

TO CONFUSE AND PROTECT: TAXES AND CONSUMER PROTECTION

Jacob Nussim*

Imperfect information may cause rationally bounded individuals to make consistent mistakes. This paper focuses on potential misperception of prices. Consumers may underestimate the full price of tax-exclusive prices and hence overconsume goods and services. Countries with a significant consumption tax base (for example, a value-added tax) regulate tax-inclusive price presentation to overcome consumers' biases and thus to protect consumers. The United States is considering the adoption of a federal consumption tax base and therefore may be similarly expected to regulate tax-inclusive price presentation. Based on a theory of optimal taxation, this paper explains why tax-exclusive rather than tax-inclusive prices can be socially desirable. To the extent that tax-exclusive pricing confuses consumers who then ignore non-indicated taxes and overconsume, consumers may be better off. The argument is counterintuitive, in particular for consumer-protection advocates: confusion is actually good for consumers. The paper investigates several potential justifications for tax-inclusive pricing, and shows that a reasonably accepted rationale is rather limited in scope and unrelated to consumer-protection motivations. Finally, the paper extends the analysis to income-based taxes and to misleading non-tax (marketing) practices.

INTRODUCTION.....	219
I. PRICE INDICATION REGULATION AND TAX-INCLUSIVE PRICING.....	223
A. Price Indication Regulation.....	223

* Assistant Professor, Bar-Ilan University, Israel. Comments are welcome: jnussim@mail.biu.ac.il. The Article benefited from discussion and comments by Ben Alarie, Lily Batchelder, Massimo D'Antoni, Yuval Feldman, Ed Iacobucci, Frank Pedersen, and Eric Zolt, and from participants in the Tax Law and Policy workshops at the University of Toronto and at the Hebrew University, as well as the Law and Economics workshop at Tel Aviv University. I am grateful to NYU's Hauser Global Law Program for its support.

B. Justifying Tax-Inclusive Regulation	226
II. TAXATION AND EFFICIENCY	234
III. IMPLICATIONS FOR PRICE INDICATION REGULATION	237
IV. JUSTIFYING TAX-INCLUSIVE PRICE SYSTEMS	242
A. Facilitating Market Competition	243
B. Psychological Heterogeneity and Redistribution	244
C. Complexity Costs	247
D. Regulatory Taxation	249
V. EXTENSIONS	253
A. Income-based Taxes	253
B. Demand-Increasing Market Strategies	255
CONCLUSION	258

INTRODUCTION

Imperfect information causes individuals to make mistakes. Due to imperfect rationality, individuals' mistakes may become consistent—i.e., biased—and hence decrease their welfare further.¹ The literature on consumer behavior offers many examples of consumers' mistakes that are considered systematic misperceptions.² Sellers may utilize recognized consumer biases to their own advantage and further hurt consumer welfare. Accordingly, legal intervention may be warranted, ranging from information regulation through standard regulation to price and quality

1. This paper adopts a welfarist approach under which the atomic unit of analysis is individual welfare or well-being. See generally LOUIS KAPLOW, *THE THEORY OF TAXATION AND PUBLIC ECONOMICS* 348–58 (2008) (describing the welfarist methodology) [hereinafter KAPLOW, *THEORY OF TAXATION*]; LOUIS KAPLOW & STEVEN SHAVELL, *FAIRNESS VERSUS WELFARE* 15–38, 381–464 (2002) (same).

2. This literature is extensive. A few examples are Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373 (2003) (discussing consumers' biases in the credit card market); Alon Harel & Ehud Guttel, *Matching Probabilities: The Behavioral Law and Economics of Repeated Behavior*, 72 U. CHI. L. REV. 1197 (2005) (investigating legal applications of the probability-matching bias); John D. Hanson & Douglas D. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630 (1999) (reviewing causes for consumers' misperception and potential abuses of such biases by market participants); Cass R. Sunstein, *Boundedly Rational Borrowing*, 73 U. CHI. L. REV. 249 (2006) (discussing biases that lead to excessive borrowing, and their potential legal responses); Yuval Feldman & Doron Teichman, *Are All "Legal Dollars" Created Equal?*, 102 NW. U. L. REV. 223 (2008) (showing experimentally how various characteristics of legal payments affect perception of value); Russell B. Korobkin, *The Endowment Effect and Legal Analysis*, 97 NW. U. L. REV. 1227 (2002) (investigating the application of the endowment effect in legal contexts); Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683 (1998) (discussing the possibility of distorted perception due to the process of collective belief formation).

controls.³

Taxes may also introduce problems of partial information and bounded rationality. In the political market, voters (i.e., political consumers) may lack the relevant and accurate information about their tax burden (and received public benefits) and hence make mistakes in their choice of political representatives (i.e., political sellers). If, in addition, voters lack full rationality, they may make consistent mistakes in assessing their tax burdens and accordingly in voting for the preferred political candidate. The “fiscal illusion” hypothesis contends that voters systematically underestimate tax burdens (and overestimate public benefits).⁴ Similar to the product market, politicians can exploit voters’ ignorance and impose higher taxes (or provide fewer public goods), to their own benefit and to the detriment of individuals. Yet, the empirical validity of the fiscal illusion hypothesis is still doubtful.⁵

But imperfect tax information may also benefit—and hence may be utilized by—market participants rather than political representatives. Partial information about consumption taxes (for example, sales taxes, value-added taxes) and consumers’ bounded rationality can increase suppliers’ profits at the expense of consumers. Consumers may consistently underestimate the price of goods and services when information about consumption taxes is imperfect. Specifically, when prices of goods and services are stated tax-exclusive—that is, prices exclude sales tax—consumers may perceive prices to be lower than they actually are, and thus increase their demand for such goods and services.

This potential phenomenon is somewhat similar to the effect of price partitioning, under which prices of good and services are partitioned into several components like subscription, shipping and handling, and processing fees.⁶ Sellers increasingly use price partition strategies in the market with the purpose of increasing consumer demand, and hence market prices and sellers profits—again, at the expense of consumers’ welfare.⁷ Sellers’ ability to additionally partition consumption taxes probably

3. Again, the literature is ample. See, e.g., Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*, 97 NW. U. L. REV. 1165, 1177–1206 (2003) (supplying a partial list of articles on the topic).

4. See, e.g., JAMES BUCHANAN, PUBLIC FINANCE IN DEMOCRATIC PROCESS 126–43 (1967) (suggesting the fiscal illusion hypothesis and discussing its applications).

5. See *infra* note 59. See also *infra* notes 166–70 and accompanying text.

6. See *infra* notes 69–77 and accompanying text. See also Vicki G. Morwitz et al., *The Price Does Not Include Additional Taxes, Fees, and Surcharges: A Review of Research on Partitioned Pricing* (Working Paper 2009), available at <http://ssrn.com/abstract=1350004> (last visited May 14, 2010) (reviewing the price partitioning literature) [hereinafter Morwitz, *Price Does Not Include*].

7. See, e.g., Morwitz, *Price Does Not Include*, *supra* note 6, at 4–10.

generates a similar effect, and indeed businesses invariably oppose tax-inclusive price regulation.⁸

European countries commonly adopt relatively high consumption tax (i.e., VAT) rates and are therefore well aware of such consumer confusion or biases due to tax-exclusive price presentation. Accordingly, most European countries regulate price presentation through their consumer protection laws, and in particular require tax-inclusive price presentation.⁹ Other OECD countries like Canada and Australia are facing increasing political demand to adopt such regulatory measures.¹⁰

Since the income (rather than consumption) tax base traditionally has dominated the US tax system, no similar concern has been introduced so far in this country. But expected changes in the American tax base mix may divert attention to price presentation issues. First, state sales taxes are rising (though they are still lower than European VAT).¹¹ Second, and more importantly, in the last three decades, pressure has been building up in academia and government (in particular, the Treasury) toward the adoption of a federal consumption tax base, whether as a replacement of or as a supplement to the federal income tax.¹² Proposals take the form of a national retail tax or national value-added tax.¹³ A federal consumption tax system would impose considerably higher tax rates and burdens than current state sales taxes,¹⁴ and most likely would introduce a similar public demand for European-style consumer protection regulation in the form of tax-inclusive prices.

This Article reevaluates the “consumer protection” hypothesis—that is, that regulation of tax-inclusive prices would increase social welfare since consumers underestimate tax-exclusive prices and hence tend to over-consume. It raises the opposite, counter-intuitive argument: to the extent that non-included taxes confuse consumers, who tend to under-estimate tax-exclusive market prices (and hence over-consume), consumers may be better off. Put more bluntly, consumer protection laws may better protect consumers by confusing or misleading them by allowing—or even dictating—tax-exclusive prices rather than prescribing clear and non-

8. See *infra* note 36 and accompanying text.

9. See *infra* notes 18–21 and accompanying text; see also Council Directive 98/6, 1998 O.J. (L 080) (EC) [hereinafter Directive 98/6].

10. See, e.g., Trade Practices Legislation Amendment Bill, No. 3 (2006) (Aus.); Trade Practices Amendment (Clarity in Pricing) (2008) (Aus.); see also proposed Canadian Bill No. 101, involving a reform of tax-inclusive pricing, available at http://www.assembly.pe.ca/bills/pdf_first/63/2/bill-101.pdf (last visited May 14, 2010).

11. See *infra* notes 27–29 and accompanying text.

12. See *infra* notes 31–32 and accompanying text.

13. See *infra* notes 32–33 and accompanying text.

14. See *infra* note 34 and accompanying text.

confusing tax-inclusive prices.

The argument is built on an efficiency analysis of taxation. Deceiving consumers by making them perceive market prices of goods and services as if no taxes were imposed puts them in a situation similar to a no-tax world, but where, in fact, they do pay taxes. That is, by confusing consumers we can lure them to make choices as if no taxes existed, even though, ultimately, they actually pay taxes. The social advantage of this kind of partially informed choice is the elimination (or restriction) of the welfare-reducing substitution effect due to taxes (although it may generate other welfare reducing effects). Being unaware of taxes saves individuals from the distortive effect of taxation, which diminishes each individual's utility and thus reduces social welfare.

To be considered socially desirable, tax-inclusion regulation may therefore rest on a different rationale. A few alternative rationales are suggested, of which only one seems to have a normative bite. Only to the extent that commodity taxes are designed to achieve certain control of behavior (i.e., Pigouvian-like taxes) can tax-inclusive regulation be justified. The justification, then, is more limited in scope than what might be initially believed, and, as this Article argues, is unrelated to consumer protection.

Finally, this Article extends the analysis of "consumer confusion" in two ways. First, this Article discusses potentially similar effects under income taxes. For example, wages can be stated as inclusive or exclusive of wage taxes. The tax-inclusive (that is, gross of tax) options in this case may confuse workers and affect choices over work and leisure (and hence consumption). The second extension discusses potential market-based options that may improve social welfare, given the distortionary effect of taxes. In particular, demand-increasing marketing strategies may create social value in a second-best optimal tax world.

This Article is divided into six sections. Section I presents the issue of price indication regulation, and in particular, its tax-inclusive pricing component. It then discusses the suggested rationale of the regulation. Section II introduces the basic efficiency analysis of taxation that serves as the basis for the main argument of this Article, which is presented in Section III. Section III argues that the suggested justification for tax-inclusive pricing regulation is misconceived and may actually support tax-exclusive pricing. Section IV considers other potential rationales for tax-inclusive pricing, and concludes generally that only Pigouvian tax schemes can support such price regulation, which in turn suggests that the scope of tax-inclusive pricing is more limited. Section V offers a few extensions to the analysis of Sections II and III concerning income taxation and marketing strategies. Section VI concludes.

