affecting many members of society to various degrees.

Like the markets for fuels and cigarettes, the issue of social inequality needs to be considered as one that creates considerable tension in society. In the case of cigarettes and fuel, the problems were obvious and well-known. In the case of social inequality, the tensions raised by it are generally subdued by many external factors, mainly government protection and a vibrant economy. The sole focus of economics on achieving market efficiency at the cost of social equity needs to then be reconsidered. While it is true that efficiency can and does, generally, lead to greater well-being for all, the example of the perfectly price discriminating monopolist shows that the well-being may, at times, be captured by just one side.

The issue of the well-being, the economic surplus, being captured by any one side is one that needs to be dealt with by society, and by extension, the government.

#### The People's Reaction

The recession brought on strong reactions from the people of various countries where the government took austerity measures. It should be noted what those feelings were directed against. While people expressed indignation at the steps taken, the rich in Europe started a campaign whereby the government will tax the rich at higher rates, specifically pointing out the suffering endured by those in lower

economic classes due to the austerity measures (Tax us More, The Guardian, 2011). This clearly shows that assuming man to be only self-interested is a rather incorrect assumption to make.

#### **Conclusion**

The field of economics has evolved since the times of Adam Smith to be geared largely, not entirely, towards market efficiency. In itself, there was no wrong in the field having evolved in this manner, but in the evolution of economic thought, a key factor was largely left ignored – a measure of the feelings of empathy and its converse, jealousy, and its effects on society. Emotions may be the one quantity that economics cannot measure, however, denying the importance of emotions in human behavior is a miscalculation that can be argued has led to the current economic situation worldwide.

To borrow directly from Robert B. Reich, who wrote in SuperCapitalism, "The two stories – Oh the wonder of it! Oh the shame of it! – both describe aspects of twenty-first-century supercapitalism. But considered separately, each is seriously misleading. Each leaves out the other, which is actually its flip side. Each disdains or blames imaginary forces in opposition when the qualms are actually inside almost every one of us." (underline added)

In other words, the current economic thought that focuses solely on efficiency while relegating the issue of equality to the background is incomplete. Economics directly affects the lives of people and the thought pattern that dominates will shape societies. Given the happenings in many places, in different forms, economists need to look at the issue of equality in a new manner. Just as the government chose to interfere in free markets where human health was directly being affected, the topic of equality, at least this author feels, is best addressed, to borrow from mathematics, as an envelope function on the function governing efficiency, i.e. when efficiency begins to have an impact on equity, the inequality needs to be addressed.

#### **Works Cited**

Robert B. Reich (2008), Supercapitalism, Vintage

"Tax us more," say wealthy Europeans (2011), *The Guardian*, <a href="http://www.guardian.co.uk/world/2011/aug/29/tax-us-more-say-wealthy-europeans">http://www.guardian.co.uk/world/2011/aug/29/tax-us-more-say-wealthy-europeans</a>

Ayres, I. & Edlin, A. S. (2011), Don't tax the rich, tax inequality itself, <a href="http://www.nytimes.com/2011/12/19/opinion/dont-tax-the-rich-tax-inequality-itself.html">http://www.nytimes.com/2011/12/19/opinion/dont-tax-the-rich-tax-inequality-itself.html</a>

US Census Bureau (2012), Mean Household Income Received by Each Fifth and Top 5 Percent, All Races: 1967 to 2011

US Census Bureau (2006), Selected Characteristics of Households, by Total Money Income in 2005.

The Origins of the French Revolution, <a href="http://www.historyguide.org/intellect/lecture11a.html">http://www.historyguide.org/intellect/lecture11a.html</a>

Causes of the French Revolution, <a href="http://www.kwintessential.co.uk/articles/france/french-revolution-major-causes/article/France/Causes-of-the-French-Revolution/1004">http://www.kwintessential.co.uk/articles/france/french-revolution-major-causes/article/France/Causes-of-the-French-Revolution/1004</a>

The Socialist Party of Great Britain, <a href="http://www.worldsocialism.org/spgb/education/study-guides/russian-revolution-and-bolshevik-dictatorship-and-labour-theory-value">http://www.worldsocialism.org/spgb/education/study-guides/russian-revolution-and-bolshevik-dictatorship-and-labour-theory-value</a>

Steinbeck, J. (1939), The Grapes of Wrath, <a href="http://mockingbird.creighton.edu/english/fajardo/teaching/srp435/steinbeck3.htm">http://mockingbird.creighton.edu/english/fajardo/teaching/srp435/steinbeck3.htm</a>

