

EVALUATING THE OBAMA TAX PROPOSAL:
FOUR STANDARDS AND VERTICAL
EQUITY INDICES

by

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Submitted in partial fulfillment of the
requirements for Departmental Honors in
the Department of Accounting
Texas Christian University
Fort Worth, Texas

May 3, 2013

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ACKNOWLEDGEMENTS

I would like to thank the advising committee of this project for their help and guidance. Professor Elizabeth Plummer of the Accounting Department, the Supervising Professor, helped scope the project, refine the research topic, and shared her knowledge with respect to federal taxation. Professor Janice Cobb and Professor Robert Boatler provided valuable comments on the research methods and provided insights to the research findings. I would also like to thank the Neeley School of Business and the Honors College at TCU for hosting a series of thesis-related workshops, and making many resources available during the length of the project. Finally, thanks to Shuyu Deng, who gave me emotional and moral support during the difficult times of the project.

INTRODUCTION

In the 2012 U.S. presidential election, economic policies proposed by both candidates took center stage. Among these policies, the candidates' tax plans received the most scrutiny and, in turn, stirred discussions about their respective ramifications on U.S. economic development. Towards the end of 2012, tax reform also emerged as a priority issue for Congress amid fears of mounting national budget deficits and a double dip recession caused by the so-called "fiscal cliff."

In 2012, President Obama proposed a series of tax reforms aimed at curbing income inequality and providing stimulus to the economy. This thesis attempts to first evaluate President Obama's tax proposals based on the primary criteria provided by the AICPA (2001) in their Tax Policy Statements: sufficiency, administrative convenience, efficiency, and equity. As generally agreed by tax scholars, these criteria provide a multi-dimensional perspective to look at a tax plan. These criteria also reveal the intricate trade-offs a tax plan has to make between various attributes.

Additionally, the paper will assess President Obama's tax plan with respect to vertical equity, partly because many claim equity as a significant merit of this plan. Vertical equity is the idea that persons with more ability to pay should pay a larger amount of their income in tax relative to persons with lesser ability to pay. Vertical equity is measured by the change in the after-tax income distribution vis-à-vis the before-tax income distribution, expressed in the form of their respective Gini index values (Iyer, 2012, May-June). One way to measure vertical equity is using the Kakwani indices. This paper uses the Kakwani indices of income inequality and tax

progressivity to document the effects of the proposed Obama tax plan on vertical equity. Several studies in accounting and economics have used the Kakwani indices to measure tax progressivity and income equality. For example, Iyer et al. (1996) used the Kakwani and Suits indices to document the distributional effects of replacing the progressive income tax with a flat tax. Likewise, Dunbar (1996) used the Kakwani and Suits indices to estimate the effect of personal credits on federal income tax progressivity. Some advantages of using the Kakwani indices are (a) it is easy to compute relative to alternative methods and easily understood by a broader audience; (b) it is effective in documenting the changes in income distributions; (c) it is based on the well-studied Lorenz curves, which will likely be familiar to some readers; and (d) its graphical dimension helps provide intuition and highlights changes and results (Iyer, 2012, May-June).

Besides using the Kakwani indices, this paper adopts the method used by Iyer et al. (2012, May-June), in which they decompose the Kakwani indices into sub-indices, based on the components of the subject whose distribution is studied. For example, Iyer et al. (2012, May-June) isolated capital gains and qualified dividends, as well as salaries and wages from AGI, and computed Kakwani indices of income inequality and tax progressivity for each type of income.

The remainder of the paper is organized as follows. The next section provides an overview of the standards of a good tax. The third section introduces the individual income tax plan President Obama proposed in 2012 and evaluates the plan based on the standards of a good tax. The fourth section includes computations of the Kakwani indices of income inequality and tax progressivity, decomposition of

the indices by income sources, and a technique to adjust the Kakwani index of tax progressivity for the changes in the pre-tax income distribution over time. In the last section, I summarize with limitations and conclusions.

RESEARCH QUESTION

Although vertical equity dictates that taxes paid be a function of individual taxpayers' ability to pay, multiple methods can measure vertical equity, resulting in different opinions over whether a specific tax is vertically equitable (possessing the character of vertical equity), or whether a given tax change increases vertical equity. Supporters of tax increases argue that tax increases on the wealthy are necessary to "undo years of stagnant wages, declining incomes and growing inequality," while opponents claim that "the income tax system has never been more progressive" (Iyer, 2012, May-June). Consequently, some could praise a tax proposal for restoring equity in the system, while others see it as inequitable.

Despite differing opinions, both sides use existing data and studies to support their position. For instance, Congressman Kevin Brady claimed that individuals in the top income bracket paid the highest shares of income tax in decades (Iyer, 2012, May-June). The other side looks from a different angle, drawing evidence from income tax as a percentage of total income, a figure that is decreasing for top earners while increasing for the middle class. Contrary to the two perspectives above that look at the tax share of an income group and the effective tax rates of different income groups, this thesis considers the tax share of a group in relation to its income share.

A recent poll conducted by the Pew Research Center shows a nation divided over who should bear the tax burden: 44% of respondents say raising taxes on incomes above \$250,000 would help the economy, while 22% say it would hurt it. Results are divided along party lines: 64% of Democrats say raising taxes on incomes over \$250,000 would help the economy, and 65% of Democrats say it would make the system fairer. In contrast, 41% of Republicans say this would hurt the economy, and 36% say it would make the tax system less fair (Pew Research Center, 2012).

While many lawmakers and the administration both agree that tax reform is much needed given the state of the economy, and they both seem to recognize the emergency of this issue, current debates about potential tax plans tend to focus on a few narrow aspects of the plan. One heavily evaluated attribute is a tax plan's projected effectiveness in stimulating economic growth. From a policy making perspective, it makes sense to set economic stimulation as an important standard for any tax plan. But some also propose a balanced approach in formulating new tax policies, considering also the policy's equity and whether it is strategically aligned with deficit reduction objectives. The goal of this paper is to provide a model to evaluate a prospective tax proposal with respect to its vertical equity, adopting the existing methods used to measure historical vertical equity values generated under tax plans already in place. I hope the results of this paper can enrich ongoing discussions on tax policies and provide information to those formulating tax changes.

STANDARDS OF A GOOD TAX

A good tax ought to be one that is sufficient to raise revenues for the government, convenient to administer and to pay, efficient in regulating the economy and equitable for taxpayers (AICPA, 2001). These tenets of tax policy date back to the days of Adam Smith, who first introduced his idea of these “four maxims” of a good tax (Nadia, n.d.).

Tax revenues must be sufficient to allow the government to perform its duties and functions. Although the federal government is not mandated to operate under a balanced budget, the levels of current budget deficit will likely not be sustainable in the long run. The desirable spending level is a political matter and varies with economic conditions and global competitive landscapes. The amount of tax due is determined by the tax base and the tax rate, which are the direct results of a given tax system. If the goal is to raise more tax, a proposed tax plan may expand the tax base, increase the tax rate, or do both.

The convenience tenet of tax policy states that a good tax should be convenient to administer and to pay. Issues involved are twofold- costs and ease, both to the IRS and to taxpayers. The administration of tax collection incurs costs due to the sheer number of revenue officers and other personnel working for the IRS. It also costs taxpayers who must pay for tax planning and preparation. A good tax plan should minimize administration costs to the government as well as compliance costs to the taxpayer. Many politicians and practitioners hail the idea to simplify the tax code, which would reduce administration and compliance costs (AICPA, 2001). Ease of payment relates to the time and manner that a tax is due. For

example, sales tax is due at the time of purchase, which makes it easy to pay and calculate (AICPA, 2001). Easier means of paying taxes makes timely payment more likely to happen. Therefore, a good tax should be less costly and easier to pay.

A tax system is efficient when it minimally distorts market competition and is well aligned with the economic principles and goals of the government levying the tax (AICPA, 2001). Under an efficient tax system, individuals' and businesses' decisions as to whether and how to engage in a transaction are not unduly affected by the tax implications of the decisions (AICPA, 2001). As a result, an efficient tax system likely creates more economic growth in the long run.

The idea of equity is constructed in the context of weighing gains against sacrifices made by various parties. The equity principle dictates that a good tax should take into account the taxpayer's financial condition. That is, the amount of tax liability should be a function of the taxpayer's ability to pay. Horizontal equity is achieved when persons with equal ability to pay incur the same amount of tax liability. Although the idea itself sounds simple, choice of the yardstick to measure the ability to pay is debatable. Two households may earn the same amount of annual income, but may not be "similarly situated" and will thus have differing abilities to pay taxes (AICPA, 2007). The differing abilities to pay taxes could be due to different household structures, household members of different ages, and different levels of cost of living across geographical areas. (AICPA, 2007). The difficulty in quantifying horizontal equity makes it difficult to evaluate with respect to a tax plan.