I. PRICE INDICATION REGULATION AND TAX-INCLUSIVE PRICING

A. *Price Indication Regulation*

The stated goal of consumer protection laws is to protect consumers against deceptive, unfair, or fraudulent practices in the marketplace.¹⁵ A familiar component of consumer protection regulation is “price indication” rules.¹⁶ These rules typically specify the cost items that should be included in advertised prices, such as, costs of necessary packaging or delivery costs.¹⁷ The function of price indication rules is to provide consumers with full, accurate, and clear information of the full sale prices of goods. The purpose, seemingly, is to diminish consumer confusion and improve consumer consumption choices.¹⁸

Price indication regulation is prevalent in Europe. In 1998, the E.C. promulgated a price indication directive that directed member states to adopt certain minimum price indication rules in their national consumer protection laws.¹⁹ A few European countries adopted price indication regulations in their consumer protection laws long before the E.C. directive was proposed, and other countries followed suit.²⁰ Similar regulation is found in consumer protection laws (as well other laws) of non-European countries, such as New Zealand²¹ and Israel.²² Australia has been trying in recent years to amend its Trade Practices Act of 1974 in a similar manner.²³

This Article focuses on the tax component of price indication

15. See, e.g., Bureau of Consumer Protection, Federal Trade Commission, available at <http://www.ftc.gov/bcp/about.shtm> (last visited May 14, 2010).

16. See generally BRIAN W. HARVEY & DEBORAH L. PARRY, *THE LAW OF CONSUMER PROTECTION AND FAIR TRADING* 372–383 (4th ed. 1992).

17. See, e.g., Directive 98/6, *supra* note 9; Code of Practice for Traders on Price Indications, 1988, S.I. 1988/2078, Part 2, ¶ 2.2.4 (Eng.) [hereinafter Code of Practice for Traders].

18. Directive 98/6, *supra* note 9, ¶¶ 1, 6.

19. *Id.*

20. See Hans Schulte-Nolke & Leonie Meyer-Schwickerath, *Price Indication Directive* (98/6), in *EC CONSUMER LAW COMPENDIUM* 581, 584 (2007). In the U.K., for example, courts interpreted the Trade Description Act 1968 to require the inclusion of VAT and excise taxes in presented prices. See, e.g., *Richards v. Westminster Motors Ltd.*, R.T.R. (1976) 88 (holding that the presentation of a minibus’s price, which excluded taxes, contravened existing law). This interpretation was later made explicit by the Consumer Protection Act, 1987 (Eng.) and the Code of Practice for Trader on Price Indications, *supra* note 17.

21. See, e.g., ALAN A. TAIT, *VALUE-ADDED TAX: INTERNATIONAL PRACTICE AND PROBLEMS* 357 (Int’l Mon. Fund 1988).

22. See Consumer Protection Law, 5741–1981, 35 LSI 298 (1980–81) (Isr.).

23. See, e.g., Trade Practices Legislation Amendment Bill, *supra* note 10 (Aus.); Trade Practices Amendment, *supra* note 10 (Aus.).

regulations. Typically, price indication regulations require that all taxes—such as a sale tax or VAT—be included in the presented price.²⁴ This is the rule, for example, in European countries and in several other countries, such as Israel and China.²⁵ Canada has been considering tax-inclusive price presentation for more than a decade.²⁶ Interestingly, in the U.S., no price indication regulation has been proposed and prices are tax-exclusive—that is, sales taxes are not included in presented prices. The difference in consumer protection reactions between Europe and the U.S. is most likely due to substantial differences in consumption tax burdens.²⁷ Consumption tax rates are much higher in European countries; VAT rates in Europe range from 7.6% (Switzerland) to 25% (Denmark, Norway, Sweden) with an average VAT rate of 19.5%,²⁸ while the highest state sales tax rate in the U.S. only recently reached 8.25% (California).²⁹ Additionally, the state sales tax base in the US is narrower than the typical European VAT base. Indeed, the tax inclusion issue is expected to become much more important for American consumers in the future. First, sales taxes are generally rising.³⁰ Second, and more significantly, a federal consumption tax—whether in the form of national retail sales tax or national VAT—is being seriously considered in the U.S. An academic preference for consumption

24. Directive 98/6, *supra* note 9, Art. 2.

25. For Israel, *see* Consumer Protection Law, *supra* note 22, §§ 17A, 17B.

26. In Canada, prices are tax-exclusive. Since 1997, a Harmonized Sales Tax (HST) has been adopted in three Canadian provinces (Nova Scotia, New Brunswick, Newfoundland and Labrador) as well as Quebec. *See* <http://www.cra-arc.gc.ca/tx/bsnss/tpcs/gst-tps/gnrl/hw-eng.html> (last visited May 14, 2010). Under the HST, prices are supposed to include taxes. However, this part of the HST has not yet come into effect. In late 2008, Canadian Bill No. 101, *supra* note 10, was presented for consideration in Prince Edward Island; the Bill proposes a reform of tax-inclusive pricing.

27. For example, it can be argued that the difference is in the political reaction to the “fiscal illusion” effect. Under the “fiscal illusion” hypothesis, individual voters may be unaware of the true tax burden if prices are presented inclusive of consumption taxes. A lower tax rate (in the U.S.) may be more susceptible to the fiscal illusion effect than the European higher VAT rate. *See, e.g.,* Wallace E. Oates, *On the Nature and Measurement of Fiscal Illusion: A Survey*, in *TAXATION AND FISCAL FEDERALISM: ESSAYS IN HONOUR OF RUSSELL MATTHEWS* 65, 67–68 (Geoffrey Brennan ed., Australian University Press 1988). *See also infra* notes 58–60 and accompanying text.

28. *See* Centre for Tax Policy and Administration, OECD Tax Database, Table IV.1, http://www.oecd.org/document/60/0,3343,en_2649_34533_1942460_1_1_1_1,00.html (follow “Table IV.1” hyperlink) (last visited May 14, 2010). Rates are presented for 2007. *See also* Council Directive 2006/112, arts. 96, 97, 2006 O.J. (L 347) 1, 40 (EC) [hereinafter Council Directive 2006/112] (demonstrating the common system of value-added tax).

29. *See* The Tax Foundation, State Sales, Gasoline, Cigarette, and Alcohol Tax Rates by State, 2000–2009, <http://www.taxfoundation.org/taxdata/show/245.html> (last visited May 14, 2010) [hereinafter *State Sales*]. Rates are presented for 2009.

30. *Id.*

tax base has been building for more than three decades.³¹ Government agencies have been attentive and devised several plans for the introduction of consumption taxes into the U.S. tax system.³² These proposals have been debated and scrutinized for quite some time now.³³ Replacing the federal income tax system with a national retail sales tax would require a consumption tax rate in the range of 30%.³⁴

31. The literature is voluminous. See, e.g., NICHOLAS KALDOR, AN EXPENDITURE TAX (George Allen & Unwin Ltd. 1955) (1958); ALAN J. AUERBACH & LAWRENCE J. KOTLIKOFF, DYNAMIC FISCAL POLICY 55–87 (Cambridge Univ. Press 1987); David Bradford, *The Case for a Personal Consumption Tax*, in WHAT SHOULD BE TAXED: INCOME OR EXPENDITURE? A REPORT OF A CONFERENCE SPONSORED BY THE FUND FOR PUBLIC POLICY RESEARCH AND THE BROOKINGS INSTITUTION 75, 75–110 (Joseph A. Pechman ed., 1980); William Andrews, *A Consumption-Type or Cash Flow Personal Income Tax*, 87 HARV. L. REV. 1113 (1974); Michael Graetz, *Implementing a Progressive Consumption Tax*, 92 HARV. L. REV. 1575 (1979); Alvin Warren, *Would a Consumption Tax Be Fairer than an Income Tax?*, 89 YALE L. J. 1081 (1980); ROBERT E. HALL & ALVIN RABUSHKA, THE FLAT TAX (Hoover Inst. Press 2d ed. 1995); Joseph Bankman & Thomas Griffith, *Is the Debate Between an Income Tax and a Consumption Tax a Debate About Risk? Does It Matter?*, 47 TAX L. REV. 377 (1992); Barbara H. Fried, *Fairness and the Consumption Tax*, 44 STAN. L. REV. 961 (1992); John K. McNulty, *Flat Tax, Consumption Tax, Consumption-Type Proposals in the United States: A Tax Policy Discussion of Fundamental Tax Reform*, 88 CAL. L. REV. 2095, 2117–2125 (2000); David Bradford, *A Tax System for the Twenty-First Century*, in TOWARD FUNDAMENTAL TAX REFORM I (Alan J. Auerbach & Kevin A. Hassett eds., AEI Press 2005); Michael J. Graetz, *100 Million Unnecessary Returns: A Fresh Start for the U.S. Tax System*, 112 YALE L. J. 261 (2002); Edward J. McCaffery, *A New Understanding of Tax*, 103 MICH. L. REV. 807 (2005); Joseph Bankman & David A. Weisbach, *The Superiority of an Ideal Consumption Tax over an Ideal Income Tax*, 58 STAN. L. REV. 1413 (2006); Daniel Shaviro, *Beyond the Pro-Consumption Tax Consensus*, 60 STAN. L. REV. 745 (2007).

32. See, e.g., DAVID F. BRADFORD & THE U.S. TREASURY TAX POLICY STAFF, BLUEPRINTS FOR BASIC TAX REFORM (Tax Analysts 2d ed. 1984); GREGG A. ESENWEIN & JANE G. GRAVELLE, THE FLAT TAX, VALUE-ADDED TAX, AND NATIONAL RETAIL SALES TAX: OVERVIEW OF THE ISSUES (Cong. Res. Rep., Libr. of Cong. 2004) (discussing the consumption tax base option for the U.S.); JANE G. GRAVELLE, THE ADVISORY PANEL'S TAX REFORM PROPOSALS (Cong. Res. Rep., Libr. of Cong. 2006) (same); see also a list of legislative proposals in JAMES M. BICKLEY, A VALUE-ADDED TAX CONTRASTED WITH A NATIONAL SALES TAX 4–6 (Cong. Res. Rep., Libr. of Cong. 2004).

33. See, e.g., John L. Mikesell, *The American Retail Sales Tax: Considerations on Their Structure, Operations, and Potential as a Foundation for a Federal Sales Tax*, 50 NAT'L TAX JOURNAL 149 (1997) (discussing the consumption tax base option for the U.S.); John Buckley & Diane Lim Rogers, *Is a National Retail Sales Tax in Our Future?* 104 TAX NOTES 1277 (Sept. 13, 2004) (same).

34. See, e.g., William G. Gale, *The Required Tax Rate in a National Retail Sales Tax*, 52 NAT'L TAX J. 443, 455–56 (1999) (arguing that required tax-inclusive rate would be over 50% and the required tax-exclusive rate would be over 100%); William G. Gale, *The National Retail Sales Tax: What Would the Rate Have To Be?*, 107 TAX NOTES 889, 896, 898–99 (May 16, 2005) (estimating consumption tax rates much higher than 30%); Charles McLure, Testimony Before the President's Advisory Panel on Tax Reform (2005), available at http://govinfo.library.unt.edu/taxreformpanel/meetings/meeting-05_11-12_2005.html (last visited May 14, 2010). A choice of mixed income and consumption tax bases would permit

B. *Justifying Tax-Inclusive Regulation*

There is no clear indication of the rationales for tax-inclusion regulation. The E.U. Directive, for example, indicates that price indication is required in order to assure precise, transparent, and unambiguous information for consumers concerning prices.³⁵ The rationale for price indication regulation seemingly falls squarely within the general purpose of consumer protection laws. If prices of goods and services are not presented clearly and do not include all necessary expenses incurred by consumers who purchase goods or services, consumers may be confused or misled. In particular, in the tax inclusion case, consumers may perceive the price to be lower than the actual cost, because they do not consider non-stated (or separately stated) taxes. That is, consumers may tend to purchase more than they would have if prices were clearly stated and all relevant taxes were included.³⁶ As a result, consumers purchase goods and services even where the marginal benefit from such a purchase is lower than the marginal cost. This confusion diminishes consumer utility, which, in turn, diminishes social welfare. A preventive regulatory measure in the form of price indication supposedly eliminates this confusion and is thus welfare-increasing

The necessary condition for price indication regulation is, thus, that consumers are confused in a particular manner—i.e., they under-value the real price. It is not entirely clear that consumers indeed under-value the prices of goods and services if prices are not stated clearly. This is an informational problem facing consumers. Consumers may not possess the required complete information about purchase prices (and taxes), or may

a lower consumption tax rate.

