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# Why Should We Not Protest For Consumption Tax Reduction? Consumption Tax Rate as a Partial Mechanism For Increasing Consumer Wealth

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# Why Should We Not Protest For Consumption Tax Reduction?

## Consumption Tax Rate as a Partial Mechanism For Increasing Consumer Wealth

LIMOR RIZA AND NOAM SHER\*

### ABSTRACT

If you are an activist protesting against the high costs of living, we would like to offer you one suggestion: do not demand that the government reduce consumption tax. Social activists tend to believe that a government policy reducing consumption tax can, by itself, benefit the general population. This paper explains our suggestion to the contrary.

The tax field alone is insufficient for consumption tax reduction to be effective in increasing consumer wealth over benefitting suppliers. Due to cognitive biases, or *heuristics*, when the government changes consumption tax rates in order to increase consumers' well-being, suppliers are able to fix market prices above the normal equilibrium prices; this is especially true with low-priced and necessity goods.

This article examines four product price display regimes as possible solutions to this problem: (1) the *tax inclusive pricing rule*, common in EU countries, requiring suppliers to include the tax in the display price of each product; (2) the *tax exclusive pricing rule*, common in North America, permitting suppliers to display the price of each product without the tax amount; (3) the *net and total price rule*, which we suggest as the preferable solution, requiring suppliers to present net and final prices for each product; and (4) the *comparative net and total price rule*, which is very similar to the *net and total price rule*

but with the addition of comparative data and is more costly to apply.

Among these four different product price display regimes, the net and total price rule is ultimately preferable as it effectively reduces the influence of heuristics at a minimal cost, which thereby best promotes distributional justice and economic efficiency.

## INTRODUCTION

The 2008 global economic crisis sent activists to the streets demanding<sup>1</sup>, among other things, a reduction in consumption tax rates. These activists tend to believe that a government policy reducing consumption tax can benefit the general population.<sup>2</sup> Reducing the consumption tax rate, in itself, however, is not the most optimal solution to increase consumer wealth. Even if the consumption tax cuts are done with the aim to increase consumer wealth, and even if consumers have foreknowledge of such a reform, their cognitive biases will still prevent them from internalizing this information into their daily consumption habits. The problem here is not only that a tax is hidden from its consumers but that due to its disguise, suppliers are able to gain extra profits at the expense of the consumer. Therefore, without additional supervision, reductions in consumption taxes such as value-added tax (VAT) or retail sales tax (RST)<sup>3</sup> cannot be completely shifted to consumers. This paper will focus its analysis primarily on necessities purchased in large quantities.

First, this paper will illustrate that in a product market, suppliers take advantage of market failures to profit from consumption tax cuts or to minimize their losses, which results in shifting the lion's share of the burden to consumers. In the pricing regime model this article suggests, imperfectly rational consumers have limited information regarding the supply and demand curve. Whenever the government increases or decreases consumption taxes, consumers will likely try to estimate the corresponding normal changes (or also known as the "honest"

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1. See Anup Shah, *Public Protests Around the World*, Global Issues, <http://www.globalissues.org/article/45/public-protests-around-the-world> (last updated Nov. 07, 2011) (see subsection "*Protests Due to the Global Financial Crisis, 2008*" for discussion on protestors responding to the 2008 Global financial crisis).

2. Ariel Harkham, *Rothschild Boulevard: Road to a better Israel*, THE JERUSALEM POST, <http://www.jpost.com/Opinion/Op-Ed-Contributors/Rothschild-Boulevard-Road-to-a-better-Israel>.

3. For definitions and explanations of the terms consumption tax and its varieties, including VAT and RST, see *infra* Section I.

changes in product prices that suppliers would make to address the actual cost of production without market manipulation) in the market equilibrium. We claim that, due to heuristics such as representativeness, availability and anchoring,<sup>4</sup> consumers' predictions of market behavior are systematically biased. Moreover, since suppliers have better knowledge of the structure of supply and demand and can more accurately predict consumers' biases, they are more likely able to fix market prices above the normal equilibrium level whenever the government changes the consumption tax rate. This phenomenon typically has the strongest effect on necessary and low-priced goods, which are typically bought periodically and in large quantities.

This paper will then argue for the need of further supervision in order to avoid market abuse by suppliers; several price display regimes are examined as possible solutions to this problem.<sup>5</sup> The first is the simple tax inclusive pricing rule (*tax inclusive rule*), commonly applied in European Union countries.<sup>6</sup> According to this rule, suppliers should include the tax in the display price of each product. The second is the simple tax exclusive pricing rule (*tax exclusive rule*), commonly applied in North America;<sup>7</sup> this rule allows suppliers to present the price of each product without taxes. The third proffered solution is a strict product price display rule that requires suppliers to present the net and final prices for each product (*net and total price rule*). More specifically, this rule requires suppliers to state, for each product, the net price (before tax), the tax rate, the tax amount, and the total final price (after tax is added). Unlike the other price display regimes, this one would promote distributional justice and economic efficiency by mitigating the impact of consumers' heuristics on purchasing decisions when prices fall due to tax rate cuts. This distributional effect can be achieved at minimum costs while within the existing framework of consumer protection laws. The fourth solution, the *comparative net and total price rule*, is more complex as it obliges suppliers to show the information required under the *net and total price rule*. This solution, however, must also have comparative data and is more costly to apply. This paper recommends the third price display regime.

The paper is organized as follows: section I introduces and dis-

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4. For a discussion of heuristics in general and the representativeness, availability and anchoring heuristics in particular, see *infra* Section V.

5. For a detailed description of the current price display regimes, including the tax inclusive and tax exclusive rules, see *infra* Section I.

6. See Jacob Nussim, *To Confuse and Protect: Taxes and Consumer Protection*, 1 COLUM. J. TAX. L. 218, 224 (2010).

7. *Id.*

cusses tax terminology, consumption taxes, and the consumption taxes' distinct forms - mainly VAT and RST; section II briefly reviews the theoretical literature on consumption taxes and its pros and cons vis-à-vis income tax; section III examines the problem in consumers trying to follow product price changes due to consumption tax rate changes; section IV discusses the theoretical and empirical literature on tax inclusive versus exclusive systems; section V analyzes supplier and consumer behavior in product markets whenever the government changes the consumption tax rate, explains how the representativeness, availability and anchoring cause bias in consumers' predictions of market behavior, which allows suppliers to manipulate product prices; section VI discusses which of the four possible price display rules best addresses the problem of systematic consumer bias; and finally, section VII presents this paper's conclusions.

### I. CONSUMPTION TAX – TERMS AND DEFINITIONS

Consumption tax refers to a “tax base” that focuses on consumption rather than income or wealth.<sup>8</sup> The various forms of consumption taxes are different with respect to who ultimately bears the tax burden: consumers, workers or businesses.<sup>9</sup>

Consumption tax has multiple forms, including the retail sales tax (RST), value-added tax (VAT), the Hall–Rabushka flat-tax,<sup>10</sup> and X-tax.<sup>11</sup> A majority of the United States apply RST, which implements a tax on the final sale price of products at the retail level.<sup>12</sup> A retail sale is one where a business sells either goods or services to consumers.<sup>13</sup> Here, tax is added only at the last link of the sales chain and is thereby collected from the businesses rather than from its consumers.<sup>14</sup>

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8. JOEL SLEMROD & JON BAKIJA, *TAXING OURSELVES* 195 (4th ed. 2004).

9. *Id.* at 197.

10. Aimed at replacing the income-based tax system, the flat tax system imposes a uniform rate (19%) on consumption for all businesses and individuals. In this system businesses can deduct wages and capital investments from their tax base, while individuals are taxed only for their wages and pensions. In addition, a family of four receives an exemption of \$25,500. *See* ROBERT E. HALL & ALVIN RABUSHKA, *THE FLAT TAX* (2007); *see also* SLEMROD & BAKIJA, *supra* note 8, at 196.

11. The X tax conceived by Professor Bradford is a variant of the flat tax, but with progressive rates. In other words, it is similar to VAT with two main distinctions: first, salaries are also deducted as inputs by businesses, and second, it has several tax brackets. *See, e.g.*, DAVID F. BRADFORD, *UNTANGLING THE INCOME TAX* 59-74 (1986); *see generally* DAVID F. BRADFORD, *THE X TAX IN THE WORLD ECONOMY* (2003), *available at* <http://www.princeton.edu/~ceps/workingpapers/93bradford.pdf>.

12. SLEMROD & BAKIJA, *supra* note 8, at 195.

13. *Id.*

14. *Id.*

Although North America favors RST, VAT is more common worldwide; in fact, the United States is the only country in the Organisation for Economic Co-operation and Development (OECD) that does not apply VAT.<sup>15</sup> VAT is a more popular choice due to the ease of facilitating its enforcement<sup>16</sup> and collecting revenue;<sup>17</sup> it is also more difficult to evade the requirements under VAT than it is under RST. VAT imposes the tax value amount in each transaction in the chain of the production.<sup>18</sup> While each producer in each stage of production must pay tax on its output;<sup>19</sup> the inputs purchased from registered traders are reduced. So in the end, it is ultimately the consumers who bear the final tax on the sale of a particular good or service.