Vertical equity provides that persons with more ability to pay should pay a larger amount of tax relative to persons with lesser ability to pay (Iyer, 2012, May-

June). This relates to the progressivity of a tax, an attribute of a tax system that measures the extent to which higher effective tax rates are applied to higher income brackets (Iyer, 2012, May-June). But how much more tax should a person pay relative to a lower income bracket? There is no consensus as to the specific amount, although it is generally agreed that progressivity is desirable.

Another dimension of equity emerges when we see tax as an exchange between an individual and the government. It is only equitable when value received from the government by the individual is appropriate for the amount of tax he/she paid (AICPA, 2007). In the current discussion of tax policies, this attribute of a tax plan is frequently cited as an argument against increasing taxes for higher income earners, the reason being that they do not receive from the government an amount in reasonable proportion to what they pay in taxes. Any attempt to understand this attribute goes back to the fundamental question of the government's role in people's lives. If one believes that individuals' income primarily comes from their hard work and intelligence, then that person would most likely not view it equitable to tax high-income individuals more heavily than lower-income individuals. On the other side, "big government" supporters would argue that the government provided the environment and critical success factors such as infrastructure and the rule of law for individuals to be able to earn higher income. Therefore, taxing higher income earners more because they indeed benefited from government services is logical—their higher income being the direct evidence. This attribute, for the most part, is beyond the scope of the discussion of a good tax plan as the perceived value of

government services to individual citizens is also associated with government spending and policies other than taxes.

Note that equity is largely a matter of perception. What is perceived equitable is influenced by an individual's personal experience and frame of reference. While designing a tax system deemed equitable by all parties is impossible, equity is generally a desirable feature of a tax system. Not only does an equitable tax system improve social justice, the perception of equity also encourages compliance and provides stability in the consistent enforcement of the tax code (AICPA, 2007).

MAJOR TAX LEGISLATIONS SINCE 1995

The Taxpayer Relief Act of 1997 contained two major provisions with respect to the progressivity of the federal income tax system: it reduced capital gains rates from 28% and 15% to 20% and 10%; it introduced the \$500 per year child tax credit, the Hope credit, and the Lifetime Learning education credit (Tax Policy Center, 2011). The former likely decreased tax progressivity and vertical equity in the tax system.

The Economic Growth and Tax Relief Reconciliation Act (EGTRRA) of 2001 reduced the ordinary income tax rates from 28%, 31%, 36%, and 39.6% by 1% each year to 25%, 28%, 33%, and 35% respectively, beginning in 2006 (Tax Policy Center, 2011). The EGTRRA also created a new 10% bracket applicable to the first \$12,000 of income for joint filers and \$6,000 for single filers (Tax Policy Center, 2011). Additionally, the EGTRRA phased down personal exemption phase-out and limitation on itemized deductions between 2006 and 2009 (Tax Policy

Center, 2011). The phase down increased the value of itemized deductions and personal exemptions for high earners, which likely reduced the progressivity of the tax system.

The Jobs and Growth Tax Relief Reconciliation Act (JGTRRA) of 2003 accelerated the ordinary tax rate reductions enacted in the EGTRRA to begin in 2003 and accelerated the increase in standard deductions for joint filers enacted in the EGTRRA to begin in 2003 (Tax Policy Center, 2011). It also reduced the capital gains and dividends rates from 20% and 10% to 15% and 5% (Tax Policy Center, 2011). The reduction in capital gains rates and dividend rates likely decreased the progressivity of the tax system.

President Obama's first term

President Obama proposed a tax plan during his 2008 presidential election campaign. At the center of his 2008 proposal was a rate increase for the top two income brackets. He would restore these tax rates to pre-2001 levels of 36% and 39.6%, compared with 33% and 35% respectively at that time (Sahadi, 2008). Although Congress did not enact this rate increase, it came to national spotlight again after President Obama was re-elected in 2012. In addition to ordinary income, President Obama included in his 2008 platform changes to the rates at which dividends and capital gains would be taxed (Sahadi, 2008). He would extend the 2001 tax cuts that allowed preferential rates for dividends and capital gains (for specific rates, see "the Baseline" column in Tables 4 and 5), except in the case of high-income individuals (Sahadi, 2008). Much like his proposed rate increase for the

top two brackets of salaries and wages, this tax proposal failed to receive bipartisan support, but remained on President Obama's platform for 2012.

Three tax bills were passed during President Obama's first term (see Table 1): American Recovery and Reinvestment Tax Act of 2009 (ARRTA), Patient Protection and Affordable Care Act of 2010 (PPACA), and Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010 (TRUIRJCA) (Tax Policy Center, 2011). ARRTA created the Making Work Pay credit and American Opportunity credit, increased the Earned Income Tax Credit for families with three or more children, and lowered the threshold for determining the refundable portion of the child tax credit (Tax Policy Center, 2011). PPACA mandates a 3.8% Medicare contribution tax on unearned income for taxpayers filing jointly with AGI in excess of \$250,000 and single filers with AGI in excess of \$200,000 (Tax Policy Center, 2011). TRUIRJCA extended through 2012 the tax rates as they were after the 2001 and 2003 tax cuts, the American Opportunity Tax credit, the 2009 expansion of the Earned Income Tax credit and the child Tax credit, and the reduced rates on long-term capital gains and qualified dividends (Tax Policy Center, 2011).

Table 1.
Tax acts passed in President Obama's first term (Tax Policy Center, 2011)

Act	Changed Provisions	Note
ARRTA of 2009	Created the Making Work Pay credit	
	Created the American Opportunity credit	
	Increased the Earned Income Tax credit rate for families with three or more children	
	Lowered the threshold for determining the refundable portion of the child tax credit	
PPACA of 2010	3.8% Medicare contribution tax on unearned income	For joint (single) filers with AGI in excess of \$250,000 (\$200,000)
	Increase employee's portion of the Medicare Tax from 1.45% to 2.35%	
TRUIR/JCA of 2010	Extended the expansion of the child Tax credit	Through 2012
	Extended the expansion of the Earned Income Tax credit	Through 2012
	Extended the American Opportunity Tax credit	Through 2012
	Extended tax rates as they were after the 2001 and 2003 tax cuts (including capital gains and qualified dividends)	Through 2012

PRESIDENT OBAMA'S 2012 TAX PROPOSAL

Note that the scope of this project only includes President Obama's proposal for federal individual income tax (hereafter, "the Proposal"). The President's other tax proposals are beyond the scope of this thesis. For the purpose of evaluating the Proposal, this project attempts to compare the Proposal to a baseline (hereafter, "the Baseline") selected by the author. This project defines the Proposal based on tax provisions listed in the President's 2013 federal budget issued in February 2012. The Baseline against which the Proposal is compared is essentially the policy in place in 2011. See Table 2 for differences between the two.

Table 2.
General terms of the Proposal and the Baseline

Tax Provision Items	The Proposal	The Baseline	ATRA
Ordinary Income	Partially Extend Bush Cuts (see Table 3)	Fully Extend Bush Cuts	Extend Bush Cuts for low brackets, increase threshold for top bracket (see page 9)
Long-Term Capital Gains	Partially Extend Bush Cuts (See Table 4)	Fully Extend Bush Cuts	Extend Bush Cuts except for top bracket
Qualified Dividends	Partially Extend Bush Cuts (See Table 5)	Fully Extend Bush Cuts	Same as long-term capital gains
Pease & the 18% Limit	Yes (See Page 16)	No	Yes but at a higher threshold than the Proposal
Personal Exemption Phase-Out	Yes (See Page 15)	No	Same as Pease
Payroll Tax Holiday	Yes (see page 16)	Yes	No
Tax Credits Enacted in TRUIRJCA	Yes (See Page 17)	Yes	Yes

What meaning does comparing the Proposal with the Baseline create? In 2012, faced with Bush tax cuts and a number of tax credits expiring in 2013, the public debated how tax laws should change with regard to expiring provisions. This paper attempts to evaluate President Obama's proposal as a possible direction that the tax system could take. The assumption underlying the Baseline is that fully extending what was in place in 2011 was a possible course of action for Congress in late 2012. The Baseline, therefore, represents an alternative to the Proposal.