35. See, e.g., Directive 98/6, *supra* note 9.

36. Additional support for such anticipated consumer confusion can be derived from the consistent objections of retailers and producers to tax-inclusive pricing initiatives. (Formally, retailers and producers argue that implementing tax-inclusive pricing is more costly.) See, e.g., JOHN F. DUE & JOHN L. MIKESSELL, SALES TAXATION: STATE AND LOCAL STRUCTURE AND ADMINISTRATION 30–31 (Johns Hopkins Univ. Press 2d ed. 1994); Raj Chetty et al., *Salience and Taxation: Theory and Evidence*, 99 AM. ECON. REV. 1145, 1150 (2009) (reporting that managers of a large California grocery chain expected tax-inclusive prices to reduce sales). Consider also retailer opposition to Canadian Bill No. 101 (Can.), *supra* note 10; see, e.g., Submission by the Retail Council of Canada to the Prince Edward Island Standing Committee on Community Affairs and Economic Development: Review of Bill 101 (Feb. 17, 2009), available at http://webcache.googleusercontent.com/search?q=cache%3A5PMfTHpsw3wJ%3Awww.retailcouncil.org%2Fadvocacy%2Ffinancial%2Fsubmissions%2Fsubmission_pei_taxinpricing.pdf+submission%2C+by+the+Retail+Council+of+Canada%2C+to+the+Prince+Edward+Isl and+Standing+Committee+on+Community+Affairs+and+Economic+Development&hl=en &gl=us (last visited May 14, 2010).

not adequately process the information they have gathered. Gathering and processing information are costly undertakings in terms of effort, time, and money. For example, under a tax-exclusive price system, a consumer may not know the exact sales tax or value-added tax that applies to a good she intends to buy;³⁷ or, even if she knows the applicable tax rate, she may not calculate the tax-inclusive price correctly or may be reluctant to make any calculations. The lack of price information confuses consumers; as a result, consumers may make mistakes.

Yet, it is not necessarily correct that consumers will always be mistaken in a specific manner—by under-valuing prices. The lack of complete and fully processed information about prices may lead to over-estimation, or, on average, to accurate estimations, rather than under-valuation of prices. Facing uncertainty about (tax-inclusive) prices, individuals are not necessarily expected to under-estimate real prices. In particular, risk-averse individuals are expected to over-value uncertain tax burdens or uncertain tax-inclusive prices.³⁸

An additional explanatory component is required to make the under-valuation prediction (i.e., a biased mistake) theoretically valid. One must explain why consumers tend to under-value prices in the face of uncertain pricing. Why are consumers unaware of their under-valuation mistakes and why do consumers not learn or de-bias themselves over time? In the tax context, it should be made clear why we should not expect consumers to be aware that, or to learn why, under a tax-exclusive price system, total prices are actually higher.

It seems that the most promising theoretical venue for a “consumer under-valuation” hypothesis is cognitive biases and errors. A growing psychological and behavioral economics literature investigates human cognitive limitations and heuristics, and shows how they affect individual choices in the marketplace.³⁹ Various kinds of biases and heuristics are

37. At least in one field experiment, however, consumers demonstrated rather accurate knowledge of non-indicated sales taxes. *See generally* Chetty et al., *supra* note 36.

38. Indeed, it should be clear that tax-inclusion regulation cannot be about uncertainty—i.e., consumers being uncertain of exact taxes. Had risk-averse consumers faced uncertain total prices, they would have purchased less rather than more, compared with a situation in which they had full information. Sellers, then, would have had strong incentives to reduce uncertainty. No regulatory intervention would have been required. Similarly, such regulation does not target a reduction in information costs—i.e., arguably, gathering, processing, and distributing information is cheaper for producers/retailers than for consumers due to economies of scale. Where retailers/producers can save costs for consumers, they have a strong profit-maximizing incentive to do so, as it provides them with competitive advantage. Again, regulation would not be required.

39. The psychological and behavioral economics literature is vast. *See generally, e.g.*, ADVANCES IN BEHAVIORAL ECONOMICS (Colin Camerer et al. eds., 2004).

revealed on the basis of experiments, many of which can be suggested as a source of consumer biases in evaluation of prices or demand for goods, given any amount of available information. These biases may theoretically explain why consumers do not rationally optimize their choices, and in particular, why consumers tend to under-value prices in certain situations regardless of available information. The following discussion presents a few examples of cognitive biases that might explain consumer under-evaluation of tax-exclusive prices. The presentation or framing of prices and costs may affect individual decisions.⁴⁰ Excluded consumption taxes may be less visible, salient, available, or accessible,⁴¹ and thus are ignored, to a certain extent, in making choices.⁴² Individuals may present limited attention to available information.⁴³ Also related is anchoring bias, which describes the tendency to anchor evaluation to a starting point and a subsequent failure to adjust appropriately, making the estimation biased towards the anchor.⁴⁴ A tax-exclusive price may function as such an anchor, and consumers may fail to adjust to imposed taxes. Mental accounting may posit a claim for mental separation between prices and additional taxes in consumption decision-making.⁴⁵ Partitioning a single

40. See, e.g., Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Rationality of Choice*, 211 SCIENCE 453, 454–58 (1981); Amos Tversky & Daniel Kahneman, *Rational Choice and the Framing of Decisions*, 59 J. OF BUSINESS 5251, S257–71, S272–73 (1986) (challenging the rational account of human behavior).

41. See, e.g., Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, 93 AM. ECON. REV. 1449 (2003) (discussing the effects of saliency and accessibility on behavior).

42. See Amy Finkelstein, *E-ZTax: Tax Salience and Tax Rates* (Nat'l Bureau of Econ. Research, Working Paper No. 12924, 2007); Edward J. McCaffery & Jonathan Baron, *Thinking About Tax*, 12 PSYCHOL. PUB. POL'Y & L. 106, 108–127 (2006) (making the case for an isolation effect being a central cognitive bias) [hereinafter McCaffery & Baron, *Thinking About Tax*]. But cf. George Loewenstein & Ted O'Donoghue, "We Can Do This the Easy Way or the Hard Way": *Negative Emotions, Self-Regulation, and the Law*, 73 U. CHI. L. REV. 183, 199 (2006) (arguing that non-salient taxes may be preferable since they save taxpayers the psychic costs of paying taxes).

43. See, e.g., Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, 47 J. ECON. LITERATURE 315, 348–53 (2009). Indeed, inattention may be considered rational—that is, as a rational response to the costly gathering and processing of information. Chetty et al., *supra* note 36, at 1165–66; see also Raj Chetty, Adam Looney & Kory Kroft, *Salience and Taxation: Theory and Evidence* 28–35 (Nat'l Bureau of Econ Research, Working Paper No. 13330, 2007), available at http://www.law.yale.edu/documents/pdf/Intellectual_Life/07_LEO_Salience_and_Taxation.pdf (last visited May 14, 2010).

44. See, e.g., Amos Tversky & Daniel Kahneman, *Judgment under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124, 1128–30 (1974) (discussing the anchoring bias); Gretchen B. Chapman & Eric J. Johnson, *Incorporating the Irrelevant: Anchors in Judgments of Belief and Value*, in HEURISTICS AND BIASES 120, 120–23 (Thomas Gilovich et al. eds., 2002) (same).

45. See, e.g., Amos Tversky & Daniel Kahneman, *Choices, Values, and Frames*, 39

cost into multiple smaller amounts—such as dividing the tax-inclusive price into a tax-exclusive price plus tax—may drive individuals to under-value the actual cost.⁴⁶ Individuals also tend to be tenaciously optimistic,⁴⁷ which can imply that consumers may be optimistic about the burden of unknown tax costs.⁴⁸

More than thirty years into behavioral economic research, it seems that there is almost no irrational behavior that cannot be *theoretically* explained by certain recognized psychological phenomena. But, such cognitive limitations function differently in different situations, and short of empirical evidence, there is no guarantee that any of the suggested biases provides an explanation for consumer under-valuation of tax-exclusive prices.

Recent public economics research examined potential misperceptions and biases in the tax sphere.⁴⁹ Experiments reveal various biases concerning taxes. For example, taxpayers react to tax salience;⁵⁰

AM.PSYCHOL. 341, 346–48 (1984); Richard Thaler, *Mental Accounting Matters*, 12 J. OF BEHAVIORAL DECISION MAKING 183, 188–203 (1999) (explaining the mental accounting heuristic and presenting evidence of its effect).

46. See generally, e.g., Edward J. McCaffery & Jonathan Baron, *The Humpty Dumpty Blues: Disaggregation Bias in The Evaluation of Tax Systems*, 91 ORG. BEHAVIOR AND HUMAN DECISION PROCESSES 230 (2003) (discussing instances of disaggregation bias in tax law) [hereinafter McCaffery & Baron, *Humpty Dumpty Blues*]; see also *infra* notes 69–77 and accompanying text.

47. See, e.g., David A. Armor & Shelley E. Taylor, *When Predictions Fail: The Dilemma of Unrealistic Optimism*, in HEURISTICS AND BIASES 334, 334–36 (Thomas Gilovich et al. eds., 2002) (reviewing and discussing the optimism bias).

48. Yet because over-optimism generally stems from a propensity to use past experience to evaluate future events—see *id.* at 338—one might expect that consumers would learn quickly, over multiple market transactions, that consumption taxes are additionally imposed.

49. See, e.g., Edward J. McCaffery, *Cognitive Theory and Tax*, 41 UCLA L. REV. 1861 (1994) (surveying a range of heuristics and biases in evaluating taxes) [hereinafter McCaffery, *Cognitive Theory*]; McCaffery & Baron, *Thinking About Tax*, *supra* note 42 (same); Edward J. McCaffery & Jonathan Baron, *The Political Psychology of Redistribution*, 52 UCLA L. REV. 1745 (2005) (same); Edward J. McCaffery & Joel Slemrod, *Toward an Agenda for Behavioral Public Finance*, in BEHAVIORAL PUBLIC FINANCE 3 *et seq.* (Edward McCaffery & Joel Slemrod eds., 2006) (same); Aradhna Krishna & Joel Slemrod, *Behavioral Public Finance: Tax Design as Price Presentation*, 10 INT’L TAX AND PUB. FIN. 189 (2003) (discussing various kinds of misperceptions resulting from presentation manipulation); Leonard Burman & Mohammed Adeel Saleem, *Hidden Taxes and Subsidies*, 100 TAX NOTES 1437 (September 15, 2003) (discussing and presenting tax rules that translate into tax rates); Jeffrey B. Liebman & Richard J. Zeckhauser, *Scheduling* (2004) (unpublished manuscript) (on file with Harvard University) (suggesting two biases—spotlighting and ironing—that affect reactions to taxes); Brian Galle, *Hidden Taxes* (2009) (unpublished manuscript) (on file with author) (surveying potential effects of non-salient taxes).

50. See generally Rupert Sausgruber & Jean-Robert Tyran, *Tax Salience, Voting and*

individuals perceive equivalent direct and indirect taxes differently;⁵¹ individuals misperceive the distributional effects of tax systems,⁵² and the progressivity of disaggregated tax schemes;⁵³ framing and labeling taxes affects taxpayer reaction;⁵⁴ taxpayers misperceive tax liabilities;⁵⁵ individuals confuse marginal tax rates with average tax rates;⁵⁶ and tax

Deliberation (Discussion Paper No. 08-21, Department of Economics, University of Copenhagen, 2008), available at <http://econpapers.repec.org/paper/kudkuiedp/0821.htm> (last visited May 14, 2010) (showing that tax salience affects buyers' choice between buyer and seller taxes); Edward J. McCaffery & Jonathan Baron, *Isolation Effects and the Neglect of Indirect Effects of Fiscal Policies*, 19 J. BEHAVIORAL DECISION MAKING 289 (2006) (arguing that hidden taxes are preferred over transparent taxes).