A flat tax is similar to VAT because the tax is also levied on businesses for its outputs minus its inputs;<sup>20</sup> it differs from VAT in that businesses can deduct wages, although these wages are still taxed at the individual level.<sup>21</sup> For simplicity sake in the paper, we refer to “consumption tax” as a whole (although it is necessary to keep in mind that it has various forms that differ in many respects, such as differences in compliance costs).<sup>22</sup> We will focus primarily on RST and VAT since they are more prevalent and share similarities that are relevant for the purposes of this paper.

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15. *Id.* See also The Organisation for Economic Co-Operation and Development (OECD), <http://www.oecd.org/about/> (explaining that the OECD has over 34 member countries, including Israel).

16. *Id.*

17. It was empirically tested that countries employing VAT raise more revenue than countries that did not adopt the VAT system, though the effect is not significant. It was also found that using a VAT system alone increased government size by exploiting its effectiveness. See Michael Keen & Ben Lockwood, *Is the VAT a Money Machine?* 59(4) NAT'L TAX J. 905-28 (2006).

18. SLEMROD & BAKIJA, *supra* note 8, at 196.

19. *Id.*

20. See generally *id.* at 194-97.

21. *Id.* at 196.

22. See THE PRESIDENT'S ADVISORY PANEL ON FEDERAL TAX REFORM, SIMPLE, FAIR, AND PRO-GROWTH: PROPOSALS TO FIX AMERICA'S TAX SYSTEM 37 (Nov. 2005), available at <http://www.treasury.gov/resource-center/tax-policy/Documents/Simple-Fair-and-Pro-Growth-Proposals-to-Fix-Americas-Tax-System-11-2005.pdf>.

## II. TAX THEORIES

Whether a consumption or comprehensive income tax base<sup>23</sup> is more preferable has been the subject of extensive literature.<sup>24</sup> The following section highlights some of the traditional differences between the two.

### A. *The Saving Argument*

One of the main differences between income tax and consumption tax is the effect of each tax on individual savings. Many argue that income tax reduces the incentive to save money since the interests attached to the money themselves are subject to taxation.<sup>25</sup> In this respect, consumption taxation thereby promotes neutrality since it is neutral between present and future consumption; it does not affect returns if the taxpayer chooses to consume today or some later time in the future.<sup>26</sup>

### B. *The Simplification Argument*

The advantages of consumption tax are clear in terms of the simplification argument. Consumption tax is much easier to levy and calculate than income tax. For instance, consumption tax avoids the difficulties involved in evaluating depreciation rules and taxing undistributed income.<sup>27</sup> Income tax, on the other hand, involves complex evaluations such as defining income, determining when it is realized, which expenses should be deducted, whether exemptions or credits are availa-

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23. The American tax system is closer to an income-based rather than a consumption-based model. See, for example, *id.* at 21 (“Our tax base . . . most closely resembles an income tax base system, but does not include certain forms of both cash and noncash income that would be part of a comprehensive income tax base.”).

24. The longstanding debate on consumption versus income tax base can be traced to William D. Andrews, who supports using consumption tax, and Alvin C. Warren, who argues in favor of income tax. See, e.g., William D. Andrews, *A Consumption-Type or Cash Flow Personal Income Tax*, 87 HARV. L. REV. 1113, 1113 (1974) [hereinafter Andrews, *Personal Income Tax*]; Alvin C. Warren, Jr., Comments, *Fairness and a Consumption-Type or Cash Flow Personal Income Tax*, 88 HARV. L. REV. 931, 931 (1975) [hereinafter Warren, *Fairness and Personal Income Tax*]; William D. Andrews, Response, *Fairness and the Personal Income Tax: A Reply to Professor Warren*, 88 HARV. L. REV. 947, 947 (1975) [hereinafter Andrews, *Reply to Professor Warren*]; Alvin Warren, *Would a Consumption Tax be Fairer Than an Income Tax?*, 89 YALE L.J. 1081, 1082 (1980) [hereinafter Warren, *Consumption Tax Fairer Than Income Tax?*]; Barbara H. Fried, *Fairness and the Consumption Tax*, 44 STAN. L. REV. 961, 961 (1992).

25. SLEMROD & BAKIJA, *supra* note 8, at 197.

26. *Id.* at 197-98; see also RICHARD A. MUSGRAVE, *THE THEORY OF PUBLIC FINANCE* 249 (1959).

27. See for example, BLUEPRINT FOR BASIC TAX REFORM 9, 44 (Dep’t of Treasury January 1977), available at <http://www.treasury.gov/resource-center/tax-policy/Documents/full.pdf>.

ble, and etc.<sup>28</sup> In addition, taxable income may be subject to progressive tax rates, which would only further complicate tax estimation.<sup>29</sup> In many instances, consumption tax in the form of RST or VAT is at a fixed flat rate, as a result, the tax burden can be easily calculated. Even if there are various rates in addition to the standard consumption tax rate (such as reduced rates for food or drug products), it is still easier to evaluate consumption tax than income tax.

A recent survey by *Money* magazine proved the complexity of calculating income tax.<sup>30</sup> In the survey, dozens of tax experts were asked to calculate the tax liability of a given taxpayer and each expert evaluated the given taxpayer's tax liability very differently. The highest estimation, for instance, was almost double the amount of the lowest estimation (which was closest to the correct answer).<sup>31</sup>

### C. The Equity Argument

Another argument addresses the progressive variable, and thus equitable nature of consumption taxes. Whether consumption or income taxation is a more accurate measure of taxpayers' ability to pay is debatable, but if the focus remains only on one taxable year, it could be said that consumption tax is regressive while income tax is progressive.<sup>32</sup> Because low-income families have a tendency to consume most, if not all, of their income, this results in those families ultimately facing a higher tax burden than families with a higher income. In that respect, a flat-rate consumption tax will clearly have a regressive effect. On the other hand, if one's lifecycle endowment is the considered focus rather than one's annual income combined with any money the taxpayer may have borrowed in his or her lifetime, the differences between these two types of taxes are actually very minimal.<sup>33</sup> This claim, however, assumes that income does not include certain forms of wealth, such as gifts and inheritances, and that taxpayers will also consume their income over a lifetime. Nevertheless, some scholars still

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28. *See generally id.*

29. *Id.* at 36.

30. The survey was presented in SLEMROD & BAKIJA, *supra* note 8, at 159.

31. *Id.*

32. "A tax is progressive tax if the ratio of taxes to income rises as income increases. . . and regressive if the ratio falls as income increases." *See* TAXATION & TAX POLICY 304 (Joseph J. Cordes et al. eds., 2d ed. 2005).

33. *See* SLEMROD & BAKIJA, *supra* note 8, at 208 (explaining that, "Similarly, over a lifetime, a consumption tax with graduated rates could in principle achieve about the same degree of progressivity as a graduated income tax; one is not inherently more progressive than the other. Rather, the degree of progressivity depends largely on the kind of tax rates that we impose, which is in principle a separate issue than the tax base the rates apply to.").



claim that taxing consumption is more horizontally equitable due to its taxation of savings.<sup>34</sup> If one compares two families with similar incomes, the family that saves its income will pay more in taxes due to the return on the family's savings. The consumption tax base, on the other hand, would tax the two families equally.<sup>35</sup>

A recent OECD empirical study shows that the use of consumption tax is significantly less distortive of the economy than corporate or individual income taxes.<sup>36</sup> This is, *inter alia*, partly true since taxing consumption is generally less progressive than taxing income.<sup>37</sup> In addition, this result is mainly due to the restriction on the free movement of services and goods,<sup>38</sup> which is more pronounced in larger countries and countries with closed borders (unlike EU member states).<sup>39</sup>

When assessing the adverse effect of a given tax on the economy, we should also consider whether the consumption tax burden is too high. In some countries where governments apply both income and consumption taxes, most of the tax burden is due to the taxation of consumption rather than income.<sup>40</sup>

Thus far, the pros and cons of taxing consumption rather than income have been debated exclusively within the discourse of the tax discipline. We posit that introducing other disciplines can provide important insight, since these disciplines interact with and complement the tax field. In doing so, one of the basic flaws of implementing consumption taxes (that its cut will not fully increase consumers' wealth) can be overcome and thereby shift the scales in favor of using this form of taxation.