Congress passed the American Taxpayer Relief Act of 2012 (ATRA) on January 1, 2013. Refer to Table 2. This legislation was essentially a combination of the Proposal and the Baseline. Rate increases for ordinary income and long-term capital gains did pass, only at higher thresholds than in the Proposal (Tax Policy Center, 2013). Phase-outs for personal exemptions and itemized deductions were

passed with higher thresholds than in the Proposal (Tax Policy Center, 2013). The payroll tax holiday was not extended, but tax credits originally enacted in 2010 were extended for five more years (Tax Policy Center, 2013).

General Terms of the Proposal and the Baseline

With respect to individual income tax rules, President Obama proposed adjusting the rate structure on ordinary income, long-term capital gains, and qualified dividends, changing the rules governing personal exemptions, limiting deductions, and extending the payroll tax cut and a number of tax credits (Tax Policy Center, 2012).

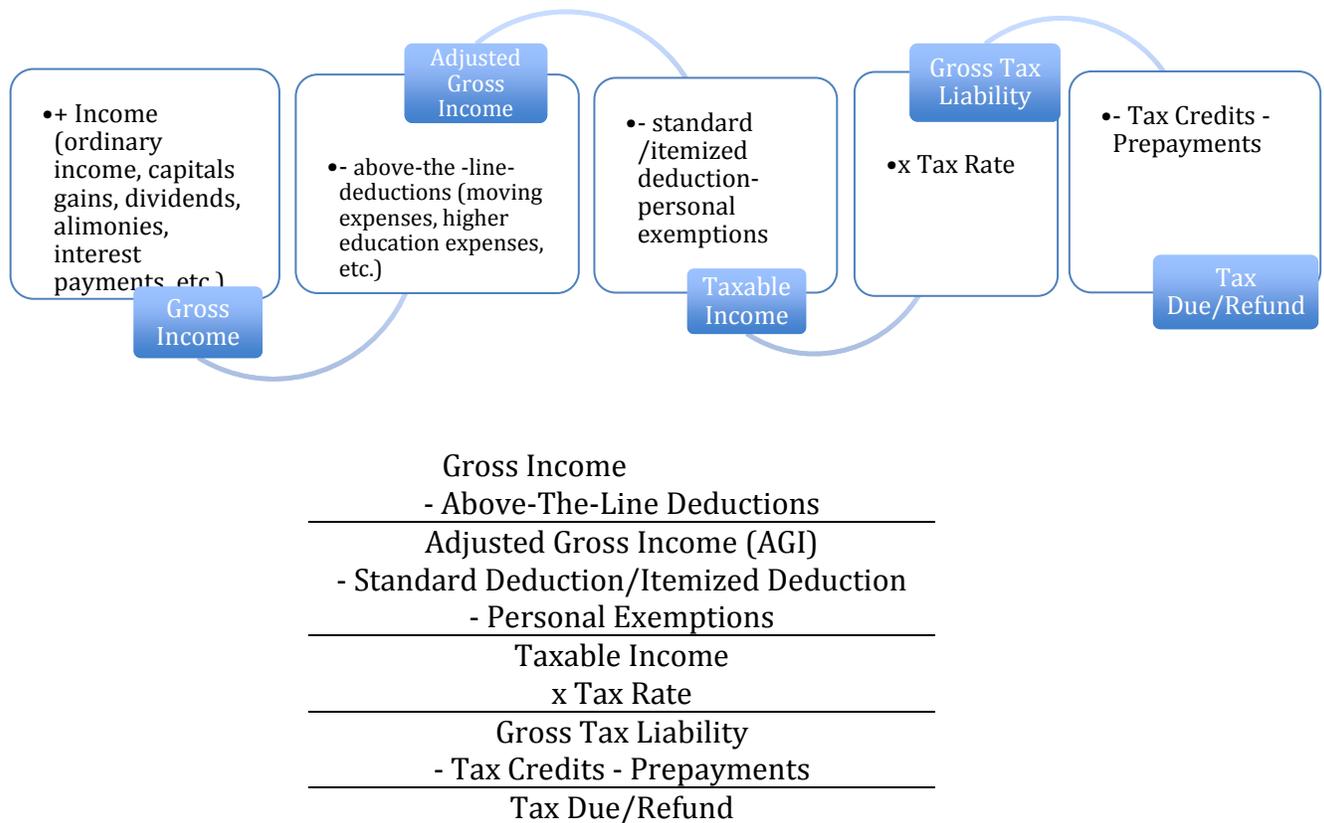


Figure 1. The individual federal income tax formula

Figure 1 provides an illustration of the federal income tax formula. The Proposal as specified in the 2013 federal budget would affect most steps in the computation of one's federal income tax. President Obama proposed changing the rate schedule for ordinary income and increasing the top rate for capital gains and qualified dividends. Refer to Figure 1. These measures would result in a different amount of gross tax liability for individuals who fall under the affected brackets. He also proposed changing the personal exemption phase-out and limiting itemized deductions. These would change the amount of adjusted gross income in arriving at taxable income for affected individuals. Additionally, he proposed extending a number of tax credits enacted in the past, which could lower one's gross tax liability in arriving at tax due.

President Obama proposed restoring the top rates on ordinary income and wages to their pre-2001 levels, which would effectively let the Bush Tax Cuts expire for single filers with AGI in excess of \$200,000 and for joint filers with AGI in excess of \$250,000 (Tax Policy Center, 2012). He proposed making permanent the lower rates for taxpayers making below those thresholds (Tax Policy Center, 2012).

(See Table 3).

Table 3.

Ordinary income rate schedule (Tax Policy Center, 2012 Feb)

	Single Filers			Married Filing Jointly	
	The Proposal	The Baseline		The Proposal	The Baseline
\$0-\$8,750	10%	10%	\$0-\$17,500	10%	10%
\$8,750-\$35,500	15%	15%	\$17,500-\$71,000	15%	15%
\$35,500-\$86,000	25%	25%	\$71,000-\$143,350	25%	25%
\$86,000-\$179,400	28%	28%	\$143,350-\$218,450	28%	28%
\$179,400-\$200,000	33%	33%	\$218,450-\$250,000	33%	33%
\$200,000-\$390,050	36%	33%	\$250,000-\$390,050	36%	33%
\$390,050 and over	39.6%	35%	\$390,050 and over	39.6%	35%

In 2011 and 2012, long-term capital gains were taxed at a maximum rate of 15%. Long-term capital gains are generally gains from the sale of capital assets held for at least one year (Tax Policy Center, 2012). Long-term capital gains rates were scheduled to revert in 2013 to their pre-2003 level of 10% for taxpayers in the 15% bracket or lower, and 20% for taxpayers in the 25% bracket or higher (Tax Policy Center, 2012). According to the Proposal, only high-income taxpayers (defined by the administration as single filers with AGI in excess of \$200,000 and married joint filers with AGI in excess of \$250,000) would see their long-term capital gains rate rise to 20%. (See Table 4). Taxpayers in the lower income brackets would still have the lower tax rates on their long-term capital gains.

Table 4.
Capital gains rate schedule (Tax Policy Center, 2012 Feb)

Marginal Rates on Ordinary Income per the Proposal	Capital Gains Rates	
	The Baseline (Extend Bush Cuts)	The Proposal
10%	0%	0%
15%	0%	0%
25%	15%	15%
28%	15%	15%
33%	15%	15%
36%	15%	20%
39.6%	15%	20%

Qualified dividends are dividends paid by a domestic U.S. company or a qualifying foreign company that meets certain requirements (Tax Policy Center, 2012). Qualifying dividends were taxed at similar rates as long-term capital gains—0% for individuals in the 15% bracket or below, and 15% for all others in 2012. The dividend rates were scheduled to expire in 2013, making dividends subject to the

same tax rate as ordinary income (Tax Policy Center, 2012). However, President Obama proposed increasing rates only for the top two brackets (Tax Policy Center, 2012). (See Table 5).