51. Rupert Sausgruber & Jean-Robert Tyran, *Testing the Mill Hypothesis of Fiscal Illusion*, 122 PUBLIC CHOICE 39, 41–54 (2004) (showing that the burden of less visible taxes is underestimated); Tomer Blumkin et al., *Are Income and Consumption Taxes Ever Really Equivalent? Evidence from a Real-Effort Experiment with Real Goods* (CESifo Working Paper No. 2194, 2008), available at http://www.cesifo.de/DocCIDL/cesifo1_wp2194.pdf (last visited May 14, 2010) (observing that individuals make different work-leisure choices when they face equivalent direct and indirect taxes).

52. See generally Joel Slemrod, *The Role of Misconceptions in Support for Regressive Tax Reform*, 59 NAT'L TAX J. 57 (2006) (presenting evidence of public misconception that high-income individuals will pay more taxes under a regressive tax system), available at [http://ntj.tax.org/wwtax/ntjrec.nsf/B217DBA3D2128D018525715E00592788/\\$FILE/Article%2003-Slemrod.pdf](http://ntj.tax.org/wwtax/ntjrec.nsf/B217DBA3D2128D018525715E00592788/$FILE/Article%2003-Slemrod.pdf) (last visited May 14, 2010).

53. McCaffery & Baron, *Humpty Dumpty Blues*, *supra* note 46 (showing that people evaluate aggregated and disaggregated income tax schedules differently).

54. McCaffery & Baron, *Thinking About Tax*, *supra* note 42, at 117–19 (arguing that labeling equivalent levies as “tax” or “payment” affect individual choices); see also generally Asa Lofgren & Katarina Nordblom, *Puzzling Tax Attitudes and Labels*, 16 APPLIED ECON. LETTERS 1809 (2009) (labeling a gasoline tax as a carbon dioxide tax diminishes individuals' unfavorable view of the tax); Edward J. McCaffery & Jonathan Baron, *Framing and Taxation: Evaluation of Tax Policies Involving Household Composition*, 25 J. ECON. PSYCHOL. 679 (2004) (suggesting that the framing of tax issues affects individual choices); Catherine C. Eckel et al., *An Experimental Test of the Crowding Out Hypothesis*, 89 J. PUB. ECON. 1543 (2005) (framing public transfers to charities as forced contributions crowds out private giving); Steffen Kallbekken & Stephan Kroll, *Do You Not Like Pigou, or Do You Not Understand Him? Tax Aversion in the Lab* (2007) (working paper) (on file with author) (studying experimentally the effect on voters of labeling an environmental levy as a tax); Kilian Bizer, *Framing Effects in Taxation: An Empirical Study Using the German Income Tax Schedule*, 16 EUR. J. POL. ECON. 843 (2000) (book review) (book author Stefan Traub experimentally examines the framing effect of child tax credits in Germany).

55. Norman Gemmill et al., *Tax Perceptions and Preferences over Tax Structure in the United Kingdom*, 114 ECON. J. F117, F118–24 (2004).

56. Liebman & Zeckhauser, *supra* note 49, at 15 (analyzing the welfare effects of such confusion); Naomi E. Feldman & Peter Katuscak, *Should the Average Tax Rate Be Marginalized?* (CERGE-EI Working Paper Series 304, 2006), available at <http://ideas.repec.org/p/cer/papers/wp304.html> (last visited May 14, 2010) (presenting empirical support).

incidence becomes dependent on statutory incidence.⁵⁷

Unfortunately, however, to date, there is little empirical support for consumer under-valuation of tax-exclusive prices. One source that may provide indirect support is the “fiscal illusion” literature. The “fiscal illusion” hypothesis states that voters systematically misperceive fiscal factors that may significantly alter their fiscal choices; in particular, voters under-estimate their tax burden.⁵⁸ Yet, empirical evidence of the fiscal illusion hypothesis is inconclusive.⁵⁹ Furthermore, the exclusion of taxes from prices is actually considered as a de-biasing mechanism for fiscally delusional taxpayers.⁶⁰

Alternatively, support for a “consumer under-valuation” hypothesis can be potentially drawn from a growing amount of empirical evidence on price presentation.⁶¹ These studies examine consumer behavioral effects—i.e., demand for goods—due to price presentation manipulation.⁶² Designing price presentation can affect consumer perception of value and cost—in particular, due to framing effects and hence (increase) their demand for products, while prices do not change.⁶³ Although unrelated to taxes, these studies may provide indirect support for the effect of tax-exclusive presentation on taxpayers.⁶⁴ For example, reference prices (that

57. See generally Rudolf Kerschbamer & Georg Kirchsteiger, *Theoretically Robust but Empirically Invalid? An Experimental Investigation into Tax Equivalence*, 16 *ECON. THEORY* 719 (2000). Cf. Rainald Borck et al., *Tax Liability Side Equivalence in experimental Posted Offer Markets*, 68 *S. ECON. J.* 672, 672 (2002); Arno Riedl & Jean-Robert Tyran, *Tax Liability Side Equivalence in Gift-Exchange Labor Markets*, 89 *J. OF PUB. ECON.* 2369, 2369 (2005).

58. See BUCHANAN, *supra* note 4, at 126–43.

59. The fiscal illusion literature is voluminous. See, e.g., Wallace E. Oates, *On the Nature and Measurement of the Fiscal Illusion: A Survey*, in *STUDIES IN FISCAL FEDERALISM* 441 (W.E. Oates ed., Edward Elgar 1991) (discussing the different versions of the fiscal illusion hypothesis and examining empirical studies); Brain E. Dollery & Andrew C. Worthington, *The Empirical Analysis of Fiscal Illusion*, 10 *J. OF ECON. SURV.* 261, 261 (1996) (same). A related hypothesis is the “flypaper effect,” and its empirical validity is similarly inconclusive. Compare James R. Hines, Jr. & Richard H. Thaler, *Anomalies: The Flypaper Effect*, 9 *J. OF ECON. PERSP.* 217 (1995), with Elizabeth Becker, *The Illusion of Fiscal Illusion: Unsticking the Flypaper Effect*, 86 *PUB. CHOICE* 85 (1996).

60. See *infra* Section VI for further discussion.

61. For review and analysis of various studies, see Aradhna Krishna et al., *A Meta-Analysis of the Impact of Price Presentation on Perceived Savings*, 78 *J. OF RETAILING* 101 (2002); Maggie Wenjing Liu & Dilip Soman, *Behavioral Pricing*, in *HANDBOOK OF CONSUMER PSYCHOLOGY* 659 (Curtis P. Haugtvedt, Paul M. Herr & Frank R. Kardes eds., 2008).

62. See, e.g., Krishna et al., *supra* note 61, at 101–03; Liu & Soman, *supra* note 61, at 672–76.

63. Krishna et al., *supra* note 61, at 106–09.

64. Krishna & Slemrod, *supra* note 49, originally introduced price presentation research into tax.

is, the use of consumers of a certain standard or reference point to evaluate purchase prices) influence consumers' decisions.⁶⁵ Accordingly, one may conjecture that lower, tax-exclusive prices may be evaluated more positively by consumers when compared to any reference point. Another example is different forms of variation in prices. Varying prices in absolute dollar amounts or percentage points affects consumers' perception differently.⁶⁶ It may teach us how ad valorem commodity taxes, which function as a percentage increase in price, would affect consumers when added to tax-exclusive prices. Another piece of indirect evidence comes from a study of the effect of vehicle personal property taxes (VPPT) on individuals' decisions to buy/replace a car.⁶⁷ Based on a mail questionnaire, this study argues that the VPPT plays a weak role in car-buying decisions, and conjectures that either price partition or mental accounting are the behavioral reason for this outcome.⁶⁸

Yet, the most relevant strand of price presentation studies are of price partitioning—i.e., presenting the price as a set of mandatory surcharges rather than one all-inclusive price.⁶⁹ Aggregating and disaggregating final prices affect consumers' choices.⁷⁰ The theoretical

65. See, e.g., Richard Thaler, *Mental Accounting and Consumer Choice*, 4 *MARKETING SCI.* 199, 204 (1985) (modeling the effect of reference prices through the use of prospect theory) [hereinafter Thaler, *Mental Accounting and Consumer Choice*]; Russell S. Winer, *Behavioral Perspectives on Pricing: Buyers' Subjective Perception of Price Revisited*, in *ISSUES IN PRICING: THEORY AND RESEARCH* 35, 35–37 (Timothy M. Devinney ed., 1988); Daniel S. Putler, *Incorporating Reference Price Effects into a Theory of Consumer Choice*, 11 *MARKETING SCI.* 287, 287 (1992) (modeling reference price formation within consumer choice theory and studying it empirically); Richard A. Briesch et al., *A Comparative Analysis of Reference Price Models*, 24 *J. OF CONSUMER RES.* 202, 202 (1997) (testing empirically several theoretical explanations for the effect of reference price).

66. See, e.g., Vicki G. Morwitz et al., *Divide and Prosper: Consumers' Reactions to Partitioned Prices*, 35 *J. MARKETING RES.* 453, 456 (1998) (presenting experimental evidence of more accurate reaction to additions of absolute amount to price than percentage additions) [hereinafter Morwitz et al., *Divide and Prosper*]; Shih-Fen S. Chen et al., *The Effects of Framing Price Promotion Messages on Consumers' Perceptions and Purchase Intentions: Research Perspectives on Retail Pricing*, 74 *J. RETAILING* 353, 355 (1998) (showing experimentally how different presentations of price reductions affect choices).

67. Richard L. Ott & David M. Andrus, *The Effect of Personal Property Taxes on Consumer Vehicle-Purchasing Decisions: A Partitioned Price/Mental Accounting Theory Analysis*, 28 *PUB. FIN. REV.* 134, 134 (2000).

68. *Id.* at 138–39.

69. Marco Bertini & Luc Wathieu, *Attention Arousal Through Price Partitioning*, 27 *MARKETING SCI.* 236, 236 (2008).

70. See, e.g., Thaler, *Mental Accounting and Consumer Choice*, *supra* note 65, at 208–13 (suggesting on the basis of prospect theory that price aggregation and disaggregation affect consumers' perceptions and decisions); Timothy B. Heath et al., *Mental Accounting and Changes in Price: The Frame Dependence of Reference Dependence*, 22 *J. CONSUMER RES.* 90 (1995) (testing experimentally the mental accounting hypothesis for various price

source of the integration/partition effect can be found in either consumers' mental accounting,⁷¹ or in anchoring effect and costly adjustments.⁷² Among the price partitioning studies, particularly interesting are those that examine the effect of disaggregation of surcharges—such as shipping and handling, additional components, and warranty.⁷³ It turns out that in wide range of cases partitioning surcharges increase consumers' demand.⁷⁴ Actually, one study experimentally examined reaction to partition of sales taxes and found similar results—that is, partitioning prices and sales tax does not decrease demand.⁷⁵

Additional direct support for under-valuation of tax-exclusive prices comes from one recent study by Chetty et al.⁷⁶ Chetty et al.

change strategies).

71. See, e.g., Thaler, *Mental Accounting and Consumer Choice*, *supra* note 65, at 201–04 (introducing mental accounting into consumer choice modeling and suggesting implication for pricing strategies); see also generally Hyeong Min Kim & Luke Kachersky, *Dimensions of Price Salience: A Conceptual Framework for Perceptions of Multi-Dimensional Prices*, 15 J. PRODUCT & BRAND MGMT. 139 (2006) (conjecturing different forms and effects of price salience).

72. See Manoj Thomas & Vicki Morwitz, *Heuristics in Numerical Cognition: Implications for Pricing* (Nov. 13, 2007) (unpublished manuscript, on file with author) (discussing several heuristics that apply to price presentation).