### III. THE PROBLEM

Let us start with a simple example: assume a country levies VAT at a 16% rate. Due to severe criticism about the falling standard of living and the increasing economic burden on the middle class, the government decides to lower the VAT by one percentage point. As a result, if

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34. *See id.* (noting that, "many economists would also argue that, again ignoring bequests and inheritances, a consumption tax is more horizontally equitable than a comprehensive income tax.").

35. *See id.*

36. OECD, *Growth-oriented Tax Policy Reform Recommendations*, in TAX POLICY REFORM AND ECONOMIC GROWTH, 9, 20-21 (2010).

37. *Id.* at 20.

38. *Id.*

39. *Id.*

40. For a comparison of the overall general consumption tax burden with total taxes in OECD countries, see *id.* at 28-30.

the product price of an item before tax is \$5, then the tax will be reduced by only 5 cents from \$5.80 to \$5.75 after tax (this is assuming that the entire cut is being shifted to the consumer). The question then becomes: will the consumer be aware of the price reduction if only the final price is displayed in stores? It is important to remember that the tax cut would apply to all the products, not just to one. While consumers may not be able to sense the price changes through their daily shopping routines,<sup>41</sup> they should, however, be able to assess the tax cut after a period of time through assessing the cumulative purchases of daily products. Price displays with consumption tax cut amounts are therefore critical to consumer welfare.<sup>42</sup>

By addressing this issue from a purely tax perspective, the substitution effect<sup>43</sup> then remains unchanged since the product prices themselves have not changed and thus, alter the products' relative prices. The only change would then be the additional benefit producers (or the other links along the distribution chain, such as supermarket owners, etc.) receive in terms of consumer expenditure. Despite this immediate benefit to the producers, in the long run, consumers may face the income effect<sup>44</sup> since the tax burden on their income is not lessened by the reform. This argument further supports the conclusion of why price display is so critical to consumers.

How product prices are displayed varies between different states and countries. In general, there are two main systems: tax inclusive and tax exclusive pricing. European Union (EU) countries<sup>45</sup> and Israel<sup>46</sup> apply the tax inclusive system, therefore, the prices displayed include the VAT. Including VAT in price displays is typically justified in consumer protection law because it provides consumers with full and unam-

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41. See Nussim, *supra* note 6, at 226-27.

42. *Id.* at 226 ("This confusion diminishes consumer utility, which, in turn, diminishes social welfare. A preventative regulatory measure in the form of price indication supposedly eliminates this confusion and is thus welfare-increasing.").

43. For a different discussion of the substitution effect, see Nussim, *supra* note 6, at 234-243 ("The substitution effect, describes changes in taxpayer behavior due to changes in relative prices. Taxes may change relative prices—or, in other words, the relative attractiveness—of different activities and modes of behavior.").

44. The income effect is the effect of price changes in real income. "The income effect represents the change in taxpayer behavior solely due to the change in wealth." *Id.*

45. This is a result of applying both the VAT system and product pricing rules. EU members are subject to the VAT system under the latest effective Directive 2006/112/EC of the Council of the European Union. See Council Directive 2006/112, 2006 O.J. (L 347) 1 (EC), available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2006L0112:20110101:EN:PDF>. The obligation to display full prices is set forth in Directive 98/6/EC, *infra* note 46.

46. See Consumer Protection Law, 5741-1981, SH No. 1023, p. 248, §§ 17a-17b (Isr.)

biguous information about the final price that consumers will pay. The European Parliament and Council, for instance, adopted a Directive calling its Member states to implement product-pricing rules that include the taxes in the final product price in these states' domestic laws.<sup>47</sup>

There are nevertheless some jurisdictions that require separate presentation of the product's price and the tax that will subsequently be imposed on it (tax exclusive pricing); this appears to be the case in only two countries: the United States and Canada.<sup>48</sup> In these jurisdictions, the tax is later revealed and added to the product price only at the cash register when the consumer pays. The price displayed in the store price tag is not the final price. For tourists unfamiliar with the system, the real final price will typically come as a surprise at the cash register because it is not until this stage that tax is added. When consumers are only informed of the actual price at the final stage of the purchasing process, their ability to make decisions based on their due diligence is impaired because the final price is not visible on the price tags for the consumers to consider. Apparently, consumers prefer the presentation of final price on products since it saves them the trouble of calculating the final price. As a result, countries have transitioned from a tax exclusive system to a tax inclusive system since consumers seem to prefer paying the tax without noticing its burden only in the final stage of purchasing.<sup>49</sup>

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47. See Council Directive 98/6, 1998 O.J. (L 080) 27-31 (EC), on consumer protection in the indication of the prices of products offered to consumers. Article 2(a) of the Directive states: "For the purposes of this Directive: (a) selling price shall mean the final price for a unit of the product, or a given quantity of the product, including VAT and all other taxes". For the Directive Status, see [http://www.kapitalmarktrecht-im-internet.eu/en/Areas%20of%20Law/Private\\_Law/European\\_Law/42/Directive\\_98\\_6\\_EG.htm](http://www.kapitalmarktrecht-im-internet.eu/en/Areas%20of%20Law/Private_Law/European_Law/42/Directive_98_6_EG.htm). This directive was also extended to e-commerce in Directive 2000/31/EC of the European Parliament and of the Council (8 June 2000) – on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce), see Official Journal L. 178, 17/7/2000, pages 1-16.

48. With some exceptions, see David M. Sherman, *Policy Forum: Tax-Included Pricing for HST – Are We There Yet?*, 57(4) CANADIAN TAX J. 839, 845 (2009) and Richard M. Bird, *Policy Forum: Visibility and Accountability – Is Tax-Inclusive Pricing a Good Thing?*, 58(1) CANADIAN TAX J. 63, 68 (2010). In Canada, various taxes such as the goods and services tax (GST), harmonized sales tax (HST); the provincial retail sales tax (RST) are generally not displayed due to political and technical reasons. Sherman *supra* note 48, at 844; Bird *supra* note 48, at 69-70. Under the Canadian Constitution Act, 1867 (30 & 31 Vict., c.3 (UK)), provincial governments have legislative discretion and latitude as to whether to apply tax included or excluded display. Provinces favor the tax-excluded system. Sherman *supra* note 48, at 847-849. There are, however, some technical issues involved in the Canadian system. For example, how should a product be displayed on a website where it can be sold to people who live in different provinces (which apply different tax rates)? *Id.* at 853.

49. This was the case in Japan. See Bird, *supra* note 48, at 68 n.11 (quoting Hiromitsu Ishi). Bird believes that the Canadians also dislike the GST since they constantly remember its enactment and introduction. See *id.* at 73.

Legislation mandating tax inclusion in its price display is only preferential when the prices are fixed. This conclusion, however, is overridden when consumption tax rates vary, especially when they vary in favor of consumers.<sup>50</sup>

There is empirical research showing that consumption tax cuts are not necessarily shifted to consumers.<sup>51</sup> For instance, in 2009, the French VAT rate on restaurant and catering service products was dramatically lowered from

19.6% to 5.5%;<sup>52</sup> the assumption was that this reduction would stimulate the industry and ultimately reduce consumer expenditure. Statistical analysis demonstrated, however, that following this cut, expenditure on restaurant services dropped in July that year by only 1.1%, in August by 0.2%, in September by 0.1%, and by in October 2009 by 0.1%. Only 30% of the cut was shifted to the consumers.<sup>53</sup> Most empirical studies, however, only apply to basic products rather than luxury items.<sup>54</sup> Ultimately, the ability to shift the tax cut depends on demand elasticity and demand elasticity in groceries (particularly in basic products) appears to be lower, particularly by lower income consumers.<sup>55</sup>

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50. In Israel, the VAT has been changed 14 times and reduced 6 times since it was enacted in 1975: in October 1985 it was reduced from 17% to 15%; in January 1993 was reduced from 18% to 17%; in March 2004 it was reduced again from 18% to 17%; in September 2005 it was further cut to 16.5%; in July 2006 it was reduced further to 15.5%; in January 2010 the VAT was reduced from 16.5% to 16%. See Buy it In Israel Staff, *Good news for homebuyers: Israel lowers VAT rate to 16%*, BUY IT IN ISRAEL, (Jan 5, 2010) [www.buyitinisrael.com/good-news-for-homebuyers-israel-lowers-vat-rate-to-16](http://www.buyitinisrael.com/good-news-for-homebuyers-israel-lowers-vat-rate-to-16); see also *International VAT and GST rates 2014*, VATLIVE, [www.vatlive.com/vat-rates/international-vat-and-gst-rates](http://www.vatlive.com/vat-rates/international-vat-and-gst-rates) (last visited Nov. 9, 2014).

51. See, for example, the different studies described by Alain Charlet & Jeffrey Owens, *An International Perspective on VAT*, 59 TAX NOTES INT'L 949 (2010), available at <http://www.oecd.org/dataoecd/47/45/46073502.pdf>.

52. *Id.* at 950.

53. *Id.*

54. *Id.* at 949.