Table 5.
Qualified dividends rate schedule (Tax Policy Center, 2012)

Marginal Rates on Ordinary Income per the Proposal	Qualified Dividends Rates	
	The Baseline (Extend Bush Cuts)	The Proposal
10%	0%	0%
15%	0%	0%
25%	15%	15%
28%	15%	15%
33%	15%	15%
36%	15%	36%
39.6%	15%	39.6%

As shown in Figure 1 above, personal exemptions and deductions decrease AGI in arriving at taxable income. Personal exemptions are a specific amount (\$3,900 for 2013) for taxpayers, their spouses, and each dependent claimed on their tax return. The exemption amounts are indexed for inflation each year. Standard deductions are an amount that differs across filing status and can be deducted from AGI when computing taxable income (\$6,100 for singles and \$12,200 for joint filers in 2013). Itemized deductions are allowable expenses that one can deduct from their AGI. The original idea of having exemptions and deductions stemmed from the belief that a certain level of income should be insulated from taxation to allow for a minimal standard of living. These deductions also provide more specific treatment to persons with differing abilities to pay taxes due to various conditions. For example, personal exemptions allow larger households to deduct more, thereby paying less tax than households with fewer dependents. Itemized deductions help

persons with larger medical expenses deduct them from AGI. Itemized deductions also represent Congress's desire to direct resources to areas such as charitable organizations and the housing market. The deductibility of charitable contributions and housing mortgage payments essentially represent a form of subsidy to these sectors of the economy.

High-income taxpayers face a reduction to their personal exemptions when their AGI exceeds a certain level. The 2001 tax act gradually eliminated the phase-out of the exemption, but the phase-out was re-enacted in 2013 (Tax Policy Center, 2012). The phase-out reduces the value of each claimed exemption by 2% for each \$2,500 or part thereof of AGI above a threshold that depends on the filing status. Personal exemptions are thus fully phased out over a \$122,500 range above the threshold (Tax Policy Center, 2012). The limitation on itemized deductions- known as Pease after the Congressman who introduced it, reduces certain itemized deductions by 3% of AGI above a predetermined threshold, or 80% of the total itemized deductions subject to phase-out, whichever is less (Tax Policy Center, 2012). President Obama proposed allowing both the personal exemption and Pease phase-outs to resume, but would change the income threshold above which the two apply. The proposed threshold for both is \$261,450 for married filing jointly and \$209,150 for single filers (Tax Policy Center, 2012). Refer to Table 6 for details on Pease and PEP.

Table 6.
Other Proposed provisions in the Proposal (Tax Policy Center, 2012)

Provision	The Proposal	The Baseline
Phase-out of itemized deductions (Pease)	Reduce itemized deductions by 80%, or by 3% of AGI above the PEP threshold, whichever is less	NO
Personal exemptions phase-out (PEP)	Reduce exemption by 2% for each \$2,500 above \$261,450 (joint) or \$209,150 (single)	NO
28% limit	Limit the value of some exclusions and itemized deductions to 28% of their gross amount	NO
Social Security tax	Lower the employee's portion by 2% to 4.2%	Same as the Proposal
Earned Income Tax Credit	Make permanent increase in maximum credit and phase-out income levels	Same as the Proposal
American Opportunity Credit	Make the credit permanent and index for inflation	Same as the Proposal
Child and Dependent Care Credits	Increase phase-out income level from \$28,000 to \$75,000	Same as the Proposal

On top of these two measures, President Obama proposed adding another limit to some specified exclusions and itemized deductions taken as a whole: that their values not exceed 28% of their gross amount (Tax Policy Center, 2012) (see Table 6). The value of a tax deduction or exclusion equals the tax savings one can derive from it, which is simply the amount of the deduction/exclusion multiplied by one's marginal tax rate. Limiting the value of deductions and some exclusions to 28% would make itemized deductions and these specified exclusions less attractive to taxpayers who would be in the 36% and 39.6% brackets under the Proposal.

Social security funding comes from employees and their employers, as well as from self-employed individuals. Workers and their employers each pay 6.2% of wages/salaries up to a specified amount, which is indexed for inflation. Self-employed individuals pay the combined rate of 12.4% (Tax Policy Center, 2012). The maximum income subject to the Social Security tax is \$110,100 for 2012. The

TRUIR]CA of 2010 reduced the employee's portion of the Social Security tax rate by 2% in hopes of providing stimulus to the economy. President Obama proposed further extending the rate cut through all of 2012 (Tax Policy Center, 2012).

President Obama also proposed extending a number of tax credits. The Earned Income Tax Credit provides a wage subsidy that varies based on number of children and marital status and is a function of one's earned income (Tax Policy Center, 2012). The President sought to make the increase in the maximum credit and in the phase-out income levels permanent (Tax Policy Center, 2012). For the American Opportunity Credit, an education credit that allows for deduction of one's tuition, fees and course materials in each of the first four years of postsecondary education up to \$2,500, the President sought to make this credit permanent and index it for inflation (Tax Policy Center, 2012). Other than the two credits above, President Obama proposed expanding the Child Tax Credit and Dependent Care Tax Credit by increasing the phase-out income level from \$28,000 to \$75,000 (Tax Policy Center, 2012). See Table 6 for a summary of these credit.

While this section lists most of the changes to the tax code that President Obama has proposed, it is by no means all-inclusive. Two types of proposed changes are not listed above: changes with respect to corporations, estates, and trusts, and changes that are estimated to bring in relatively small amounts of revenues or incur relatively small amounts of tax expenditures. An example of this is raising the AGI floor on medical expense deductions from 7.5% to 10%, which is projected to raise \$15 billion in revenue through 2019 (Dubay, 2011).

Illustration of the Proposal

To aid the reader's understanding of the Proposal, I use two hypothetical scenarios to illustrate how tax treatments would differ for high-income individuals and those in the middle-income bracket. I also compare each hypothetical taxpayer's taxes to their taxes as if calculated under the Baseline.

Joe James is an assistant inspector at a local warehouse. He is going back to college after dropping out a few years ago. He earns \$42,000 annually from his job. His wife Tina earns \$40,000 from her job as a cashier. Table 7 shows the James' major incomes and tax-deductible expenses for the year 2013.

Table 7.
The James' income/deductible expense for 2013

The James' Income/Deductible Expense For 2013	
Salary	\$82,000
Employer-Sponsored Health Insurance	\$2,000
Qualified Tuition	\$1,000

Mrs. and Mr. Brown file a joint return. They have two children who live with them and are supported by them. Mrs. and Mr. Brown earn a salary of \$250,000 and \$120,000 respectively each year. In addition, they had \$80,000 of long-term capital gains from stock trading, \$10,000 of municipal bond interest, and other expenses that are deductible for income tax purposes. Table 8 shows major items on their joint return for 2013.

Table 8.
The Browns' income/deductible expenses for 2013

The Browns' Income/Deductible Expense For 2013	
Mrs. Brown's Salary	\$250,000
Mr. Brown's Salary	\$120,000
Long-Term Capital Gains	\$80,000
Municipal Bond Interest	\$10,000
State And Local Income and Property Taxes	\$18,000
Mortgage Interest Payment	\$4,000
Charitable Contributions	\$8,000
Qualified Moving Expenses	\$6,000

The James' gross income would be their salary of \$82,000. Since they do not have expenses that qualify for above-the-line deductions, their AGI would be the same as gross income, \$82,000. They take the standard deduction of \$12,200 for joint filers, which, combined with the \$7,800 personal exemption, gives them taxable income of \$62,000. According to the Proposal's rate schedule, they would fall into the 15% bracket and their gross tax liability would be \$8,425. Because they have \$1,000 worth of qualified tuition, they can claim \$1,000 of American Opportunity tax credit, which would reduce their taxes due to \$7,425. Under the Proposal, 4.2% of Social Security tax and 1.45% of Medicare tax would apply to the James' ordinary income. Therefore, they would pay \$3,444 in Social Security tax and \$1,189 in Medicare tax under the Proposal.

The Browns' gross income, i.e. every income source listed except for the tax-excludible municipal bond interest, would be \$450,000 under the Proposal. They can then deduct the \$6,000 moving expense as an above-the-line item to reduce their AGI to \$444,000. Itemized deduction, while totaling \$30,000 for the Browns, would be reduced to \$24,523.5 by Pease under the Proposal. The Browns' personal

exemptions would have no effect on their taxes due to the re-introduction of personal exemption phase-out under the Proposal. Because President Obama proposed limiting the value of some exclusions and itemized deductions to 28%, the Browns' exclusions and itemized deduction of \$34,523.5 should yield the same tax savings as if they were \$24,410.56 of deductions absent the 28% limit, and their taxable income would be \$429,589.44. Their long-term capital gains would be taxed at 20% under the Proposal because their ordinary income falls into the 39.6% bracket. Their payroll tax rates would be the same as Joe's except for the higher 2.35% Medicare tax on income above \$250,000. Because their AGI is above the \$250,000 threshold, their capital gains would be subject to the 3.8% Medicare surtax. Table 9 compares each taxpayer's financial position and taxes due under the Baseline and the Proposal.

Table 9.