73. See, e.g., Tanjim Hossain & John Morgan, ...*Plus Shipping and Handling: Revenue (Non) Equivalence in Field Experiments on eBay*, 6 ADVANCES IN ECON. ANALYSIS & POL'Y Art. 3 (2006) (presenting experimental evidence of increased demand in reaction to disaggregation of shipping and handling costs of goods on eBay); Morwitz et al., *Divide and Prosper*, *supra* note 66, at 454–61 (presenting experimental evidence of increased demand in reaction to price partitioning); Dipankar Chakravarti et al., *Partitioned Presentation of Multicomponent Bundle Prices: Evaluation, Choice and Underlying Processing Effects*, 12 J. CONSUMER PSYCHOL. 215 (2002) (showing experimentally that demand for a good increases upon disaggregation of the price of a warranty and additional components of the good). However, the demand-increasing effect of price partition is not conclusive. See generally, e.g., Hyeong Min Kim, *The Effect of Salience on Mental Accounting: How Integration Versus Segregation of Payment Influences Purchase Decisions*, 19 J. BEHAV. DECISION MAKING 381 (2006) (showing that price partitioning diminishes demand when price components are salient); Bertini & Wathieu, *supra* note 69 (showing that price partitioning increases consumer attention to product attributes).

74. See Hossain & Morgan, *supra* note 73, at 24–25; Morwitz et al., *Divide and Prosper*, *supra* note 66, at 460–62; Chakravarti et al., *supra* note 73, at 225–26. *But see* Kim, *supra* note 73, at 387–88 (showing that price partitioning diminishes demand when price components are salient); *cf.* Bertini & Wathieu, *supra* note 69, at 244–45 (showing that price partitioning increases consumer attention to, and thus valuation of, product attributes).

75. See Lan Xia & Kent B. Monroe, *Price Partitioning on the Internet*, 18 J. INTERACTIVE MARKETING 63, 65–68 (2004).

76. Chetty et al., *supra* note 36 (showing that tax salience affects the demand for grocery products). Another relevant empirical study is presented in Finkelstein, *supra* note 42. Finkelstein shows that paying road tolls electronically, rather than in cash, which arguably make tolls less salient, diminishes sensitivity to tolls. Yet, surveying drivers indicates that they overestimate the non-salient road tolls.

attempted to empirically examine consumer differential reaction to tax-exclusive and tax-inclusive prices. They conducted a field experiment, under which prices of a limited set of products in a Northern California grocery store were presented both exclusive and inclusive of sales tax over three weeks (while prices are, in general, tax-exclusive). Consumers reacted to the price partitioning and purchased less when the product price included sales tax.⁷⁷

Notwithstanding limited empirical support, this Article adopts the prediction that consumers will under-value tax-exclusive prices, because, as explained in this section, this is the essential presumption of price indication regulation. Although the author does not necessarily subscribe to this view, consumers' biased price evaluation is necessary for price indication regulation. Hence, it is assumed here that in the absence of such regulation, consumers will over-consume. This Article argues that such price under-estimation and resulting over-consumption can actually be welfare-increasing. That is, to the extent consumers are indeed confused and misled by tax-exclusive prices and cannot de-bias themselves, they can be better off. In order to appreciate this argument, let us briefly review the efficiency analysis of taxes.

II. TAXATION AND EFFICIENCY

Taxes generate inefficiency (or excess burden); that is, they diminish individual utility by inducing a change in individual behavior.⁷⁸ When individuals are induced to act differently than they would have in a no-tax world, they are not as well off as before. Assuming that individuals optimize their behavior when no taxes exist, any deviation from this behavior due to government intervention must be utility-reducing. For example, income taxation typically induces individuals to work less than they would have had no such taxes been imposed.⁷⁹

For analytical reasons, economists break up individual reaction to

77. The results of this study are presumably sensitive to its design. First, the study was conducted in a "tax-exclusive environment." That is, U.S. consumers are used to tax-exclusive price presentation and may have been confused by the mere change in the environment rather than the form of price presentation. Second, the study was conducted over a limited set of products, and in particular, over a limited period of time. These facts exacerbate the mentioned effect. Overall, Chetty et al. might have only measured a "shock" effect or the reaction of consumers to new transaction costs in analyzing a new pricing system.

78. HARVEY S. ROSEN, PUBLIC FINANCE 304–24 (7th ed. 2005); JOSEPH E. STIGLITZ, ECONOMICS OF THE PUBLIC SECTOR 518–47 (3d ed. 1999).

79. ROSEN, *supra* note 78, at 402–05; STIGLITZ, *supra* note 78, at 535–47.

taxes (or price changes, in general) into two components, denoted as an “income effect” and a “substitution effect.”⁸⁰ The income effect represents the change in taxpayer behavior solely due to the change in wealth.⁸¹ Tax payments reduce taxpayer wealth, which in turn, induces taxpayers to act differently. For example, lower-wealth individuals may forego luxuries, or exchange expensive forms of behavior (such as vacationing in the Caribbean) with cheaper substitutes (such as a vacation at home); lower-wealth individuals may also increase their labor effort to (partially) make up for the loss of wealth. The income effect is inevitable. If taxes are to be collected from individuals, their wealth must correspondingly decrease.⁸² There is nothing individuals can do to avoid incurring the reduction in wealth due to tax payments. Because (i) any tax payment of a certain amount generates an identical income effect—that is, reduces taxpayer wealth identically, and (ii) the reduction in taxpayer wealth corresponds to an increase in public revenue, the income effect is ignored in the social welfare (or efficiency) analysis.⁸³ Put differently, the excess burden—i.e., reduction in social welfare—due to the income effect is nil, or at least identical for equal-revenue taxes, and hence uninteresting in the analysis of various tax schemes. Note that this is not to say that the mere payment of any tax is not welfare reducing for taxpayers. It is. But it can be ignored in a revenue-neutral analysis for the above reasons.⁸⁴

The substitution effect, on the other hand, is designable. The substitution effect describes changes in taxpayer behavior due to changes in relative prices.⁸⁵ Taxes may change relative prices—or, in other words, the relative attractiveness—of different activities and modes of behavior. Individuals react to such changes by moving away from relatively expensive activities toward relatively cheaper modes of behavior.⁸⁶ In the case of income taxation, for example, higher taxes on wages would induce

80. See, e.g., HAL R. VARIAN, MICROECONOMIC ANALYSIS 119–22, 160–63 (3d ed. 1992); ROSEN, *supra* note 78, at 311–12.

81. Economists measure the monetary consequence of the income effect to individual utility by the “equivalent variation.” See VARIAN, *supra* note 80, at 160–63; ROSEN, *supra* note 78, at 307.

82. This paper ignores the expenditure side of the state—i.e., benefits individuals receive from the government.

83. STIGLITZ, *supra* note 78, at 520–22.

84. Furthermore, the individual change in behavior described by the income effect is actually welfare-increasing, given the reduction in personal wealth due to tax payments. That is, if individuals did not change their choices due to a reduction in their available resources, they would be worse off (again, given a certain tax obligation). See *infra* note 104 and accompanying text.

85. STIGLITZ, *supra* note 78, at 520–21.

86. *Id.*

individuals, *inter alia*, to work less and consume more leisure.⁸⁷ The relative prices of effort (work) and leisure change due to wage taxes.⁸⁸ Property taxes, as another example, increase the price of housing and hence make consumption of housing services less attractive.⁸⁹ Individuals react by partially substituting housing consumption (for example, smaller and lower quality apartments) with other kinds of consumption or with leisure.⁹⁰ This tax-induced change in behavior is also welfare-reducing; individuals act differently than their optimal choice due to taxes.

Various equal-revenue taxes may cause different substitution effects. The extent to which individuals change their behavior through substitution in reaction to taxes—and accordingly the extent to which their utility is diminished—is not identical for different equal-revenue taxes.⁹¹ The substitution effect of diverse equal-revenue taxes differently affects social welfare. Thus, the social engineering task—to the extent that efficiency is important—is to design taxes so that the substitution effect is minimized.

Economists denote the perfectly-efficient tax measure as a “lump-sum tax” or first-best optimal tax.⁹² A lump-sum tax is defined as a tax measure that does not generate a substitution effect.⁹³ The only induced change in individual behavior under a lump-sum tax is due to the diminution of wealth—that is, an income effect.⁹⁴ A typical—though not perfect—example is a head tax that does not change the relative prices of any activities (besides immigrating and dying). That is, individuals cannot change their behavior or choice of activities in order to reduce the head tax burden. Nothing they do (again, besides immigrating or dying) will change their tax liability.

But, adopting a lump-sum tax is considered socially undesirable since it is insensitive to distributional concerns. Individuals with different characteristics, which are considered relevant distributional concerns (such as income, wealth, consumption, health), may bear equal tax burdens under a lump sum tax system.⁹⁵ Thus, imperfectly efficient tax—denoted as the second-best optimal tax⁹⁶—is sought. Income and consumption tax bases,

87. See *supra* note 79 and accompanying text.

88. See *supra* note 79 and accompanying text.

89. ROSEN, *supra* note 78, at 521–30.

90. *Id.* at 525–27.

91. See *supra* note 80 and accompanying text.

92. See STIGLITZ, *supra* note 78, at 462–63.

93. *Id.*

94. *Id.*

95. Agnar Sandmo, *Asymmetric Information and Public Economics: The Mirrlees-Vickrey Nobel Prize*, 13 J. ECON. PERSPECTIVES 165, 166–70 (1999).

96. *Id.*

for example, are two non-lump-sum tax schemes that typically serve as potential candidates for a second-best optimal tax measure. The second-best optimal tax generates a substitution effect that is minimized for a given distributional (or other) objective.⁹⁷ All else equal, the excess burden under a first-best optimal tax scheme is smaller than under a second-best optimal tax scheme, which in turn is smaller than under any other tax option.

The straightforward conclusion from this review of taxation and efficiency is that, holding all else equal (for example, distributional concerns), we are better off with taxes that minimize the excess burden (that is, minimize inefficiency). For example, if the public requires additional resources of 100, we are better off designing a tax measure that minimizes its effect on individual behavior. A head tax of 100 is probably the best choice in these terms. If a lump-sum tax is unavailable, a second-best tax measure that minimizes the excess burden of collecting 100 is preferable. The welfare difference between a lump-sum tax and any other kind of tax—both generating 100 in revenue—is the excess burden generated by taxes other than lump-sum tax. While both kinds of taxes generate an identical income effect—i.e., they both equally reduce taxpayer wealth—only the latter also changes relative market prices and hence generates a welfare-reducing substitution effect.

III. IMPLICATIONS FOR PRICE INDICATION REGULATION

As reviewed in Section I, price indication regulations adopted by consumer protection laws of European (and other) countries impose an obligation to include all consumption taxes in the sale price.⁹⁸ The underlying presumption for the regulation of tax-inclusive prices is consumer ignorance, confusion, or misdirection by tax-exclusive prices. In particular, consumers may be induced to consume more—that is, as if no (or lower) taxes are imposed on consumption—as they ignore non-included taxes.

Accordingly, assume, for simplicity, that consumers *completely* ignore non-included taxes in their consumption choices. Individuals then act as if their consumption is untaxed, although ultimately (i.e., at the cashier) they pay taxes. Since individuals ultimately pay consumption taxes, their wealth diminishes, but they perceive no change in (relative) market prices due to consumption taxes; they ignore the effect of such taxes on prices. If consumers perceive no change in relative market prices due to

97. *Id.*

98. *Supra* Section I.A.

consumption taxes, they act as if no such taxes were imposed. Thus, individual ignorance or confusion eliminates the substitution effect. If individuals overlook the effect of consumption taxes on relative market prices, no excess burden is generated.

The conclusion, then, is that absolute individual confusion or ignorance of commodity taxes' effect on market prices transforms distortive, imperfectly efficient consumption taxes into perfectly efficient, lump-sum-like taxes. Perceiving no change in relative market prices prevents substituting among different individual behaviors and hence eliminates excess burden. In this respect, individuals are better off.⁹⁹ Complete individual confusion or misdirection due to tax-exclusive prices *improves* well-being and thus, social welfare. Consumption taxation with no perceived effect on relative market prices is similar to a perfectly efficient tax measure; it is similar to a lump-sum tax (of equal revenue).¹⁰⁰

This conclusion may seem counter-intuitive. To further investigate the underlying intuition, this Article proffers the following stylized example: Assume (i) a representative individual-taxpayer, (ii) only two commodities in society—C and L, and (iii) commodity L cannot be taxed (for example, leisure). Assume that the government wishes to collect \$100 from each (representative) individual, and in order to achieve this fiscal need, the government imposes (or increases) tax on the consumption of commodity C.¹⁰¹ If the individual ignores the effect of the tax on the price of C—for instance, because she is confused by tax-exclusive price representation—then her consumption choices, given her lower wealth, would not change. Her consumption would only change due to the fact she is \$100 poorer. Although relative market prices of consumption (or work) and leisure have changed, a confused taxpayer behaves as if no such change has occurred. That is, the effect of such an increase in consumption taxes in this situation is equivalent to a \$100 lump-sum tax.