55. See the discussion on price elasticity of demand of luxuries versus necessities in STANLEY L. BRUE AND CAMPBELL R. MCCONNELL, *ECONOMICS: PRINCIPLES, PROBLEMS, AND POLICIES* 362 (16<sup>th</sup> ed. 2005), see also Chapter 10: Annual Summary of Israeli Tax Authorities 2005: differential VAT on groceries and its impact on the income gap, available at <http://ozar.mof.gov.il/taxes/Year2005Summary/10.pdf>. Some studies focus on income level, mainly of low-income groups, and its effect on the elasticity of demand for food, see Tatiana Andreyeva, Kelly D. Brownell and Michael W. Long, *The Impact of Food Prices on Consumption: A Systematic Review*, 100(2) AM. J. PUB. HEALTH 216 (2010) and mainly references in n. 18-20 and ns. 34-35.

## IV. RELATED LITERATURE

While extensive writings exist concerning the pros and cons of both the tax inclusive and tax exclusive systems,<sup>56</sup> the main focus of these writings is somewhat different than ours. The empirical studies, discussed below, are either in support of the tax inclusive or tax exclusive system; the debate between which system is more superior is not the objective of this note. Rather, the focus of this note is centered on deciding which system should be adopted *when a tax cut is introduced with the aim of benefiting consumers.*

A field study conducted in Canada examined which system is preferable: an inclusive system (such as VAT) or an exclusive system (such as RST).<sup>57</sup> Canada was an ideal location for the study because certain provinces in Canada had replaced the RST with a tax inclusive system.<sup>58</sup> Under the RST system, businesses are subject to a higher tax burden.<sup>59</sup> It was believed that substituting the RST system with the VAT system would shift (e.g. through higher prices) the tax burden from businesses to consumers, thereby hindering tax reform due to the political consequences of such a shift.<sup>60</sup>

The field study further illustrated that prices changed at relatively the same rate as the changes in tax when “[e]ach one per cent increase in costs induced by taxes leads to approximately a one per cent increase (or sometimes a bit more) in the price paid by consumers.”<sup>61</sup> Therefore, according to the study, moving from one system to another had little distributional effect.<sup>62</sup>

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56. See, e.g., Sherman, *supra* note 48; see also Bird, *supra* note 48. Sherman supports the tax inclusive system for macroeconomic reasons: first, contrary to the exclusive system, it does not deter consumers from leaving products at the cash register; second, people are better off when they pay the price they are used to by advertising; and third, psychologically, it encourages small business to buy large supplies since buying generates an input tax credit. Sherman *supra* note 48, at 844-45. Bird, who analyses the pro and cons of tax exclusive or inclusive pricing on democratic grounds, argues that it should be easier to increase a tax when it is socially desirable, “if people are not painfully reminded that the tax exists by having to add it separately to the quoted price every time they buy something.” Bird *supra* note 48, at 75. Bird remains in favor of the tax exclusive system, however, since as he phrases it, it helps “build a sustainable democratic consensus in support of fiscal equilibrium.” *Id.* at 76.

57. See Michael Smart & Richard M. Bird, *The Economic Incidence of Replacing a Retail Sales Tax by a Value-Added Tax: Evidence from Canadian Experience* (Working Paper, 2008), available at <http://ssrn.com/abstract=1273780> (in Canada, some provinces apply a retail sales tax separately from the Federal Goods and Services Tax. Others apply a harmonized tax similar to VAT).

58. *Id.*

59. *Id.* at 3.

60. *Id.*

61. *Id.* at 4.

62. *Id.* at 5.

A different field study examined the effects of tax inclusive and exclusive displays on consumer demand; the field study concluded that the tax amounts displayed on products affected consumer behavior.<sup>63</sup> Since consumers reacted differently to the prices including the tax amount by purchasing less, the study concluded that tax salience is important to consuming decisions.<sup>64</sup> This conclusion is based on two empirical studies: first, for a period of three weeks, the authors displayed in various shops cosmetic products with full tax; and in the second, they checked the effect of tax on alcohol expenditure throughout an extensive period.<sup>65</sup>

Congdon, Kling, and Mullainathan,<sup>66</sup> examined how to incorporate behavioral economics into tax policies through broad aspects: “(1) understanding the welfare consequences of taxation, (2) using the tax system as a platform for policy implementation, and (3) employing taxes as an element of policy design.”<sup>67</sup> Congdon, Kling, and Mullainathan examined how tax salience falls in line with simplicity, a desirable principle in the optimal tax policy discussion.<sup>68</sup> They claim that when implementing policies, policy makers striving to achieve efficiency and equity should take into account that consumers may be unaware of “complex or obscure taxes.”<sup>69</sup>

In a different study, contrary to the first intuition of consumer protection law, Nussim claims that tax exclusive pricing is preferable.<sup>70</sup> The premise behind this claim is that a confused consumer unaware of the tax’s existence is not negatively affected by the hidden tax since the substitution effect remains unchanged.<sup>71</sup> Although this claim is somewhat appealing we believe that in some instances it may not hold. In response to Nussim’s argument, we believe that while consumer confusion may be experienced in the short run, it cannot sustain in the long run. In the long run, consumers will notice the effect on their income and welfare and be aware of the taxes. Moreover, it seems that the thesis cannot apply when tax rates are differential and not proportional where

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63. Sherman, *supra* note 48, at 844.

64. *Id.*

65. Raj Chetty, Adam Looney & Kory Kroft, *Salience and Taxation: Theory and Evidence*, 99 AM. ECON. REV. 1145-77 (2009).

66. William J. Congdon, Jeffrey R. Kling & Sendhil Mullainathan, *Behavioral Economics and Tax Policy*, 52 NAT’L TAX J. 375-86 (2009).

67. *Id.* at 376.

68. *Id.* at 378.

69. *Id.*

70. Nussim, *supra* note 6, at 229 n.51.

71. *See id.* at 222, 238.

relative prices remain unchanged,<sup>72</sup> and when, due to tax change, buyers cannot afford buying a given product anymore. In addition, Nussim claims that competition is not influenced by the inclusive - exclusive tax system but rather by relative as opposed to absolute prices. Finally, although Nussim treats competition with cross-border transactions when mobility is possible, he ignores the situation of a competition within a state with somewhat closed borders.

Much of the extant literature does not focus on the harm caused to consumers at the expense of “producers” (usually meaning a few giant corporations whom control the market).<sup>73</sup> This outcome (the harm to consumers at the expense of the producer) is not only inequitable, but also inefficient. Corporations benefit at the expense of the consumers’ individual consumption power; their enrichment is slight when compared to the harm suffered by consumers.

Many of the studies, such as those mentioned above, focus on the problems of having hidden tax. We support the idea that a hidden tax is flawed because this means that buyers are unaware of its existence. While this article supplements those studies by concentrating on the hidden tax shifted from consumers to “producers,” our analysis is focused on the influence that tax changes, specifically tax cuts, have on consumer welfare.

## V. SUPPLIER AND CONSUMER BEHAVIOR IN PRODUCT MARKETS

This section examines the application of behavioral economics to the question of how changes in consumption tax rates shape individual behavior and thereby affect markets.<sup>74</sup> A strictly neoclassical theory is not nugatory or irrelevant, but when prices are intermittent and fluctuating, behavioral economics would enter into force more vigorously.

### A. *Markets with Rational Players*

A rational individual is an individual whose choices are in accordance with completeness and transitivity.<sup>75</sup> Relating that to the tax dis-

72. The author is aware of this problem, see *id.* at Ch. IV.A.

73. *Id.* at 248.

74. Applying behavioral economics to different disciplines is not new, even in the area of taxation. See, for example, Congdon, Kling & Mullainathan, *supra* note 66.

75. See generally LAWRENCE E. BLUME & DAVID EASLEY, *Rationality*, in THE NEW PALGRAVE DICTIONARY OF ECONOMICS, (Steven N. Durlauf & Lawrence E. Blume eds., 2d ed. 2008), *available at* [http://www.dictionarofeconomics.com/article?id=pde2008\\_R000277&edition=current&q=rational%20completeness%20transitivity&topid=&result\\_number=4](http://www.dictionarofeconomics.com/article?id=pde2008_R000277&edition=current&q=rational%20completeness%20transitivity&topid=&result_number=4); HAL R. VARIAN, INTERMEDIATE MICROECONOMICS: A MODERN APPROACH 35 (8th ed. 1982).

course, a rational taxpayer can always compare two “tax bundles.”<sup>76</sup> If the taxpayer knows the tax amount of A and of B, he can always determine if one is preferable to the other or whether they are both equally attractive (the completeness requirement). Moreover, if a taxpayer knows the tax burden of bundles A, B, and C, then according to transitivity, if A is preferable to B, and B is preferable to C, then A is preferable to C.<sup>77</sup> A rational and self-interested taxpayer will always prefer a lower tax burden. The problem in behavioral economics in relation to the tax field is that despite this form of “rationality,” a lack of information will mean that the rational taxpayer is necessarily assumed to have made the rational choice based only on what the taxpayer knows.