Occupy Austin demonstrators arrested after law confusion, The Daily Texan, <a href="http://www.dailytexanonline.com/news/2011/10/31/occupy-austin-demonstrators-arrested-after-law-confusion">http://www.dailytexanonline.com/news/2011/10/31/occupy-austin-demonstrators-arrested-after-law-confusion</a>

Occupy Wall Street: 100 arrests at Boston protest, BBC News, <a href="http://www.bbc.co.uk/news/world-us-canada-15262310">http://www.bbc.co.uk/news/world-us-canada-15262310</a>

130 Occupy protestors arrested in Chicago, CNN.com, http://edition.cnn.com/2011/10/23/us/occupy-

#### protesters/index.html

Amnesty International (2011), Tear gas fired as Greek police clash with Athens protesters, <a href="http://www.amnesty.org/en/news-and-updates/tear-gas-fired-greek-police-clash-athens-protesters-2011-06-29">http://www.amnesty.org/en/news-and-updates/tear-gas-fired-greek-police-clash-athens-protesters-2011-06-29</a>

New York Times (2011), Violent Clashes in the Streets of Athens, <a href="http://www.nytimes.com/2011/06/30/world/europe/30athens.html">http://www.nytimes.com/2011/06/30/world/europe/30athens.html</a>

Doll, R.; Hill, A. B. (1950). "Smoking and Carcinoma of the Lung". *British Medical Journal* 2 (4682): 739–748

Public Health Cigarette Smoking Act, 1970, United States Congress

How Gasoline Works, <a href="http://science.howstuffworks.com/gasoline4.htm">http://science.howstuffworks.com/gasoline4.htm</a>

What does octane mean?, <a href="http://auto.howstuffworks.com/fuel-efficiency/fuel-consumption/question901.htm">http://auto.howstuffworks.com/fuel-efficiency/fuel-consumption/question901.htm</a>

A Guide to Home Safety, <a href="http://home.howstuffworks.com/home-improvement/household-safety/tips/aguide-to-home-safety1.htm">http://home.howstuffworks.com/home-improvement/household-safety/tips/aguide-to-home-safety1.htm</a>

Lead Replacement Petrol, http://www.theaa.com/motoring\_advice/fuel/LRP.html

Leaded Petrol, http://www.whatgas.com/fuel/leaded-petrol.html

Automotive Fuel Requirements – Current and Future, slides 23 – 25, http://www.osd.org.tr/14.pdf

Kent, B., (2011), A response to "Don't Tax the Rich. Tax the Inequality Itself.", *Forbes*, <a href="http://www.forbes.com/sites/berniekent/2011/12/19/a-response-to-dont-tax-the-rich-tax-the-inequality-itself/">http://www.forbes.com/sites/berniekent/2011/12/19/a-response-to-dont-tax-the-rich-tax-the-inequality-itself/</a>

Tear gas fired as Greek police clash with Athens protesters (2011), *Amnesty International*, <a href="http://www.amnesty.org/en/news-and-updates/tear-gas-fired-greek-police-clash-athens-protesters-2011-06-29">http://www.amnesty.org/en/news-and-updates/tear-gas-fired-greek-police-clash-athens-protesters-2011-06-29</a>

Greece urged not to use excessive force during protests (2011), *Amnesty International*, <a href="http://www.amnesty.org/en/for-media/press-releases/greece-urged-not-use-excessive-force-during-protests-2011-06-16">http://www.amnesty.org/en/for-media/press-releases/greece-urged-not-use-excessive-force-during-protests-2011-06-16</a>

Violent Clashes in the Streets of Athens (2011), *New York Times*, <a href="http://www.nytimes.com/2011/06/30/world/europe/30athens.html">http://www.nytimes.com/2011/06/30/world/europe/30athens.html</a>

Spanish riot police clash in Madrid with anti-austerity protesters (2011), *The Guardian*, <a href="http://www.theguardian.com/world/2011/aug/05/spanish-police-clash-austerity-protesters">http://www.theguardian.com/world/2011/aug/05/spanish-police-clash-austerity-protesters</a>

Spanish Strikers Protest Austerity Measures (2012), *The Wall Street Journal*, <a href="http://online.wsj.com/news/articles/SB10001424052702303404704577310831815096426">http://online.wsj.com/news/articles/SB10001424052702303404704577310831815096426</a>

Spain: Madrid 'Euro-pact' protesters take to streets (2011), *BBC News Europe*, <a href="http://www.bbc.co.uk/news/world-europe-13833093">http://www.bbc.co.uk/news/world-europe-13833093</a>