On the other hand, if the individual notices the change in relative prices due to a consumption tax, then not only would she change her behavior due the income effect (i.e., being \$100 worse off), but she also changes her behavior due to the substitution effect. She will further substitute the untaxed commodity (L) for the taxed commodity (C). Ignoring tax liability, substituting the consumption of L for C reduces the

99. See also Chetty et al., *supra* note 36, at 1166–76 (making a similar argument based on formal modeling of social welfare).

100. *But see infra* notes 104, 105 and accompanying text.

101. If more than two commodities are available for consumption, the analysis is similar as long as at least one commodity (such as leisure) is untaxable. The government then typically chooses a certain uniform increase in commodity taxes (across all goods and services).

taxpayer's well-being. The reason is that before taxes, individuals optimize their consumption, which implies that the marginal utility (per \$1) of consuming C equals the marginal utility (per \$1) of consuming L. Accordingly, given decreasing marginal utility of consumption, the additional utility from the further consumption of L is lower than the lost utility of diminished consumption of C. So why does the taxpayer choose to substitute L for C? The reason is that the tax savings from such substitution is larger than the loss of utility. Paying a higher tax-inclusive price for C is not worth as much as the non-lost utility of keeping the same consumption choice. Because relative prices have changed while relative utilities of consumption remain the same, the taxpayer is better off substituting between C and L.

This is correct to the extent that the tax rate is constant; however, the tax rate actually is not constant. If the government sets the commodity tax on C to yield \$100 revenue, and the taxpayer, at least partially, substitutes C with L, revenue will be lower than \$100. The taxpayer actually avoids paying the full \$100 by substituting. So, the government will increase the tax burden on C in order to collect the entire \$100 that is required. Assuming, realistically, that the government sets a budgetary goal—denoted in economic parlance as “revenue neutral” analysis¹⁰²—the taxpayer will eventually pay \$100 in taxes. The more the taxpayer substitutes away from the taxed commodity, the higher the imposed consumption tax will be. At the end of the day, the taxpayer pays \$100 in taxes and partially substitutes away from the taxed commodity (C). The taxpayer's utility is thus lower due to a non-optimal consumption mix, and she still carries a \$100 tax burden. The taxpayer would have been better off had she not substituted away from the taxed commodity. Then her wealth would have decreased by \$100, but her utility from consumption (given her wealth) would not have changed; her consumption utility would have been maximized. Put differently, whereas the income effect of \$100 is supposedly unavoidable, the reduction in individual utility due to the substitution effect is avoidable if individuals refrain from substituting taxed and non-taxed commodities (or activities/behaviors).

The conclusion thus far, then, is that taxpayers are better off being confused and misled regarding the effect of commodity taxes on consumption prices—for example, by tax-exclusive pricing. Informed individuals react to adjustments in relative market prices due to taxes, which in turn diminish their utility. Put more bluntly, if an individual had the choice *ex ante*, she would opt for the confusing/misleading tax-

102. Louis Kaplow, *Taxation and Redistribution: Some Clarifications*, 60 TAX. L. REV. 57, 74–75 (2007).

exclusive pricing system; she would elect to be “tricked.” This may sound annoying to individuals, as “tricking” them apparently denies them of their freedom of choice to a certain degree; to this extent, it is indeed correct. The freedom, or ability to choose one’s own optimal behavior intelligibly allows her to pay less (or avoid paying) taxes. But once individuals understand that at the end of the day they cannot pay less taxes, since the government (that is, society) requires certain revenue, the only outcome of their freedom of choice is an adverse change in behavior (to avoid paying taxes) with no reduction in tax burden. Hence, individuals are better off being “tricked” or being denied such freedom to choose. By extrapolation, society at large—or the aggregate utility of individuals—is better off by being completely misled by tax-exclusive prices.¹⁰³ Accordingly, if consumer confusion or misleading is the underlying justification for price indication regulation, the policy prescription—that is, design of regulation—may better be the opposite. If consumers are indeed misled by tax-exclusive prices and form choices as if there is no tax—and hence no adjustment to relative prices—then not only should retailers not be forced to indicate tax-inclusive prices, but society may actually be better off by making retailers state prices exclusive of taxes. This can be a social welfare-increasing strategy.

Yet, two important caveats are in order: one concerns differential biases, and the other, the income effect. The analysis so far assumed that individuals uniformly misperceive non-included taxes. But it is arguable that consumer misperception varies across consumption items and that consumers may be differentially aware to taxes on different goods, under a tax-exclusive price system (for example, being fully aware of excluded taxes on one good while being unaware of excluded taxes on another). In particular, consumers may be better aware, or invest further effort in becoming aware of non-included taxes on expensive goods.¹⁰⁴ Consumers may tend to take the extra effort required to overcome their bias (for example, by using specialized assistance) and find out the relevant taxes when they buy a house or a car. If consumers are aware of non-indicated

103. There might be political, and hence social, ramifications to such a misleading policy. These types of potential adverse political outcomes should be generally accounted for, and may reverse the policy recommendation, though not the analysis and its conclusion. Yet, if such “consumers misleading” policy is clearly designed for the benefit of consumers, as explained in this section, no such adverse political outcomes should be expected. See also a related discussion of the fiscal illusion hypothesis in Section VI, *infra*.

104. This may also be the case for recurring consumption goods; multiple identical transactions may induce consumers to acquire tax information. In this case, since typically recurring transactions are inversely correlated with transaction prices (*i.e.*, low-price transactions are much more common than high-price transactions), the conclusion might be that misperception of taxes does not vary systematically across consumption items.

taxes to varying degrees across consumption items, their choices will be distorted. That is, perceived relative prices are different than the relative market prices in a no-tax world. This means that while tax-exclusive prices allow avoiding (or reducing) one kind of distortion between work and leisure, another kind of distortion is generated—a distortion between the consumption of various goods. Misperceiving non-included taxes avoids (or diminishes) the former kind of distortion but may also cause the latter. Avoiding the distortion across consumption goods by tax-inclusion pricing would restore the work-leisure distortion. It is unclear *a priori* which of the two choices is welfare maximizing.

A second caveat relates to the income effect. The welfare implications of changes in behavior due the income and substitution effects are different. As explained above, revised choices due the substitution effect, given revenue-neutrality, are welfare reducing since individuals will be better off not changing their behavior while paying the same amount of tax. The implications of the income effect on individual welfare are different. Individuals are better off changing their behavior due to the income effect—i.e., due to a decrease in wealth. Whether an individual wealth decreases due to consumption taxes, theft, donation, or any other reason, she will be better off adjusting (that is, optimizing) her behavior accordingly. Unlike the change in behavior due to adjusted relative market prices (i.e., the substitution effect) that offers a representative individual no utility under a revenue-neutral system, changing her behavior due the fact she is poorer is beneficial.

Indeed, as explained above, the income effect is unavoidable as taxpayers pay the tax and in fact become poorer. But what if individuals are unaware of their decrease in wealth? If confused individuals are unaware of non-indicated consumption taxes, they may also be unaware that their real wealth (or purchasing power) has decreased due to such taxes, although they actually pay taxes. Given individual (nominal) income, lower market prices increase her real income; she can consume more with the same amount of resources. Hence, individual underestimation of market prices due to ignorance of sales taxes is equivalent to individual overestimation of real income. In simple words, if individuals believe market prices are lower than actual, they feel richer; they feel they can purchase and consume more than they can actually do using their income.¹⁰⁵ This implies that the income effect may not come

105. For example, assume an individual's nominal income is 1,000 with which she can purchase baskets of goods and services that are subject to a uniform commodity tax. Assume the after tax price of such a basket is 500, while the pre-tax price is 400. The individual can actually purchase two baskets of goods and services; that is, her real income can be measured by two baskets. But if the individual ignores the effect of commodity taxes

fully into effect: individuals may make their consumption (and work) choices ignoring the fact that their real wealth is lower due to consumption taxes. Misperceiving individual budget constraint impairs one's ability to optimize her (consumption and work) choices. The implication is not over-consumption, as individuals cannot consume more than their resources allow them to, but distorted consumption. Misperceiving real income may cause non-optimized consumption. For example, it may be conjectured that inter-temporal consumption choices will be distorted as confused individuals over-consume initially (e.g., during working years) only to find out later (e.g., retirement) they were left with resources that cannot fulfill their consumption plans.

Thus, ignoring the income effect can hurt individual utility. If individuals ignore the reduction in real wealth due to non-indicated consumption taxes, then tax-exclusive prices do not necessarily raise social welfare. Although consumer confusion may generate a counter-effect to the substitution effect, it may also prevent them from adjusting their consumption to a lower wealth level. These two opposing effects on social welfare should be traded off, and hence no conclusion on price indication can be *a priori* correct.

To sum up, misperception of non-included commodity taxes offers a social benefit in the form of avoided (or reduced) substitution between work and leisure. But underestimation of market prices may also generate social costs either due to differentiated misperception of prices or due to non-optimized consumption choices where real income is overestimated. Overall, it is unclear *a priori* if consumers are better off by tax-inclusion. In particular, confusing consumers by tax-exclusive pricing may actually improve their well-being and hence social welfare.

IV. JUSTIFYING TAX-INCLUSIVE PRICE SYSTEMS

Concluding that potential under-estimation of prices due to non-indicated taxes cannot necessarily justify price indication regulation, the question is whether a different rationale for tax-inclusive pricing can be suggested. This section presents four potential justifications, all which are based on the informational premise of consumer under-estimation bias: encouraging competition, wealth distribution, information costs, and regulatory taxation. This section generally concludes that only tax-based regulatory goals can support inclusion of taxes in prices, which implies a much narrower basis for tax-inclusive price regulation.

on prices, she will believe she is able to purchase and consume 2.5 baskets.

A. *Facilitating Market Competition*

Full information about prices is obviously important for market competition.¹⁰⁶ The E.U. directive on price indication explains that “transparent operation of the market and correct information is of benefit to consumer protection.”¹⁰⁷ Where prices are stated clearly, consumers are better able to compare prices among producers of goods and providers of services, hence fostering competition among producers/providers, which is, in turn, to the benefit of consumers.¹⁰⁸ Price indication rules, therefore, can be justified as a regulatory tool that fosters market competition.

The competition rationale properly supports, for example, unit pricing, which is an important component of price indication regulation. Providing consumers with processed information that can be easily compared across similar products—such as price per unit of weight or volume—quite reasonably advances competition for the benefit of consumers. But, the competition rationale is irrelevant to the tax inclusion issue. Whether all prices include or exclude taxes does not affect competition. Relative prices rather than absolute prices are important for competitive forces, and relative prices are the same regardless of whether the tax is included in the price or not.

The competition rationale is consequential only to the extent that products or services are subject to different tax burdens. There are two general instances of differentiated tax burdens schemes: various services and products may carry different tax burden (or rate), or similar goods may be subject to different tax burden across different countries. The first scenario is discussed later.¹⁰⁹ In the second case, differentiated cross-border tax burdens cause relative prices under tax-inclusive and tax-exclusive price systems to diverge. If, for example, a certain good is traded in two countries and is subject to a different VAT rate—say 10% in one jurisdiction and 20% in the other. If the before-tax price of the good is 100 in both countries (relative prices are 1-to-1), the tax-inclusive prices of the good may be 110 and 120 (relative prices are 11-to-12). But notice that tax-exclusive prices in this scenario create no efficiency costs since

106. George Stigler, *The Economics of Information*, 69 J. POLIT. ECON. 213, 213–220 (1961) (showing the effect of price information on market price dispersion).

107. Directive 98/6, *supra* note 9; see also Organisation for Economic Co-Operation and Development (OECD), *Price Transparency 2001*, DAF/CLP (2001) 22, available at www.oecd.org/dataoecd/52/63/2535975.pdf (last visited May 14, 2010).