In pre-tax and post-tax reform we assume that persons—both firms and individuals—will always maximize utility.<sup>78</sup> Naturally, for consumers, the utility function is not solely based on the products’ prices but on other factors as well such as supermarkets’ salience and shopping facilities. Nevertheless, it is plausible to assume that product prices still play a major role in estimating overall utility. The problem is that individuals’ ability to estimate their utility function is constrained in a world with fluctuating prices and asymmetric information.<sup>79</sup>

First, let’s assume we exist in a market with rational players and perfect competition. In addition, production and prices are also determined without government intervention (in Figure 1 below, the demand curve D and the supply curve  $S_t0$  intersect at point A, creating the market equilibrium with a product price  $p_0$  and the quantity  $q_0$ ). Under perfect competition, supplier would profit (the triangular area of  $p_0AJ$  below) and consumer surplus (the triangular area of  $p_0AH$ ) would be at their highest.

If the government decides to change the consumption tax rate and the consumers are rational, neoclassic economics predicts the expected changes in the product markets’ equilibrium.<sup>80</sup> When a consumption tax is first imposed (see  $S_t1$  in the graph below), suppliers and con-

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76. See Office of Best Practice Regulation, *Influencing Consumer Behaviour: Improving Regulatory Design*, AUSTRALIAN GOVERNMENT DEPARTMENT OF FINANCE AND DEREGULATION 9-11 (2009), available at <http://ris.dpmc.gov.au/files/2013/01/influencing-consumer-behaviour.pdf> [hereinafter *Influencing Consumer Behaviour*].

77. BLUME & EASLEY, *supra* note 75; see also VARIAN, *supra* note 75, at 35.

78. *Id.*

79. See *Influencing Consumer Behaviour*, *supra* note 76, at 11, 27, 59.

80. See VARIAN, *supra* note 75, at 296-310; see generally ROBERT S. PINDYCK & DANIEL L. RUBINFELD, *MICROECONOMICS* 335-42 (7th ed. 2009).

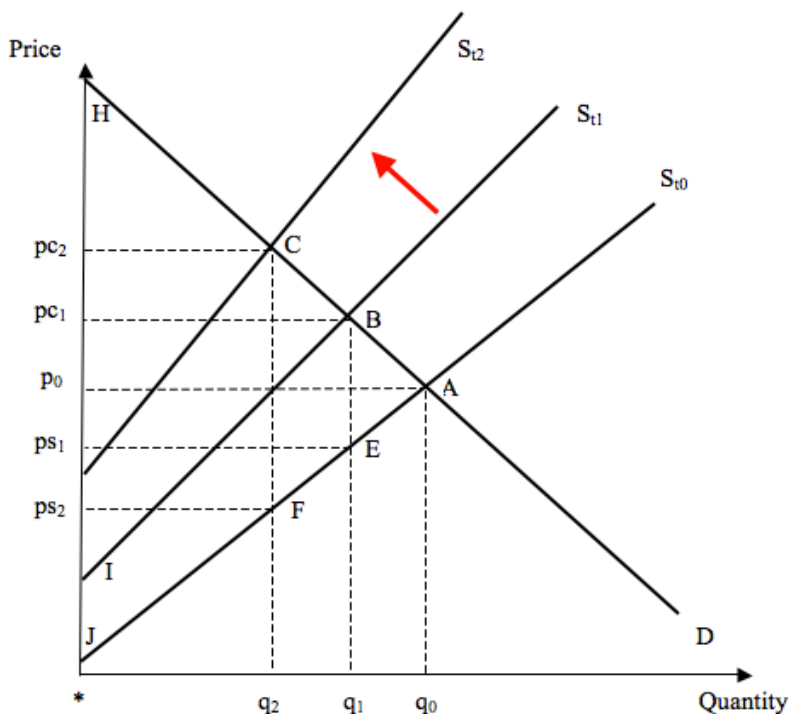


sumers must consider two different prices for each product: the final price paid by the consumer and the price after the tax reduction that suppliers get from the transaction. The difference between the two prices for each product is the tax amount.

Consumption tax entails added cost over the cost of production.<sup>81</sup> It means that both suppliers and consumers are facing a higher cost of production, or an increased supply curve for each product, assuming as in most cases that the tax is imposed directly onto suppliers and directly causes an upward shift of the supply curve (curve  $S_{t1}$  in Figure 1 below). This leads to a new equilibrium, one with reduced production and a higher final price for each product. For each product sold, suppliers would receive the price paid by consumers minus the tax amount. With the new equilibrium, suppliers in each market face lower prices ( $ps_1$ ) and quantities ( $q_1$ ), therefore lowering profits (represented by the area of triangle  $ps_1EJ$  in the graph below). On the other end, consumers face a higher price (including tax) ( $pc_1$ ) with a lower quantity ( $q_1$ ), which would therefore reduce consumer surplus (represented by the area of triangle  $pc_1BH$ ). This applies, with the necessary changes having been made, if consumption tax changes again (see, for example, if it is raised again as represented in the graph to follow by  $S_t$ ).

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81. *Id.*



*Figure 1*

**Neoclassical Demand and Supply Curves with Gradual Consumption Tax**

\* the origin in this graph does not represent point (0,0)

When the government increases the consumption tax rate, a new equilibrium arises. As a result, the aforementioned changes would take another step forward. This new equilibrium results in even lower prices and profits for suppliers while consumers, on the other hand, receive higher prices and a lower surplus.

*B. Markets with Imperfectly Rational Consumers*

We do not claim that suppliers always manipulate consumers. This subsection concludes that even when the government does *not* consider tax changes in a society where the consumers are imperfectly rational, it is still plausible to assume that suppliers will not use heuristics to manipulate the markets. In addition, suppliers can earn revenues in excess of the profits predicted by neoclassic economics<sup>82</sup> when prices change

82. See generally Roy E. Weintraub, *Neoclassical Economics*, LIBR. OF ECON & LIBERTY,

due to consumption tax changes.

First, it is difficult for suppliers to manipulate markets without a “justifying” cause. Accordingly, this lack of market exploitation is due to both the consumers *and* suppliers’ perceptions of fairness, a theory propounded by behavioral economists.<sup>83</sup> Daniel Kahneman, Jack L. Knetsch, and Richard H. Thaler analyzed several studies illustrating how consumers’ knowledge of changes in market conditions—conditions that typically justify suppliers’ reactions—constrain market adjustments.<sup>84</sup> For example, when customers are unaware of the changes to suppliers costs, they will not anticipate changes in the market supply curve. Kahneman and his colleagues contend that even when the supply curve actually shifts, if the consumers do not anticipate the shift, they are likely to believe that the suppliers are deceiving them and will reject the price increases.<sup>85</sup>

Second, based on the aforementioned analysis, we claim that suppliers are reluctant to change prices in product markets with asymmetric information about the supply curve. Consumers have limited information about the marginal costs of production, the additional supply costs relevant to market price determination, and the changes in product supply curves. Despite this asymmetric information, supplier desiring to maintain a positive reputation will not risk having their consumers potentially suspect them of being dishonest by increasing the prices of their products.<sup>86</sup> As a result, in a stable state (where there are no changes in production costs or taxes), given consumers’ “irrationality,” suppliers will not fully adjust prices to the levels predicted by neoclassic economics. If the supply curve changes or if production costs rise as a result of events that consumers are unaware of, suppliers are likely to suffer losses due to their inability to raise prices without a “fair” cause. On the other hand, if the change in the supply curve is hidden from consumers and the production costs are *lower*, suppliers

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available at <http://www.econlib.org/library/encl/NeoclassicalEconomics.html> (last visited Dec. 29, 2014).

83. See Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, 76 AM. ECO. REV. 728 (1986) [hereinafter *Fairness as a Constraint on Profit Seeking*]; see also Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Fairness and the Assumptions of Economics*, 59(4) THE J. OF BUS. 285 (1986) [hereinafter *Fairness and the Assumptions of Economics*]; see also Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98(6) J. OF POL. ECON. 1325-48 (1990) [hereinafter *Experimental Tests of the Endowment Effect and the Coase Theorem*].

84. *Fairness as a Constraint on Profit Seeking*, *supra* note 83, at 735, 738-39.

85. *Id.* at 738-39.

86. See *id.* at 735.

can also gain extra profits from the consumers' inability to detect the change in the internal production process.