The James' and the Browns' federal income tax figures for 2013, under the Proposal and the Baseline

Financial Measures	The James		The Browns	
	The Baseline	The Proposal	The Baseline	The Proposal
Gross Income	82,000	82,000	450,000	450,000
Above-the-line deductions	0	0	6,000	6,000
AGI	\$82,000	\$82,000	\$444,000	\$444,000
Deduction	12,200	12,200	30,000	24,524
Exemptions	7,800	7,800	15,600	0
Taxable income	62,000	62,000	398,400	\$429,589
Tax Credits	0	1,000	0	0
Federal Income Tax	\$8,425	\$7,425	\$82,323	\$95,398
Capital Gains Tax (Including 3.8%)	\$0	\$0	\$12,000	\$19,040
Payroll Tax	\$4,633	\$4,633	\$9,989	\$11,069

By examining the Proposal, President Obama's intent to increase taxes on the wealthy is evident. Almost all proposed changes that aim to increase tax rates or

limit deductions apply solely to high-income individuals. This pattern is also evidenced by a comparison of the hypothetical taxpayers' tax returns: under the Baseline, the Browns will pay 10 times more in income tax than the James; however, they would pay 13 times more than the James under the Proposal. This gap results from the higher rates for higher earners under the Proposal and the fact that President Obama proposed extending many tax credits that had been initially created to increase take-home income for the middle class and low-income taxpayers. Payroll tax is higher for the Browns under the Proposal than under the Baseline because of the increase in Medicare payroll tax on income over \$250,000 in the Proposal. Another significant increase for the Browns is on their capital gains tax, which went from 15% to 23.8%.

EVALUATING THE PROPOSAL BASED ON STANDARDS OF A GOOD TAX

Over two decades of Federal budget deficit has left the national debt at an unsustainable level. Economists and politicians widely agree that this amount of debt will hamper the long-term prospects of the United States and put a tremendous burden on future generations (AICPA, n.d.). The sufficiency of the tax plan, therefore, becomes an important criterion. According to a Tax Policy Center analysis of the 2013 budget proposal (2012), President Obama's tax plan would increase Federal tax receipts by \$2.1 trillion relative to the current policy baseline (which assumes all policy as it stands in 2012 except allowing the payroll tax holiday to expire) during the course of the next decade. Of the \$2.1 billion increase, \$440 billion comes from allowing the Bush tax cuts to expire for the wealthy, \$236 billion comes from reverting rates on long-term capital gains and qualified dividends for the wealthy,

\$119 billion comes from fixing the estate tax at its 2011 indexed parameters, \$165 billion comes from reinstating PEP and Pease, and \$580 billion comes from the 28% limit on the value of itemized deductions (Tax Policy Center, 2012). Whether the Proposal will generate sufficient revenues depends on the federal government's spending level and its overall strategy to reduce federal debt, but the Proposal would likely generate more tax revenues than the Baseline in the next decade.

The Proposal contains a number of provisions different from the Baseline that seem to simplify the tax code, and some other provisions that make it less convenient to administer. An example of simplification is indexing the 2011 alternative minimum tax (hereafter, "AMT") parameters to inflation (Tax Policy Center, 2012). Taxpayers are subject to AMT only if their tentative AMT liability exceeds their regular income tax liability (Tax Policy Center, 2012). AMT is computed with a different rate schedule and tax base than regular income tax (Tax Policy Center, 2012). Although it was created to limit the amount of tax preferences and deductions available to the wealthy, it has evolved to affect increasingly more taxpayers in the middle class (Tax Policy Center, 2012). This is because the exemptions were created to be a fixed amount for each year, and as taxpayers' income increases over time, more of them incur AMT liability (Tax Policy Center, 2012). The Proposal would index to inflation the 2011 AMT parameters. If enacted, Congress would not need to pass AMT patches to increase exemption amounts each year. This also increases certainty when it comes to computing and estimating one's AMT liability, thus simplifying tax planning and filing. President Obama proposed simplifying rules for claiming the Earned Income Tax Credit (hereafter, "ERTC") for

those otherwise eligible for the ERTC residing with qualifying children whom they do not claim (Department of Treasury, 2012). This makes the ERTC less confusing and easier to claim.

Certain provisions in the Proposal make preparing tax returns more complicated. The personal exemption phase-out, itemized deduction phase-out, and the 18% limit on itemized deductions in the Proposal would all require additional calculations on one's tax returns and can be confusing to some taxpayers. Because the Proposal contains both provisions simplifying the tax code and those complicating the tax code, the administrative convenience of the Proposal overall does not differ significantly from the Baseline.

Efficiency deals with the effect that the tax system has on economic activities. According to a Heritage Foundation study, the Proposal would decrease total U.S. economic output by an average of \$196 billion each year from 2013 to 2022 relative to the Baseline (Beach, 2012). They also project that the Proposal would increase the U.S. unemployment rate by an average of 0.46% each year from 2013 to 2022 relative to the Baseline (Beach, 2012). They cited higher cost of capital investment, lower incentive to work, and less job creation due to less investment as causes of those numbers (Beach, 2012). If this study proved accurate, the Proposal would be economically inefficient.

Recall that equity is a central theme to the Proposal. Without any quantitative analysis, the Proposal implies a higher level of vertical equity than the Baseline, through mandating more provisions that increase tax rates for the wealthy

and limit their deductions. The next section provides an analysis of the vertical equity of the Proposal relative to the Baseline.

MEASURING THE VERTICAL EQUITY OF THE PROPOSAL: METHODS

This section provides details on the computation of the Kakwani indices of income inequality and tax progressivity based on the Gini index values of pre-tax income distribution, tax distribution, and after-tax income distribution. Following the computation of the indices are two methods of adjusting the computation of the indices that enable comparing the indices between income sources and over time.

The Gini Index

A Lorenz curve plots the relationship between the cumulative proportion of taxpayers (see x axis in Figure 2) and the cumulative proportion of their corresponding income (see y axis in Figure 2) (Iyer, 2012). Taxpayers are arranged in the order of their income, from lowest to highest (Iyer, 2012). Similarly, a tax curve illustrates the relationship between taxpayer proportions to their taxes paid, with taxpayers arranged by their taxes paid, from lowest to highest (Iyer, 2012). A Lorenz curve is a graphical representation of the income distribution, and a tax curve is a graphical representation of the tax distribution. An egalitarian line is a 45° line that intersects with point (0,0) (see Figure 2)(Iyer, 2012). In this context, it represents a perfectly equal state where the cumulative proportion of income/tax equals the cumulative proportion of taxpayers at any given point on the line (Iyer, 2012).

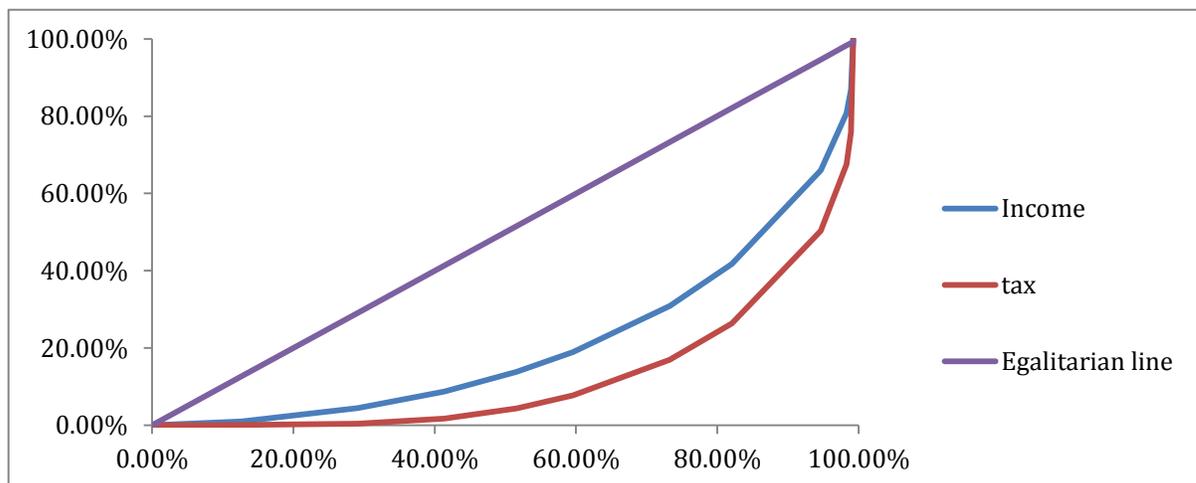


Figure 2. Illustration of the computation of the Gini index.