108. See Robert Pitofsky, *Beyond Nader: Consumer Protection and Regulation of Advertising*, 90 HARV. L. REV. 661, 670–71 (1977) (discussing the beneficial effect of truthful advertising on competition).

109. See *infra* Part IV.D.

consumers are not induced to change their consumption (or work) behavior. Confused consumers may be induced to spend more on a product in the higher-VAT country. This is a problem of transfer between countries, rather than an inefficiency or excess burden problem.¹¹⁰ That is, the social welfare of these two countries, taken together, is not affected by tax-exclusive pricing systems.¹¹¹

B. Psychological Heterogeneity and Redistribution

Thus far only a representative consumer was examined; that is, the implicit assumption was that all consumers are identical in their underestimation of tax-exclusive prices. But, consumers' biased estimation may be heterogeneous. Certain consumers may not be misled by tax-exclusive pricing or can de-bias themselves; other consumers may under-estimate prices more excessively. Heterogeneous effects of tax-exclusive prices on consumer price valuation can generate distributive outcomes, which might be socially important enough to allow for regulation of tax-inclusive prices.¹¹²

The distributive outcome is caused by different reactions—that is, changes in behavior—of various individuals. Assume that there are only two types of individuals—B, who is fully biased by tax-exclusive prices, and U, who is completely unbiased. B is blind to any change in relative market prices due to consumption taxes, while U is fully aware of such changes and adjusts her behavior accordingly. Following our analysis above, assume that the government imposes commodity taxes in order to collect a certain required amount of revenue. If no individual changes her behavior due to the substitution effect (i.e., changes in relative market prices), the government would collect the required revenue. But if one of the individuals (U) further changes her behavior—that is, substituting newly taxed commodities with others—she will reduce her tax liability.

110. See *infra* note 112 and accompanying text.

111. Indeed, underestimation of non-included taxes may weaken tax competition among jurisdictions. See generally John Wilson, *Theories of Tax Competition*, 52 NAT'L TAX J. 269 (1999).

112. Another argument is based on the assumption that consumer protection laws should redistribute among consumers and producers or retailers. If consumers are ignorant of commodity taxes, they react inelastically to taxes, which, in turn, implies that they will carry the entire incidence of taxes. Then, informing consumers of taxes by explicit indication in prices causes changes in the tax incidence, relieving consumers of a portion of the tax burden and passing it on to producers/retailers. Hence, tax-inclusion regulation may redistribute from producers to consumers. Yet the redistributive rationale of consumer protection laws is fairly doubtful. Compared with the tax and transfer systems, consumer protection regulation is an extremely inferior mechanism of wealth redistribution.

The government then must increase the imposed commodity tax burden in order to collect the required revenue. At the end of the process, the government will collect the intended total amount of taxes, but the burden will be divided differently between the two types of individuals. Individual B will incur a larger burden of the commodity tax than he would have had if individual U were similarly confused by the tax-exclusive price; individual U will correspondingly bear a smaller portion of the tax burden. U's ability to change her behavior due to the change in relative market prices makes her better off so long as the "avoided" taxes are paid also by others—that is, by type B individuals. Type B individuals face higher market prices due to the consumption choices of Type U individuals. Thus, in effect, under tax-exclusive pricing, individual heterogeneity (in confusion or bias) distributes resources from the more biased toward the less biased.

The important questions, then, are whether such a distributional outcome is socially disturbing and whether it requires regulatory control. Numerous cross-subsidies among individuals exist in the market, and most are not necessarily considered socially undesirable to an extent that requires regulatory intervention. For example, accident insurance contracts create cross-subsidization between clumsy and skilled individuals¹¹³ and short distance commuters cross-subsidize long distance commuters through equal payments for (non-toll) roads; and astute investors or businessmen are more successful, in particular, at the expense of poorly performing investors or businessmen. These cross-subsidies among individuals do not require a regulatory fix. It is far from being obvious that redistribution is required also along individuals with different psychological biases. Not every kind of human non-uniformity requires regulatory intervention. Individuals are different in many dimensions; some are considered more attractive or dress better, while others require extra hours of sleep at night.¹¹⁴ Society does not consider every kind of inequality to be worthy of redistribution. Typically, redistribution is considered socially desirable along few individual features, such as income (or wealth or consumption), health, and family size.¹¹⁵

113. Michael Rothschild & Joseph Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 90 Q. J. OF ECON. 629, 630–37 (1976).

114. Cf. Lee Anne Fennell, *Willpower and Legal Policy*, 5 ANNUAL REV. OF L. AND SOCIAL SCI. 91, 102 (2009) (suggesting that problems of willpower or self-control might raise redistributive concerns since they affect individual well-being).

115. These individual characteristics are considered proxies of individual ability, which is unobservable directly. It is unclear that biased perception of tax-exclusive prices is any proxy of lower ability. See also Shaviro, *supra* note 31, at 758 (arguing, in passing, that "ability" for tax (or social welfare) purposes may include individual ability to derive utility from consumption). Furthermore, even if one adopts an ability-to-pay criterion, it is unclear

Therefore, considering potential correlations between psychological biases and any of the mentioned individual features is interesting. Psychological biases might be negatively correlated with education level or intelligence quotient (IQ), which could be considered as partial proxies for income. But on the other hand, the opportunity costs of self-debiasing resources (such as time and effort) are positively correlated with income as the time value of high-income earners is higher. Thus, theoretical prediction is unattainable.¹¹⁶ Empirical evidence on these potential correlations is scarce. The limited existing evidence indicates that low-income or low-educated individuals acquire less information and make more mistakes,¹¹⁷ but they are not necessarily more vulnerable to psychological biases.¹¹⁸ Furthermore, it makes little sense to redistribute along a non-perfect proxy of income, while redistribution along income can be accomplished directly through an income tax system.¹¹⁹ The conclusion, then, is that only to the extent that it is socially desirable to redistribute across psychological biases—regardless of income or wealth—can tax-inclusive price regulation be justified.¹²⁰ However, note that this would not

how confusion about market prices or tax burdens affects a taxpayer's ability to pay. For example, would an ability-to-pay advocate support equal tax liability for a high-income biased consumer and low-income rational consumer?

116. Galle, *supra* note 49, at 49–54, claims that the distributive effects of cognitive biases and rational inattention are presumably different, with the tendency of cognitive biases to generate a regressive outcome, while the rational inattention induces a more progressive outcome. I fail to see why the two opposing effects described in the text would not be equally at work under both rational and non-rational descriptions of behavior. *See also supra* note 43.

117. *See, e.g.*, Oren Bar-Gill & Elizabeth Warren, *Making Credit Safer*, 157 U. PENN. L. REV. 101, 164–65 (2008) (pointing out that survey studies in the mortgage industry that show that lower-income and less-educated consumers are more likely to make mistakes).

118. *See, e.g.*, Marianne Bertrand et al., *What's Psychology Worth? A Field Experiment in the Consumer Credit Market* (2005) (unpublished manuscript) (on file with author); Marianne Bertrand et al., *Behavioral Economics and Marketing in Aid of Decision Making Among the Poor*, 25 AM. MARKETING ASSOC. 8, 8–9 (2006) (arguing that although poor and rich individuals may exhibit the same behaviors, the effect on the poor may prove more crucial since the poor face tighter constraints. This observation implies that the value of debiasing to the poor is higher); *see also* Chetty et al., *supra* note 36, at 35.

119. *See* MITCHELL A. POLINSKY, AN INTRODUCTION TO LAW AND ECONOMICS 117–27 (Aspen Publishers 1989) (explaining that non-tax redistribution is haphazard and can be contracted around); Richard Craswell, *Passing on the Costs of Legal Rules: Efficiency and Distribution in Buyer-Seller Relationships*, 43 STAN. L. REV. 361, 368–85 (1991) (analyzing distributional outcomes of legal rules in consensual relationships); Jacob Nussim, *Redistribution Mechanisms*, 3 REV. OF L. AND ECON. 323, 333–35 (2007) (emphasizing the institutional component of redistribution); *see also generally* Louis Kaplow & Steven Shavell, *Why the Legal System is Less Efficient than the Income Tax in Redistributing Income*, 23 J. OF L. STUD. 667 (1994) (arguing that non-tax redistribution of wealth generates double distortion).

120. Additionally, protecting biased consumers through regulation may crowd out

be a consumer protection concern but an issue of redistribution. Consumers are not necessarily protected by such regulation; non-biased consumers are actually hurt.

C. *Complexity Costs*

Tax-exclusive prices impose complexity costs on rational consumers since consumers are required to gather and process information in order to make rational consumption decisions. The applicable tax rates must be revealed and the tax-inclusive prices computed. These activities are complicated—that is, costly. Reallocating the informational burden from consumers to retailers would most likely reduce complexity costs. Retailers are the cheapest information producers. By indicating tax-inclusive prices, retailers act as a joint representative of consumers, and relieve them of information costs. Rather than having each and every consumer bear the informational burden in each and every transaction, retailers can undertake the informational responsibility by adopting a tax-inclusive price system.

But if consumers are indeed rational and would hence carry the informational burden under a tax-exclusive price system,¹²¹ no consumer protection regulation is required. Market forces would most likely induce retailers to present tax-inclusive prices. Competing retailers can gain competitive advantage by providing consumers with costly information. If it is indeed cheaper for retailers to provide information by adopting tax-inclusive prices, they maintain a profit-maximizing incentive to do so. No protective regulation is required.

On the other hand, if consumers are completely confused by tax-exclusive prices, and completely ignore non-indicated taxes, then no complexity costs are induced. No information is gathered or processed by consumers, and the lack of such information is ignored. Thus, tax-inclusive price regulation saves no complexity costs. On the contrary, it raises social complexity since it requires retailers to produce information which is not demanded by consumers, and thus saves no costs for consumers. In the

personal incentive to educate and debias oneself. See Jonathan Click & Gregory Mitchell, *Government Regulation of Irrationality: Moral and Cognitive Hazards*, 90 MINN. L. REV. 1620, 1627–41 (2006).

121. Rational consumers do not necessarily invest in the gathering and processing of information. If information costs are higher than their expected benefit, it is rational to refrain from such tasks. But it does not imply that consumers avoid these (complexity) costs. Rather, they minimize these costs. Instead of bearing the actual information costs, consumers would bear the reduction in utility due to the absence of information (e.g., mistakes, uncertainty). See also *supra* note 43.

absence of regulation, retailers would choose not to indicate taxes since biased consumers would not be willing to pay for such information (through higher market prices). This market solution is socially superior.

The more interesting case is of heterogeneous consumers (as was presented in the preceding section). Consumers' cognitive abilities may vary: some consumers are fully rational, some are less rational, and some are completely fooled by tax-exclusive prices. In this case, society will likely be better off if retailers undertake the informational burden as long as the set of non-biased consumers is sufficiently large. Only if sufficiently enough (non-biased) consumers incur complexity costs, it is socially beneficial to have retailers produce information by including taxes in prices. The question is if regulating tax-inclusive prices gets us closer to the socially preferable outcome than allowing for undisturbed market forces. No absolute *a priori* theoretical answer can be provided to this question. But it does seem in general that the market solution is more likely to minimize informational costs (that is, complexity) and hence is a superior solution socially.

Stiglitz and Salop investigated a general case of consumer information costs—in their model, positive search costs. If consumers have to invest resources in search for products, producers gain certain monopolistic power and can utilize it for their advantage at the expense of consumers. For example, if it is costly to compare prices of all producers, then in reality fewer producers compete on relevant segments of the market, and hence competition is impaired, which in turn leads to higher market prices. Stiglitz and Salop showed that where price information is costly for some consumers—that is, positive search costs—a competitive market reaches competitive price equilibrium if there are enough fully (costlessly) informed consumers.¹²² The fully informed consumers drive down market prices by inducing suppliers to reduce their prices in order to gain their market share—i.e., the market share of fully informed consumers.¹²³ That is, if the market share of informed consumers is not too small, producers will compete on their share and accordingly reduce market prices to the benefit of all consumers. Put differently, competitive market prices do not necessitate full information by all market participants, but by a sufficiently large subset of them.