Despite the inconclusive findings, Kahneman, Knetsch, and Thaler maintains that “[p]rice changes will be more responsive to variations of costs than to variations of demand, and more responsive to cost increases than to cost decreases.”<sup>87</sup> Those phenomena—referred to as “asymmetric price rigidity”<sup>88</sup> in the context of consumption tax changes—could be explained by cognition biases, namely heuristics.<sup>89</sup> The idea behind this is that since it is costly to absorb information, individuals would instead base their decisions on heuristics.<sup>90</sup>

Oren Bar-Gill argues that imperfectly rational consumers rely on heuristics to estimate benefits and product prices.<sup>91</sup> Since buyers suffer from systemic biases and misperceptions, sellers aware of these biases will specifically design their products, contracts, and prices in a manner to manipulate consumers.<sup>92</sup> This type of behavior will lead to market inefficiency and consumer losses.

In our model, as mentioned above, imperfectly rational consumers have very little information regarding the supply curve, which includes the producer's marginal costs of production and other miscellaneous supply costs. Furthermore, consumers have minimal knowledge regarding the structure of a product's demand curve and are only slightly

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87. *Id.*

88. For an explanation of asymmetric price rigidity when the market disturbances causing it are changes in inflationary or deflationary expectations, see Timur Kuran, *Asymmetric Price Rigidity and Inflationary Bias*, 73 AM. ECON. REV. 373-82 (1983). For an explanation of asymmetric price rigidity when the market disturbances causing it are the changes in demand in a duopoly market, see Richard Damania & Bill Z. Yang, *Price Rigidity and Asymmetric Price Adjustment in a Repeated Oligopoly*, 154 J. OF INST. AND THEORETICAL ECON. 659-79 (1998).

89. Heuristics were first introduced as a cause for market abnormalities by Daniel Kahneman and Amos Tversky, see Daniel Kahneman & Amos Tversky, *Judgment under Uncertainty: Heuristics and Biases*, 154 SCIENCE 1124, 1124-31 (1974). For a more detailed description and analysis of heuristics and their effects on consumer judgments, see JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Daniel Kahneman, Paul Slovic & Amos Tversky eds. 1982); and see HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT (Tom Gilovich, Dale Griffin & Daniel Kahneman eds. 2002).

90. See, for example, John Conlisk, *Optimization Cost*, 9 J. OF ECON. BEHAVIOR & ORGANIZATION 213-28 (1988); see also John Conlisk, *Why Bounded Rationality?*, 34 J. OF ECON. LITER. 669-70 (1996) [hereinafter “Conlisk II”].

91. Oren Bar-Gill, *Competition and Consumer Protection: Behavioral Economics Account*, 12-41 (Konkurrensverket Swedish Competition Authority, 2012), available at [http://www.konkurrensverket.se/upload/Filer/Trycksaker/Rapporter/Pros&Cons/rapport\\_pros\\_and\\_cons\\_consumer\\_protection.pdf](http://www.konkurrensverket.se/upload/Filer/Trycksaker/Rapporter/Pros&Cons/rapport_pros_and_cons_consumer_protection.pdf).

92. *Id.* at 13-14 (explaining that, “A monopolist can similarly be expected to design products, contracts and pricing schemes to maximize the perceived (net) benefit from its products.”) (and that, “Put bluntly, competition forces sellers to exploit the biases and misperceptions of their customers.”).

aware of the changes in its structure. It is plausible to assume that consumers act separately and do not collect information on consumer preferences. Therefore, the consumers do not have the actual aggregate data needed to estimate the nature and structure of the market demand curve. On the other hand, suppliers have the capacity to continuously collect this sort of information through sources such as data from its cash registers, consumer clubs, and market studies. Therefore, the suppliers who have vigorously collected the information necessary to make their business decisions are likely to have considerable insight into the markets' supply and demand curves, insight that consumers do not appear to have as much access to.

Now, let us assume asymmetric information in a product market where both rational suppliers and irrational consumers face an increase in the consumption tax rate. Let's also assume that the suppliers and consumers are aware of the new tax rate and its effective date; it is plausible to assume that the consumer's awareness of the tax change will influence his or her behavior.<sup>93</sup>

As mentioned above, if an event that changes the supply curve is undisclosed to consumers, the consumers' fairness effect might prevent suppliers from automatically adjusting prices to the equilibrium as predicted by neoclassical economics. Therefore, suppliers hoping to maintain their positive reputations are unlikely to change prices if they believe that customers might suspect them of being dishonest or manipulative. Consumption tax changes, however, are believed to be widely advertised and known to the general population; this enables the market to overcome the fairness constraint. Furthermore, because suppliers are more likely to understand the structure and complexity of supply and demand more than consumers, as a result, suppliers have the opportunity to adjust market prices above the normal neoclassical equilibrium prices and consider the fact that consumers are systematically biased in estimating the normal or honest changes in market equilibrium.

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93. American economist Steven D. Levitt believes that Chrysler's offer of rebates for fuel costing over \$2.99 a gallon for new cars is a brilliant idea since it attracts prospective buyers without any financial loss to Chrysler. Individuals are more aware of the existence of tax on fuels since they see the price fluctuations every few days in the gas stations. Levitt, however, also believes that consumers exaggerate the significance of gas expenses in their overall budget. *See generally* STEVEN D. LEVITT, *\$2.99 Gas*, FREAKONOMICS (May 12, 2008), available at <http://freakonomics.com/2008/05/12/299-gas/>.

*The representativeness heuristic* may be an explanation for the market's biased equilibrium.<sup>94</sup> Consumers apply this rule of behavior when determining whether an item is the result of a specific process or belongs to a specific class. For example, consumers would estimate the probability of an item belonging to a group based on its resemblance to other familiar items in a product group. We argue that people aware of products' price changes due to a higher consumption tax rate are likely to visit their local supermarket and try to estimate the fairness of that price change. In fact, some specialty goods unknowingly help consumers detect fair or unfair behavior by suppliers. Therefore, if suppliers can identify those representative products, they would be able to manipulate the market by fixing the market price of the products that are not representative products above the normal equilibrium price. Representative product prices will change to its normal equilibrium price or to a lower figure that reflects a price change that is accurate and honest.

*The availability heuristic*<sup>95</sup> may also bias consumers' estimation of a price change's fairness. The discussion here bears some similarities to that of the representativeness heuristic. As originally explained by Tversky and Kahneman, "[t]here are situations in which people assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind."<sup>96</sup> In our case, it is possible to represent the consumers' dilemma as one that involves the mechanism of judging an event's probability through available examples. When determining whether the price of each product they purchase is the result of a tax increase that normally shifts to the consumers as opposed to one resulting from supplier manipulation, consumers typically compare the new prices with the former prices of products

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94. The Representativeness Heuristic was first introduced by Tversky and Kahneman in their article, *Judgment under Uncertainty: Heuristics and Biases*, *supra* note 89, at 1124-27. For a more detailed description and analysis of this form of heuristic, see JUDGMENT UNDER CERTAINTY, *supra* note 89, at 3-98, and see Daniel Kahneman and Shane Frederick, *Representativeness revisited: Attribute substitution in intuitive judgment*, in HEURISTICS & BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 49-81 (Thomas Gilovich, Dale Griffin, and Daniel Kahneman eds. 2002).

95. The availability heuristic was first introduced in Tversky & Kahneman's *Judgment under Uncertainty: Heuristics and Biases*, *supra* note 89, at 1127-28. For a more detailed description and analysis of the *Availability Heuristic*, see JUDGMENT UNDER HEURISTICS: HEURISTICS AND BIASES 163-208 [hereinafter JUDGMENT UNDER HEURISTICS]. Also see, Norbert Schwarz & Leigh Ann Vaughn, *The Availability heuristic revisited: Ease of recall and content of recall as distinct sources of information*, in HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 103-19.

96. *Judgment under Uncertainty: Heuristics and Biases*, *supra* note 89, at 1127.

they can easily remember.<sup>97</sup> If suppliers could identify those products, they would be able to better manipulate market prices.

The *anchoring and adjustment heuristic*<sup>98</sup> could be used by suppliers in determining how much a product's price could be adjusted without it being considered dishonest by consumers. The existing values of products have an ability to bias the estimations that consumers make. If suppliers can identify specific values of the products that could influence this estimation, they can use them to obtain higher prices in the post-tax raise market.<sup>99</sup> The amounts \$4.99, \$5.00 and \$5.50 can serve as good anchor prices for suppliers. For instance, if the price of a product with 15% VAT was \$4.95 before the tax increased to 16%, and assuming a mild and similar price elasticity of supply and demand, the normal (or honest) new price in equilibrium in this product market, according to neoclassic economics, should be approximately \$4.97. We argue that suppliers are able to use anchors for passing a higher tax change amount onto consumers. In this scenario, suppliers might use the anchor \$4.99 as the new price instead of \$4.97 if \$4.99 is determined as a strong enough anchor. This would result in shifting almost the entire tax cost to the consumers.