The Gini index is a widely used index that measures inequality in a distribution. It is measured as twice the area bounded by the egalitarian line and the Lorenz or tax curve (area bounded by the Income curve/Tax curve and the Egalitarian line in Figure 2) (Iyer, 2012). Because taxpayers are arranged by their income/tax, the slope of the Lorenz/tax curve, which graphically represents incremental income/tax, increases as it moves to higher taxpayer proportions on the line. Therefore, a Lorenz/tax curve can only move away from the egalitarian line to its right/below. If the distribution becomes more equal, the Lorenz/tax curve moves towards the egalitarian line. Thus, a larger Gini index denotes greater inequality in the distribution.

Kakwani Indices of Income Inequality and Tax Progressivity

Recall that I attempt to measure the degree of vertical equity of the Proposal and the Baseline using the Kakwani indices of income inequality and tax progressivity. The computation of both of these indices is based on the Gini index value of income and tax distributions (Iyer, 2012). I demonstrate the computation of these indices with data extracted from the Tax Policy Center 2013 Budget Analysis

(2012, Feb), which is reproduced in Table 10. Note that data are organized by size of AGI, from lowest to highest. Column A lists cumulative taxpayer proportion by size of AGI. Column B shows the cumulative pre-tax income proportion. I used the 2010 Statistics of Income data from the IRS (2012, Fall) to reproduce the Baseline distribution for S&W, qualified dividends, and capital gains (columns C through E). The assumption is that the 2010 distribution of these income sources is a reasonable approximation of the 2013 distribution. Columns F, H and columns G, I show the cumulative tax proportion and cumulative proportion of after-tax income (net of credits), for the Baseline and the Proposal respectively.

The Kakwani index of income inequality, $K(I)$, measures the change in equality in the income distribution as a result of the tax system (Iyer, 2012). It compares the after-tax income distribution against the pre-tax income distribution. $K(I) = Gini_{pre-tax} - Gini_{after-tax}$ (Iyer, 2012). $Gini_{pre-tax}$ is always greater than $Gini_{after-tax}$, resulting in a positive $K(I)$ or zero. Larger $K(I)$ values indicate higher vertical equity levels. If the pre-tax and after-tax income distributions are identical, which implies a flat tax rate, $K(I)$ is zero as the two corresponding Lorenz curves overlap. If the pre-tax income distribution becomes more unequal, holding the after-tax income distribution constant, $K(I)$ will increase. If the after-tax income distribution becomes more equal, holding the before-tax income distribution constant, $K(I)$ will increase.

The Kakwani index of tax progressivity, $K(P)$, measures vertical equity from a different angle than $K(I)$. $K(P)$ is the difference between the Gini index of the tax curve and the Gini index of the pre-tax income distribution (Iyer, 2012). i.e. $K(P) = Gini_{tax} - Gini_{pre-tax}$ (Iyer, 2012). Under a proportional tax, the tax curve will overlap

with the pre-tax Lorenz curve, because for any given proportion of taxpayers, the cumulative proportion of tax paid equals that of their pre-tax income. Thus, a proportional tax structure results in a zero value for $K(P)$ (Iyer, 2012). Similar to $K(I)$, when the tax distribution becomes more progressive, that is, cumulative proportion of taxes paid grows at an increasing rate as it moves across the taxpayer strata, $K(P)$ increases (holding the pre-tax income distribution constant); and vice versa. Therefore, $K(P)$ is always positive under a progressive tax structure. Larger values of $K(P)$ indicate greater progressivity, resulting from either changes in the tax system or changes in the pre-tax income distribution.

Table 10.
Selected data from Tax Policy Center 2013 Budget Analysis (Internal Revenue Service, 2012, Fall; Tax Policy Center, 2012, February)

AGI Range (In Thousands Of U.S. Dollars)	Taxpayer Propor- tion A	Pre-Tax Income B	Salaries & Wages C	Qualified Dividends D	Capital Gains E	The Baseline		The Proposal	
						Tax F	After- Tax Income G	Tax H	After -Tax Income I
Cumulative Proportions with Taxpayers Arranged by Size of Income From Lowest to Highest									
Less than 10	12.67	1.01	1.96	3.09	3.79	0.13	1.24	0.12	1.26
10-20	29.12	4.47	6.39	4.95	4.26	0.44	5.52	0.41	5.60
20-30	41.38	8.78	12.73	6.72	4.77	1.90	10.58	1.78	10.74
30-40	51.58	13.84	19.74	8.47	5.38	4.70	16.23	4.42	16.47
40-50	59.58	18.94	26.48	10.59	6.02	8.20	21.75	7.73	22.08
50-75	73.27	30.88	41.74	16.75	7.90	17.94	34.27	16.94	34.78
75-100	82.07	41.74	55.17	22.93	10.34	27.85	45.37	26.33	46.05
100-200	94.63	66.00	79.94	36.99	17.13	53.09	69.37	50.33	70.38
200-500	98.29	80.79	91.56	51.43	27.47	70.53	83.47	67.53	84.51
500-1,000	98.92	86.87	95.11	59.15	34.98	78.39	89.08	75.86	89.94
1,000 and more	99.24	100.33	100.00	100.00	100.00	99.84	100.4	99.85	100.4

Decomposing the Kakwani Indices

In their work, Iyer et al. (2012) use a method introduced by Silber to decompose the Kakwani indices by sources of income. They start by decomposing the Gini index by income source. According to Silber, the Gini index can be written (with matrix notation) as

$$\text{Gini} = e'Gs$$

where e is a column vector of n elements, each element equal to $1/n$ (e' being the

corresponding row vector); s is a column vector of n elements being respectively equal to s_1, s_2, \dots, s_n ; and G , also called the G -matrix, is an n by n matrix whose elements g_{ij} , are equal to -1 when $i > j$, $+1$ when $i < j$, and 0 when $i = j$ (Iyer, 2012). Applied to income distribution, e represents the proportion of taxpayers and s represents the proportion of income received by them (Iyer, 2012). Assuming AGI is made up of several sources, the Gini index of each source income can be expressed in the formula above, except for replacing s with income share from each source (Iyer, 2012). Finally, summarizing Gini indices of all incomes scaled by their respective share in total income results in the Gini index for total income (Iyer, 2012).

$$\text{Gini}_{\text{total}} = \sum_{i=1}^k S_i * \text{Gini}_i$$

Where k is the number of income sources, and S_i is the share of income source i in total income (Iyer, 2012). If we call $S_i * \text{Gini}_i$ the adjusted Gini for an income source, then this adjusted Gini in percentage of Gini for the total income distribution can represent the contribution of income source i to total income Gini (Iyer, 2012).

What is the goal of decomposing the Kakwani indices? Much like that with the Gini index, decomposing the Kawani indices shows the contribution of each income source to the $K(I)$ and $K(P)$ of total income/tax distribution (Iyer, 2012). Since $K(I) = \text{Gini}_{\text{pre-tax}} - \text{Gini}_{\text{after-tax}}$, to compute the effect of the distribution of salaries and wages on $K(I)$, we replace $\text{Gini}_{\text{pre-tax}}$ with $\text{Gini}_{\text{S\&W}}$ (Iyer, 2012). Because S&W's impact is limited by its share in total income, $K(I)_{\text{S\&W}} = (\text{Gini}_{\text{S\&W}} - \text{Gini}_{\text{after-tax}}) * S_{\text{S\&W}}$, where $S_{\text{S\&W}}$ denotes S&W's share in total income (Iyer, 2012). Likewise, to

decompose $K(P)$, we replace $Gini_{pre-tax}$ with $Gini_{S\&W}$ and scale $Gini_{tax} - Gini_{S\&W}$ based on S&W's share in total income (Iyer, 2012).

Real K(P)

We can also compare $K(I)$ and $K(P)$ under the Proposal and the Baseline with their historical values. In Iyer et al.'s paper (2012), they compute the $K(I)$ and $K(P)$ for years 1995 to 2006 using the Statistics of Income Data. Comparing the indices under the Proposal and the Baseline with Iyer et al.'s results (2012) will give meaning to the indices in a historical context.

Iyer et al. (2012) introduced a method in which they converted $K(P)$ into what they called "real $K(P)$." Because $K(P)$ is the difference between the Gini index value of the tax distribution and the Gini index value of pre-tax income distribution, it will change according to the pre-tax income distribution, even if the tax system stays the same (Iyer, 2012). We are able to compare $K(P)$ between the Proposal and the Baseline only because I assume their pre-tax income distribution is the same. To convert $K(P)$ to make it comparable over time is to hold the pre-tax income distribution constant and make only the tax system a variable. Iyer et al. (2012) gives the following formula to adjust $K(P)$ to $K(P)_{real}$, where the adjusted tax share for each income bracket equals:

$$\begin{aligned} & \text{Current year tax share} \\ & \times \text{1995 income share} \\ & / \text{current year income share} \\ & \times \text{1995 proportion of taxpayers in the group} \\ & / \text{current year proportion of taxpayers in the group.} \end{aligned}$$

This formula designates year 1995 as a base year, and essentially converts the current year tax share of an income bracket into what their tax share would

have been in 1995, by adjusting the tax share first by their income, and by number of taxpayers in the income bracket (Iyer, 2012). With the assumption that the average effective tax rate within each income bracket is the same each subsequent year as 1995, the above formula computes $K(P)_{\text{real}}$ for a given year as if that year's tax system was applied to 1995 pre-tax income (Iyer, 2012).

RESULTS AND ANALYSIS

Based on data reproduced in Table 10, Gini indices of the pre-tax income, after-tax income, and tax distributions are computed for the Baseline and the Proposal respectively. $K(I)$ and $K(P)$ are computed with the Gini input. Table 11 shows the results.

Table 11.
Gini indices of incomes sources and the computed Kakwani indices of the Proposal and the Baseline

	Pre-Tax Income	Salaries & Wages	Qualified Dividends	Capital Gains	The Baseline		The Proposal	
					Tax	After- Tax Income	Tax	After- Tax Income
Gini Index	0.5865	0.4611	0.7458	0.8572	0.7409	0.5461	0.7543	0.5395
$K(I)$					0.0404		0.0469	
$K(P)$					0.1544		0.1679	

The Gini of pre-tax income distribution, which is the same for the Baseline and the Proposal, is 0.5865. The Proposal's tax Gini index is slightly higher than the Baseline. Because the pre-tax income that is subject to tax is the same for the Proposal and the Baseline, a larger tax Gini index indicates more progressivity in the proposed tax system than in the Baseline tax system. Because of the more progressive tax distribution under the Proposal, its after-tax income Gini is slightly

lower than the Baseline's (i.e. the Proposal's after-tax income distribution is less unequal than the Baseline.)

K(I) and K(P) provide evidence consistent with the Gini indices. K(I) measures the difference between pre-tax Gini and after-tax Gini. It can be interpreted as the equity improvement in income distribution as a result of taxation. Because pre-tax distribution is the same for the Baseline and the Proposal, comparing K(I)'s actually measures solely the difference in after-tax income Gini indices. Of the 0.0404 of K(I) of the Proposal, the 0.0065 difference from the Baseline represents a 16% improvement in equity under the Proposal. K(P) is a measure of tax progressivity and is affected by pre-tax income distribution. Similarly, because the pre-tax Gini index is held constant here, the difference in K(P) between the Baseline and the Proposal can be attributed to their different tax systems. The Proposal's tax progressivity is higher than the Baseline's by 0.0135.

Table 12 shows percentage contribution of each of the three primary income sources to K(I) and K(P) indices for both the Proposal and the Baseline. Generally, the percentage each primary income source contributes is similar between the Proposal and the Baseline. This is likely an indication that the equity change in the income distribution caused by the Proposal's tax system is relatively evenly distributed across various income sources, resulting in small changes in the percentage contribution of each income source to total K(I) and total K(P).

S&W, under both the Proposal and the Baseline, constitutes the most significant driving force in decreasing K(I). In computing K(I) for specific income sources, a decrease in K(I) caused by the Gini of an income source lower than the

Gini of after-tax income means that the income source is more equally distributed relative to the after-tax income, thereby resulting in an equity gain. S&W increases equity in total K(I) by 118.8% and 128.7% under the Proposal and the Baseline respectively. However, it is partially offset by capital gains and qualified dividends, combining for a 39.8% and 38.9% decrease in equity under the Proposal and the Baseline respectively.

Two factors affect the percentage contribution of each income source to total income: the share of the income source in AGI, and the distribution of the income source. When divided by their respective share in AGI, contribution of each income source to AGI shows their (income sources) ability in increasing/decreasing equity in the after-tax income distribution, per percentage of AGI. Take the Proposal for example. Because S&W makes up 71.1% of AGI, with the 118.8% overall contribution to K(I), it increases equity by 1.67% per percentage of AGI. Capital gains constitute 4.8% of AGI, and decreases equity by 6.77% per percentage of AGI. Qualified dividends decrease equity by 4.4% per percentage of AGI. Compared with S&W's 1.67%, capital gains' 6.77% and qualified dividends' 4.4% indicate a stronger equity-decreasing effect than S&W's equity enhancing effect on a percentage-of-AGI basis. This is likely the outcome of concentration of capital gains and qualified dividends in the top income bracket. It may also be caused by the preferential tax treatment of capital gains relative to S&W under the Proposal.

S&W, under the Baseline, has a larger equity-enhancing effect of 128.7% than under the Proposal. Capital gains and qualified dividends produce larger decreases in equity under the Proposal than the Baseline. The combination of less equity

enhancing by S&W and more equity decreasing by capital gains and qualified dividends under the Proposal than the Baseline, on a percentage basis, implies that the rest of the income sources under the Proposal have a smaller collective equity decreasing effect to K(I).

Table 12.
Decomposition of K(I) and K(P) by income source

	K(I)		K(P)	
	The Proposal	The Baseline	The Proposal	The Baseline
S&W	-118.8%	-128.7%	124.2%	118.5%
Capital Gains	32.5%	31.8%	-2.9%	-3.3%
Qualified Dividends	7.3%	7.1%	0.1%	0%

Under the Proposal, S&W contributes substantially more to K(P) than capital gains or qualified dividends. Because S&W is more equally distributed than tax (notice that the S&W curve is closer to the egalitarian line than the tax curve in figure 3), its K(P) is a positive value. S&W accounts for 124.2% of the K(P), or total tax progressivity under the Proposal; capital gains decreased tax progressivity by 2.9%; and qualified dividends increased tax progressivity by 0.1%. This percentage contribution to K(P) can also be explained by figure 3. Because the decomposed K(P) compares the source income distribution to the tax distribution, income sources whose curves are to the left of the tax curve, such as S&W, contribute to total K(P), or tax progressivity. While income sources whose curves are to the right of the tax curve, such as capital gains, have the effect of reducing tax progressivity.

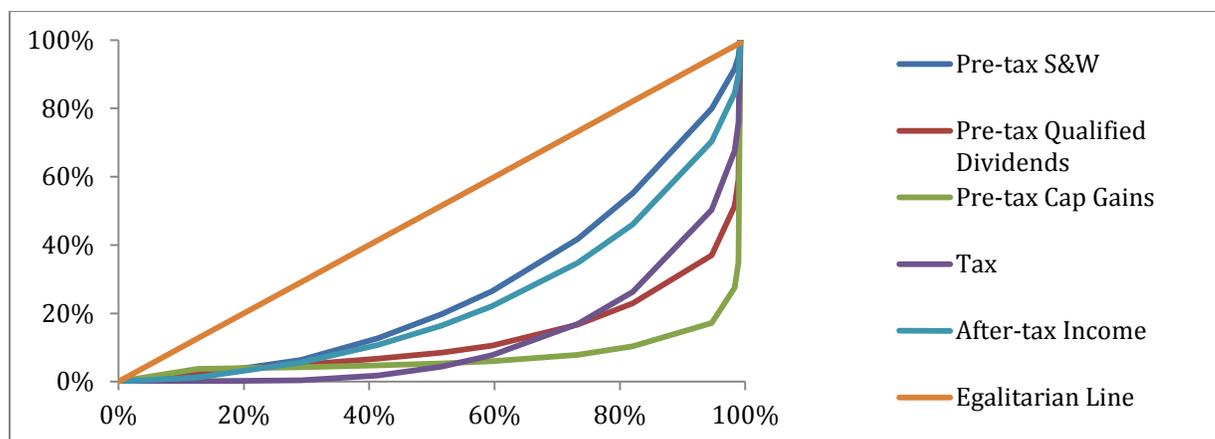


Figure 3. Distribution curves for decomposition computations for the Proposal.