### C. Basic Products

While the analysis above is generally valid for any product market, the impact of its use would be stronger in markets for basic products. With rational players, when the government cuts the consumption tax rate, we can expect in the new market equilibrium for each product higher final prices (excluding consumption tax) and higher profits for suppliers. For consumers, we can expect lower prices (including consumption tax), higher surplus, and a likelihood of consumers purchasing products in higher quantities.

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97. See NORBERT SCHWARZ & LEIGH ANN VAUGHN, *The Availability heuristic revisited: Ease of recall and content of recall as distinct sources of information*, in HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 103-19.

98. The anchoring and adjustment heuristic was first introduced by Tversky and Kahneman in Tversky & Kahneman, *Judgment under Uncertainty: Heuristics and Biases* 1128-30. For further analysis, see Nicholas Epley & Thomas Gilovich, *Putting adjustment back in the anchoring and adjustment heuristic*, 12 PSYCHOLOGICAL SCIENCE 391-96 (2001); Gretchen B. Chapman & Eric J. Johnson, *Incorporating the irrelevant: Anchors in judgments of belief and value*, in HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 120-38; and Chris Janiszewski & Dan Uy, *Precision of the Anchor Influences the Amount of Adjustment*, 19(2) PSYCHOLOGICAL SCIENCE 121-27 (2008).

99. See Chris Janiszewski & Dan Uy, *Precision of the anchor Influences the Amount of Adjustment*, 19 PSYCH. SCI. 121 (2008).

The extent of the impact of tax cuts, as neoclassic economics predicts, depends on the elasticity of supply and demand.<sup>100</sup> When demand is inelastic relative to supply, meaning that when consumers are willing to buy almost the same quantities despite price increases for products with relatively fixed costs, the consumption rate cut will likely be shifted onto consumers.<sup>101</sup> Basic products, which are characterized by a relatively inelastic demand curve, fit the scenario (as demonstrated in Figure 2 below).

If the government decreases the consumption tax rate and if consumers are rational, assuming that the tax is imposed directly onto suppliers and causes a downward shift of the supply curve (see curve  $S_{t2}$  to curve  $S_{t1}$  in Figure 2 below), neoclassic economics would predict a decrease in the supply curve for each product. This would lead to a new equilibrium in the basic product market with higher production (from quantity  $q_2$  to  $q_1$  in Figure 2 below) and a lower final price for consumers (from price  $pc_2$  to  $pc_1$ ).

If the government decreases the consumption tax rate in a basic product market, based on that assumption, what could follow is the high ratio between the decrease in the final price (including consumption tax) for consumers (from  $pc_2$  to  $pc_1$  in Figure 2 below) and the prices (excluding consumption tax) for suppliers (from  $ps_2$  to  $ps_1$ ). This would mean that the consumption tax cut can shift almost exclusively onto the consumers, which perfectly aligns with the government's goal.<sup>102</sup>

In this new equilibrium (after the tax cut where the supply curves move from  $S_{t2}$  to  $S_{t1}$ ), suppliers in each market would face a higher price (from  $ps_2$  to  $ps_1$ ) and a higher quantity (from  $q_2$  to  $q_1$ ), which would therefore result in lower profits (the added supplier profits are represented by the area of the trapezoid  $ps_1FEps_2$  in Figure 2 below). The consumers, on the other end, would face a lower price (including tax) ( $pc_1$ ) with a higher quantity ( $q_1$ ), which would therefore result in greater consumer surplus (the added consumer surplus is represented in Figure 2 by the area of the trapezoid  $pc_1BCpc_2$ ). When the demand curve is relatively inelastic, such as in the market for basic products, the decrease in the final prices for consumers (including consumption tax) and the added value to their surplus are relatively high. The increase in the final prices for suppliers and the added value to their

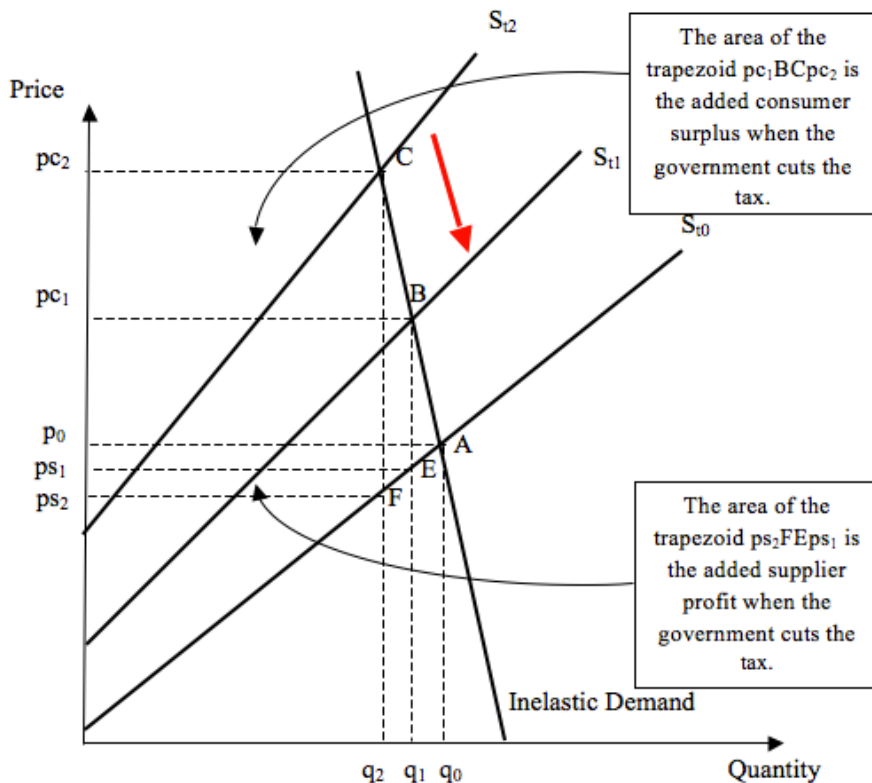
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100. See, e.g., VARIAN, *supra* note 75; PINDYCK & RUBINFELD, *supra* note 80, *ibid*.

101. See PINDYCK & RUBINFELD, *supra* note 80, at 338-39.

102. In this article we assume that a government policy of reducing the consumption tax is officially aimed at benefiting consumers and promoting distribution goals.





*Figure 2*

**A Basic Product Market –**

**Neoclassical Supply and Inelastic Demand Curves with Gradual Consumption Tax**

profits are also relatively high (as demonstrated in Figure 2 below). Therefore, when the demand curve is relatively inelastic in a product market, the decrease in deadweight loss caused by the tax cut is mostly shifted onto consumers so that their market surplus increases much more than the suppliers' profits.

Now, assuming that there is asymmetric information in the product markets where rational suppliers and irrational consumers face the same decrease in the consumption tax rate. In this scenario, suppliers will supposedly be able to set market prices above the normal neoclassic equilibrium prices. In markets where demand is inelastic, there appears to be a relatively wider gap between the product's former price (including consumption tax) and the normal or honest new price. As a result, it should be expected that the suppliers who identified the opportunity

to gain more from consumers would try to manipulate the market where more consumer surplus could be shifted onto suppliers.

In conclusion, whenever the government considers a consumption tax decrease, it should take into account that necessities and basic goods more commonly purchased by low-income families (assuming that low-income families consume more necessities in relation to families with higher income) have a relatively inelastic demand.<sup>103</sup> So, despite the government's intentions, the normal (or honest) equilibrium meant to benefit low-income consumers after a tax decrease might, in actuality, benefit the suppliers more.

## VI. RECOMMENDATIONS: EXAMINING THE POSSIBLE PRICING DISPLAY RULES

### A. Tax Inclusive Rule

The tax rate price displays previously mentioned are generally the result of consumer protection laws implemented to provide consumers with necessary information for their purchasing decisions.<sup>104</sup> However, if we account for consumption tax changes and consumer biases, then this type of information is insufficient. Our claim is mainly relevant in situations where governments lower consumption taxes in order to lessen the cost of consumer's living expenses.

In this scenario, suppliers may take advantage of consumers' tendencies to base their decisions on heuristics by fixing market prices above the equilibrium to shift a portion of the potentially increased surplus from the consumers onto themselves. This shift would be especially true in markets for goods and necessities commonly purchased in large quantities by low-income families. Rules that govern the final price display are not enough to change this scenario (please note that this analysis also applies when governments *increase* the consumption tax rate).

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103. See George S. Tolley & R. W. Gieseman, *Consumer Demand Explained by Measurable Utility Changes*, 31 *ECONOMETRICA* 499 (1963); see generally MICHAEL PARKIN, MELANIE POWELL & KENT MATTHEWS, *ECONOMICS* 75 (2002); Mark Walbert, *Tutorial 4: Elasticity*, INTERMEDIATE MACROECONOMICS (ILLINOIS STATE UNIVERSITY), available at <http://my.ilstu.edu/~mswalber/ECO240/Tutorials/Tut04/Tutorial04a.html> (last visited Nov. 21, 2014); Marat Ibragimov & Rustam Ibragimov, *Market Demand Elasticity and Income*, 32 *Econ. Theory* 579–87 (2007).

104. See *infra* Section III.

### B. Tax Exclusive Rule

Consumers might be less sensitive to the changes in final prices due to consumption tax cuts when the taxes are not originally included in the prices. This display system, however, requires consumers to calculate final prices when navigating store shelves if they wish to shop within their budgets. The already difficult task of calculating final prices will then become even more confusing when consumer tax changes because consumers are prevented from relying on their previous purchasing decisions. When a tax cut is imposed, the information gap between suppliers and consumers presumably widens, causing consumers to make more calculations; and as mentioned above, consumers tend to rely on heuristics when making purchasing decisions. The widened information gap and resulting reliance on heuristics will thus encourage suppliers to further manipulate markets prices.

On the other hand, we claim that the tax exclusive rule, although insufficient to eliminate market inefficiencies, has a compromising effect on price increases. First, recall the neoclassical argument: that when governments cut the consumption tax rate, the product prices are predicted to shift up for suppliers while they simultaneously shift down for consumers.<sup>105</sup> Furthermore, recall the behavioral economic argument: given irrational consumers and their use of heuristics, suppliers have the ability to manipulate the market by fixing the market price of most products above the normal equilibrium price.<sup>106</sup> If suppliers are required to display the product price without tax, then this could help consumers by having the price display act as a counter-effect to moderate the price increase (before including tax). This mitigating effect would emerge first from the fairness effect—the consumers' potential belief that price changes are dishonest<sup>107</sup>—and second, from the consumers' ability to use the former price without tax as a perceptual anchor.<sup>108</sup>

Notably, this compromising effect would also work in the opposite direction by helping suppliers manipulate the markets when governments increase (or decrease, as described in the paragraph above) the consumption tax rate. In this case, neoclassic economics predicts that the product prices for suppliers be lowered. However, the fairness effect and the use of the former price as an anchor, as promoted by the tax exclusive rule, actually help suppliers shift prices up and ma-

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105. VARIAN, *supra* note 75, at 35-42.

106. *See* the analysis *supra* at Section V.

107. *See* the analysis *supra* at Section V.

108. *See* the analysis *supra* at Section V.

nipulate the market.<sup>109</sup>

### C. *Net and Total Price Rule*

As stated above, there are two main schemes for displaying consumption taxes: either by having the tax included or excluded from the price. We recommend a third system to overcome the psychological barriers described in this article. While this system aims to be a balance between the two, it does tend toward the tax-included scheme. Prices should be displayed in a fixed pattern that includes the following elements for each product: the net price (before tax), the tax rate, tax amount, and the final price (after tax).<sup>110</sup> For example, if the net product price is \$6 and the tax rate is 16%, then the figures \$6, 16%, \$0.96, and \$6.96 should appear on the product label to represent those four respective values. Providing complete information, especially when uniformly displayed, can prevent consumer misunderstandings and miscalculations.

When the displayed prices for each product include these four elements, consumers will be more sensitive to the changes in final prices due to consumption tax cuts. This way, consumers will also have a better sense of how suppliers react to tax cuts. The detailed information on the label will not only provide consumers with the necessary knowledge of the final price, which allows them to avoid the more complex calculations required when this information is missing but it will also inform consumers of the gap between the total and net prices, which enables them to better monitor supplier behavior. In the above example, if a government decides to decrease the tax rate by one percentage point to 15%, the normal (or honest) new equilibrium in this product market, given a mild symmetric price elasticity of supply and demand, will be approximately \$6.03, 15%, \$0.90, and \$6.93, respectively (see the graphic illustration of this example in Figure 3 below). In this instance, any attempts made by the suppliers to shift the revenues—for example, by fixing the total price at \$6.95 or even \$6.99—will be more noticeable. This display system, therefore, can successfully act as a deterrent factor for suppliers.

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109. Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, 76 AM. ECO. REV. 728, 737-38 (1986).

110. This information is even more inclusive than the price display suggested by Chetty, Looney & Kroft, *supra* note 65. In Exhibit 1, specific values for pre-tax price + “sales tax” (without specifying its value) = a specific value after tax, for example: “\$5.79 + sales tax = \$6.22”.

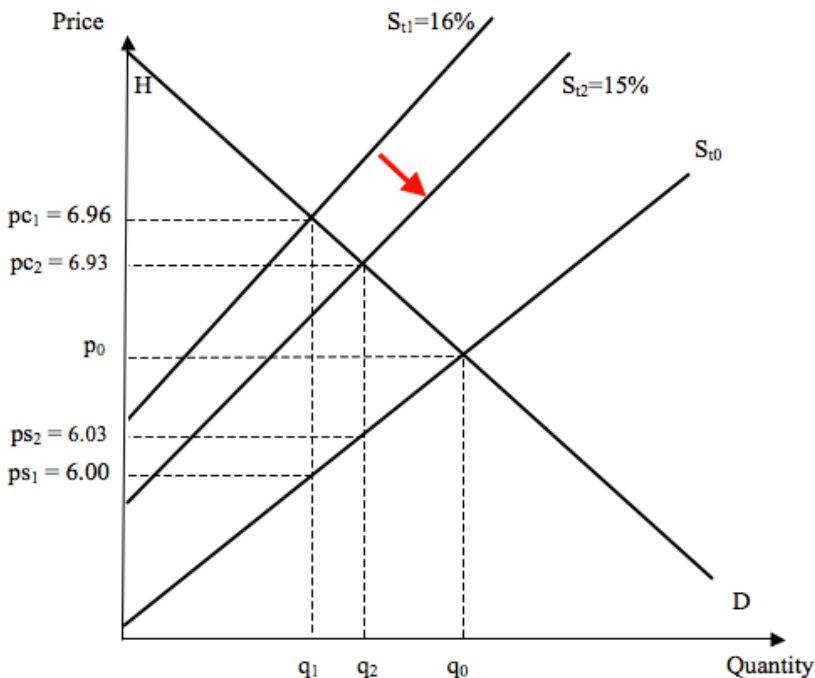


Figure 3

**An Example for Neoclassical Prediction for a Change in the Consumption Tax Rate**

We do not expect this rule to entirely eliminate the consumers' use of heuristics whenever prices change due to consumption tax rate changes. After all, heuristics can be seen as an efficient cognitive alternative to costly calculations. This proposed rule is designed to *limit* consumers' use of heuristics (especially those that are often abused by suppliers) and hedge the suppliers' ability to vigorously manipulate product market prices. Furthermore, the rule's advantages come with minimal costs. Due to its direct expected effect on consumers' behavior and its simplicity, this rule will best promote distributional justice and economic efficiency.

*D. Comparative Net and Total Price Rule*

A price display rule that has the potential to further eliminate suppliers' ability to manipulate products' market prices would compel suppliers to present the information that is required under the net and total price rule, but with comparative data. Under this rule, prices would

be displayed in a fixed pattern that includes the current and past data for each constituent value both before and after the consumption tax rate change. A somewhat modified and perhaps a bit less costly version of that rule would simply be to mark in another color, for example, red, the pre-tax value if it was changed due to any recent tax cut.

This display pattern would be as follows: in one row the current net price (before tax), tax rate, tax amount, and total price (after tax); in another row, the equivalent value of amount before the recent consumption tax rate change. This rule could further minimize the suppliers' power to manipulate prices, but at an extra cost. If the former proposed rule is determined to be ineffective, this stricter rule could be applied.

## VII. CONCLUSION

To conclude, we claim that since consumers may not be aware of tax rate cuts, in order for consumption tax reductions to effectively increase consumers' wealth and prevent this benefit from being shifted onto suppliers, a purely tax-based analysis is insufficient. We treat the consumption tax cut as dysfunctional and a partial mechanism for contributing to consumer wealth. In order for tax reform to be effective, we must also analyze its acceptance by the target audience in terms of common cognitive biases used by consumers in purchase decisions. Which mechanism can mitigate consumer heuristics and accomplish this goal?

The existing consumer protection laws represent a fine approach for drawing consumer attention to tax reforms such as reducing VAT or RST rates and making the tax law visible to consumers. Here, we outlined four possible mechanisms for displaying prices and believe that a more detailed price display, with a net and total price, or a comparative rule, can overcome the cognitive biases created in the product market due to tax cuts.

In a world where consumers are only faintly aware of taxes and specifically of tax cuts, mainly while purchasing necessities, consumer protection laws are a necessary complement to taxation. We do not argue that this is the only solution for the problem: other regulatory instruments may also achieve the same objective. However, the existence of laws aimed at benefiting the consumers combined with active enforcement can serve as an efficient solution to tax invisibility.