Table 13 presents $K(I)$, $K(P)$ and $K(P)_{\text{real}}$ values for each year from 1995 to 2006 as calculated in Iyer et al.'s paper(2012). The $K(I)$ index shows a decreasing trend with fluctuations, which is likely an outcome of increasingly equally distributed pre-tax income and a decreasingly progressive tax system during the period 1995-2006. $K(P)$ displays an overall increasing trend, while $K(P)_{\text{real}}$ decreases each year from 1995 to 2000, rebounds in 2001, and decreases again each year from 2002 to 2006. The widening gap between $K(P)$ and $K(P)_{\text{real}}$ suggests that the tax system is becoming less progressive over the period, while the pre-tax income distribution is becoming more equally distributed, which more than compensated for the increasingly regressive tax system. This hypothesis is consistent with that drawn from the decreasing $K(I)$ over the same period.

The $K(I)$ for the Baseline and the Proposal are much higher than 1995-2006 values. Two hypotheses may explain this phenomenon: pre-tax income is less equally distributed under both scenarios than during the period 1995-2006, or the tax systems under both scenarios are more progressive than during the years 1995-2006. Under both the Proposal and the Baseline, $K(P)$ and $K(P)_{\text{real}}$ are less than the

smallest historical value from 1995 to 2006. This is likely an indication that both the Proposal and the Baseline's tax systems are less progressive than the tax system has been from 1995 to 2006. This finding rules out the hypothesis from the beginning of this paragraph, that the tax system is more progressive under the two scenarios than in any year during the period 1995-2006. Therefore, we can reasonably attribute the higher $K(I)$ and lower $K(P)$ under the two scenarios to its less equally distributed pre-tax income.

Table 13.

Historical values of $K(I)$, $K(P)$, and $K(P)_{real}$ (Iyer, 2012, May-June)

Year	$K(I)$	$K(P)$	$K(P)_{real}$
1995	0.0320	0.1997	0.1997
1996	0.0332	0.1994	0.1808
1997	0.0331	0.1957	0.1571
1998	0.0332	0.1988	0.1441
1999	0.0343	0.1983	0.1285
2000	0.0355	0.1970	0.1136
2001	0.0343	0.2070	0.1370
2002	0.0340	0.2268	0.1686
2003	0.0300	0.2222	0.1575
2004	0.0302	0.2196	0.1370
2005	0.0307	0.2162	0.1207
2006	0.0306	0.2119	0.1070
The Baseline	0.0404	0.1544	0.0072
The Proposal	0.0469	0.1679	0.0169

$K(P)_{real}$ under the Proposal, 0.0169, is more than twice the $K(P)_{real}$ under the Baseline, 0.0072. This indicates a 235% more progressive tax system under the Proposal than under the Baseline. In contrast to the significant difference in $K(P)_{real}$'s, $K(P)$ under the Proposal only indicates a 109% more progressive tax system than under the Baseline. This suggests a large amount of "noise" in $K(P)$ produced by the changing pre-tax income- it inflates $K(P)$ substantially and makes the difference in tax progressivity seem less significant.

DISCUSSION

One limitation of this paper is that it only studies the tax side of the income redistribution, and does not incorporate government spending. The federal government redistributes income in the economy through collecting taxes and then spending the revenue on programs that benefit its citizens. In Steuerle's paper (2003), he argues that Social Security and Medicare are regressive, in part due to the longer life span of the wealthy than the poor. Overall, government expenditure might be regressive in that people with high income tend to enjoy less benefit in relation to their income size than people with low income (Steuerle, 2003). When a tax proposal results in a net change in tax revenue, the expenditure level needs to change accordingly assuming revenues and spending have to balance in the long run. Because spending changes tend to follow the distribution pattern of existing spending, i.e. the net change in spending tends to be regressive, the outcome of a tax proposal and its corresponding spending proposal is likely different than what the tax proposal alone reveals (Steuerle, 2003). Future studies on the Obama tax proposals can incorporate his proposals on spending changes, and account for those changes quantitatively to each income bracket to evaluate the full redistributive effect of his proposals.

Another limitation of this paper is that in evaluating equity and progressivity, it focuses on the federal income tax alone without examining other types of tax one may be subject to. According to Iyer et al. (2012, March-April), this may lead to incomplete or inaccurate conclusions because other taxes may differ significantly from the federal income tax in their progressivity. For example, when including

payroll taxes, the progressivity of the federal income tax is reduced by 50% (Iyer, 2012, March-April). Therefore, one could apply the findings in this paper more effectively in conjunction with a thorough evaluation of other major types of taxes on the individual level. In other words, this paper could be one piece of a larger effort to understand the equity and progressivity of the entire Obama tax proposal.

According to Poterba (2007), the tax system has an indirect effect on pre-tax income distribution that arises from changes in taxpayer behavior that are induced by the tax system. Generally, a reduction in marginal tax rate for a certain segment in the income distribution is likely to raise the pre-tax income share accruing to this segment (Poterba, 2007). Taxpayers' behavior in response to tax changes may take forms of generating more income (for low income taxpayers in response to higher marginal rates), changing the mix income components (employer benefits vs. salary), changing the timing of income reporting, etc. In this paper, I compute the Kakwani indices for 2013 assuming the pre-tax income distribution is the same for the Proposal and the Baseline. This limitation can be overcome by using a dynamic projection of pre-tax income distribution that gives consideration to taxpayers' changing behaviors in response to a tax proposal.

Besides addressing the three limitations above, future studies of the vertical equity and tax progressivity of a tax proposal can attempt to create a method to adjust $K(I)$ so to allow the comparison of $K(I)$'s from different years. Future studies can also explore the relationship of the difference between $K(P)$ and $K(P)_{\text{real}}$ to the evolving pre-tax income distribution over time. This could provide critical insights into understanding the factors driving the value of $K(P)$. Finally, future studies can

evaluate the choice of 1995 as the base year which $K(P)$'s from other years are adjust to. As the economy evolves and interacts with the tax system, a pre-tax income distribution that changes each year is expected. Therefore, a more recent year could be more representative to the current pre-tax income distribution and makes for a more meaningful base year.

IMPLICATIONS

The Kakwani indices have been used widely in economics and tax policy studies to evaluate the progressivity of existing tax systems or tax systems in place in the past. This thesis provides a way to compute the Kakwani indices of two hypothetical tax systems and make comparisons based on the indices. The thesis also incorporates the decomposition of the indices into various income sources, which allows us to attribute index values to income sources on a percentage basis (Iyer, 2012 May-June). The conversion of $K(P)$ to $K(P)_{\text{real}}$ isolates the effect of the tax system on $K(P)_{\text{real}}$, allowing us to quantify tax progressivity alone (Iyer, 2012 May-June). Overall, this thesis examines the four standards of a good tax, and in particular, the vertical equity implications of a tax system. With careful consideration of the equity indices, vertical equity could be more effectively factored into policy makers' decisions with respect to tax policies.

CONCLUSION

Overall, the Proposal would likely generate more tax revenues through a combination of applying higher rates on the wealthy and limiting their deductions, thus scoring high on sufficiency. The Proposal does little on convenience, as it has a mix of provisions, some of which would simplify the tax code, and some of which

would complicate it. Many projected that the Proposal would slow down economic growth relative to the Baseline in the next decade. Therefore, the Proposal is likely less economically efficient than the Baseline.

The Proposal implies a higher vertical equity than the Baseline as evidenced by its higher overall $K(I)$. The Proposal also has a more progressive tax system than the Baseline as evidenced by its higher $K(P)$. The three primary income sources constitute similar percentages of tax progressivity and equity in the Proposal and the Baseline. Considering differences in $K(I)$, $K(P)$, and $K(P)_{\text{real}}$ between the Proposal and the years 1995-2006 leads to the conclusion that the Proposal's pre-tax income distribution is less equally distributed than during 1995-2006, and its tax system is less progressive than during 1995-2006.

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ABSTRACT

President Obama's 2013 federal budget proposal included provisions that would generally increase taxes for the wealthy. This paper evaluates the Obama tax proposal on individual income taxes against a baseline representing the 2011 tax law. The evaluation first follows the guideline of four standards of a good tax by the AICPA (2001), and then focuses on the vertical equity of the proposal by computing its Kakwani indices of income inequality and tax progressivity. Finally, the paper uses Iyer et al.'s method to decompose the Kakwani indices by income components, and converts $K(P)$ to isolate the effect of the tax system (Iyer, 2012, May-June). Results show that President Obama's tax plan in the 2013 federal budget proposal is more vertically equitable than the chosen baseline, in that it creates more equity in the income distribution (a higher $K(I)$), and that it has a more progressive tax system (a higher $K(P)$). Comparison of the indices with historical index values shows that the proposal's tax system is less progressive than any year from the period 1995-2006.