The same analysis can be applied to the tax-inclusion issue. Non-

122. See Steven Salop & Joseph Stiglitz, *Bargains and Ripoffs: A Model of Monopolistically Competitive Price Dispersion*, 44 REV. OF ECON. STUDIES 493, 499–502 (1977); see also Alan Schwartz & Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 U. PA. L. REV. 630, 640–51 (1979).

123. Salop & Stiglitz, *supra* note 122, at 499–502.

biased consumers are fully aware of non-included taxes and therefore gain from simplified tax-inclusive prices. It saves them complexity costs. A sufficiently large share of non-biased consumers would hence induce retailers to post prices inclusive of tax. Retailers are better off stating tax-inclusive prices since they try to gain, and hence compete over, the share of non-biased consumers. Yet, if the share of non-biased consumers in the market is excessively small, retailers would choose to ignore non-biased consumers, present tax-exclusive prices, and make an extra profit thanks to biased consumers. This result is, in general, socially desirable. As described above, producing information through tax-inclusion is socially beneficial only for non-biased consumers. It saves them personal information costs, but only to them. Accordingly, a smaller share of non-biased consumers in the economy makes tax-inclusive prices socially undesirable, since unneeded information is produced and complexity is actually increased. Only to the extent there are enough non-biased consumers, information production by retailers via tax-inclusive prices is socially beneficial. Indeed, it seems that market forces are generally in accord with the social goal: a larger share of rational consumers requires tax-inclusive pricing, and indeed market forces would drive retailers to include taxes in prices, whereas a smaller share of non-biased consumer requires no superfluous information costs, and, as Stiglitz and Salop explain, market forces probably would not induce retailers to include taxes in stated prices. Tax-inclusive regulation, then, cannot be easily justified on the basis of information costs.

D. *Regulatory Taxation*

A small, designated subset of commodity taxes retains a regulatory function: control of behavior.¹²⁴ In particular, negative externalities—such as pollution—can be constrained by taxes.¹²⁵ These taxes are also denoted as Pigouvian taxes or corrective taxes, the purpose of which is to change or restrain certain socially undesirable behavior.¹²⁶ Examples include taxes on carbon emissions, fuel, congestion, tobacco, and alcohol.¹²⁷ Effective Pigouvian taxes must be fully considered by taxpayers to change individual behavior in a socially desirable manner. Thus, under-valuation of Pigouvian taxes dilutes their regulatory effectiveness. In contrast to revenue-producing taxes, with behavior-control taxes, the substitution

124. See generally Lawrence H. Summers, *The Case for Corrective Taxation*, 44 NAT'L TAX J. 289, 289–92 (Sept. 1991).

125. *Id.* at 290.

126. *Id.* at 289–90.

127. See, e.g., *State Sales*, *supra* note 29.

effect is most desirable.

In this context, price indication regulation is required only for corrective taxes which apply to a very limited set of commodities (for example, carbon emissions, alcohol). This analysis of price indication regulation partially conforms to the U.S. practice. While state sales taxes are not included in commodity prices, excise taxes are included in, for instance, alcohol prices.¹²⁸

However, the use of regulatory taxation might be somewhat wider and is related to differential tax rate systems. VAT systems in European countries and sales tax systems in U.S. states tend to evolve into a non-uniform tax rate system.¹²⁹ Although policy-makers usually prefer a uniform consumption tax rate,¹³⁰ in practice, several subsets of consumption goods and services—such as newspapers, medical care and products, and food—might be completely exempted from commodity taxes or sustain a lower tax rate.¹³¹ Generally, there are three reasons to adopt a differentiated rate scheme: regulation of behavior, redistribution, and complexity.¹³²

128. See, e.g., Chetty et al., *supra* note 36, at 1158 (discussing the effects of excise and sales taxes on alcohol sales).

129. See COPENHAGEN ECONOMICS, STUDY ON REDUCED VAT APPLIED TO GOODS AND SERVICES OF THE MEMBER STATES OF THE EUROPEAN UNION 39 (2007) [hereinafter COPENHAGEN ECONOMICS], available at http://ec.europa.eu/taxation_customs/resources/documents/taxation/vat/how_vat_works/rates/study_reduced_VAT.pdf (last visited May 14, 2010).

130. See, e.g., THE PRESIDENT'S ADVISORY PANEL ON FEDERAL TAX REFORM, SIMPLE, FAIR, AND PRO-GROWTH: PROPOSALS TO FIX AMERICA'S TAX SYSTEM 198 (2005), available at <http://govinfo.library.unt.edu/taxreformpanel> (follow "Final Report Issued" hyperlink; then follow "Chapter Eight - Nine" hyperlink) (last visited May 14, 2010) [hereinafter PRESIDENT'S ADVISORY PANEL] (stating that the "VAT should be imposed at a single uniform rate"); DUE & MIKESSELL, *supra* note 36, at 27; Council Directive 2006/112, *supra* note 28, arts. 96, 97 (requiring and establishing standard VAT rates); Henry J. Aaron, *Introduction and Summary*, in THE VALUE-ADDED TAX: LESSONS FROM EUROPE 1, 8–9, 16 (Henry J. Aaron ed., 1981).

131. See, e.g., DUE & MIKESSELL, *supra* note 36, at 75–88; Mikesell, *supra* note 33, at 154–55 (listing exemptions by category and state); LIAM P. EBRILL ET AL., THE MODERN VAT 68–100 (2001) (discussing complexity and administrability in Chapter 5, experience and recommendations in Chapter 6, and rate differentiation in Chapter 7); RONALD JOHN HY & WILLIAM L. WAUGH JR., STATE AND LOCAL TAX POLICIES: A COMPARATIVE HANDBOOK 31–32, 91–100 (1995) (giving examples of sales tax exemptions); Council Directive 2006/112, *supra* note 28, art. 98, annex III (applying reduced rates from Article 98 to certain goods and services listed in Annex III); see also RICHARD M. BIRD & PIERRE-PASCAL GENDRON, THE VAT IN DEVELOPING AND TRANSITIONAL COUNTRIES 211 (2007) (discussing arguments for and against tax salience in the context of taxing a broad base of services).

132. See, e.g., JAMES M. BICKLEY, VALUE-ADDED TAX: CONCEPTS, POLICY ISSUES, AND OECD EXPERIENCES 18–20 (Novinka Books 2003) (explaining that redistribution concerns trigger differentiated VAT rates); ALAN SCHENK & OLIVER OLDMAN, VALUE-ADDED TAX: A COMPARATIVE APPROACH 54 (2007) (arguing that both redistribution and behavior regulation

(i) Regulating Behavior: If the use of public transportation, or the use of energy saving appliances, or distribution of information by newspapers is considered valuable for society (for example, because it generates positive externalities), the government may attempt to encourage its consumption, or at least, not to excessively discourage it through consumption taxes. A lower VAT rate on energy saving appliances or books is a kind of subsidy for socially beneficial behavior.¹³³ Given a VAT system, lower rates act as Pigouvian subsidies; their function is to encourage particular individual behavior. Similar to the Pigouvian taxes case, the reaction of individuals to the tax incentive—i.e., the substitution effect—is important. To the extent that the purpose of differentiated VAT rates is to encourage behavior, society is better off when individuals are fully aware of the encouragement and fully react to it.¹³⁴ Individuals should not be confused in this case, and thus, tax-inclusive prices are justified.

In this case, not only should the prices of preferred goods be tax-inclusive, but also prices of all other taxed goods and services. In order for consumers to appreciate the lower tax burden on preferred goods, they must be aware of the relatively higher tax burden on non-preferred goods. Therefore, in the case of differentiated VAT rates based on the Pigouvian subsidy (or tax) rationale, a system-wide tax-inclusive pricing method is justified.

The result of this analysis is that, given consumer confusion by tax-exclusive prices, if a differentiated tax rate is desirable in order to regulate consumption behavior, then tax-inclusive prices offer social value. However, we should still be aware of the loss of social welfare due to non-regulatory, undesirable substitution. The social value of regulating behavior should be traded off against the social loss due to substitution by consumers who consume non-preferred goods. It is not *a priori* clear that the first (regulatory) effect outweighs the second (distortive) effect. Furthermore, it is plausible that in certain cases society will be better off if

cause differentiated tax rates); Alan Tait, *Value-Added Tax, National*, in THE ENCYCLOPEDIA OF TAXATION AND TAX POLICY 422, 422–23 (Joseph J. Cordes et al. eds., 1999) (suggesting that complexity and redistribution drive European countries to adopt differentiated tax rates).

133. See COPENHAGEN ECONOMICS, *supra* note 129, at 5, 32–33.

134. The same rationale applies to other less-prevalent arguments based on efficiency and merit goods. A differentiated commodity tax rate may prove superior on efficiency grounds due to differentiated association with leisure. See, e.g., W.J. Corlett & D.C. Hague, *Complementarity and the Excess Burden of Taxation*, 21 REV. OF ECON. STUDIES 21 (1953). It may also prove superior due to substitution with non-taxed homemade consumption. See, e.g., COPENHAGEN ECONOMICS, *supra* note 129, at 20–21. Additionally, to the extent that certain goods—such as books, music, cultural events—are considered “merit goods,” society may wish to encourage their consumption through lower tax burdens. See *id.* at 32–33; TAIT, *supra* note 21, at 69 *et seq.* In these cases, the rationale similarly applied—i.e., society is better off if individuals are fully aware of, and react to, the reduced tax.

encouragement (or discouragement) of behavior will be accomplished outside the VAT/RST (retail sales tax) system. Given consumer confusion under a tax-exclusive commodity tax system, by using a separate tax (or subsidy) instrument,¹³⁵ or a non-tax regulating instrument, society can enjoy both welfare-increasing effects—that is, lump-sum-like tax and regulation of individual behavior—rather than choose one or the other.

(ii) Redistribution: Equity preferences seem to be a principal reason for imposing lower consumption tax rates on certain subsets of consumption.¹³⁶ Examples include food, housing, public transport, and utilities.¹³⁷ Because poor taxpayers' incomes are largely used for the purchase of basic consumption goods, imposing a lower tax on these goods generate a progressive effect. For a similar reason, higher tax rates are sometimes levied on certain luxuries.¹³⁸

(iii) Complexity: Adopting differentiated commodity tax rates can be socially advisable if it proves to be too complicated (i.e., costly) to tax every kind of good or service. Certain goods or services may be difficult to tax, or taxes on these goods or services may be difficult to enforce (for example, due to monitoring or measurement difficulties). For example, services and intangible property are typically not taxed under U.S. state sales tax for this reason;¹³⁹ financial services are not always taxed under VAT systems for a similar reason.¹⁴⁰

It should be clear, following the analysis so far, that, to the extent that consumption tax rates are differentiated due to either redistribution or complexity issues, the tax-exclusive pricing option may actually be reinforced. A differentiated consumption tax rate scheme creates additional, excessive substitution toward low-tax commodities. Assuming that substitution is socially undesirable—because the reason for tax exemption is redistribution or complexity rather than directing behavior—

135. Excise taxes (and subsidies) such as those mentioned above (e.g., taxes on alcohol, gas, and pollution) are designed as a separate consumption tax mechanism. That is, it might be possible to have a uniform-rate consumption-tax system under which taxes are not included in prices, along with an additional system of specific excise taxes and subsidies that are included in prices.

136. See COPENHAGEN ECONOMICS, *supra* note 129, at 29–33.

137. *Id.*; TAIT, *supra* note 21, at 58–68.

138. Louis Kaplow, *Income Taxation and Government Policy* (Harvard Law School John M. Olin Center for Law, Economics and Business Discussion Paper Series No. 518, at 4 (2005), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=825568 (last visited May 14, 2010).

139. Mikesell, *supra* note 33, at 155–57; Kirk J. Stark, *The Uneasy Case for Extending the Sales Tax to Services*, 30 FLA. ST. U. L. REV. 435, 451–58 (2003) (investigating the problems of broadening the sales tax to encompass services).

140. See, e.g., TAIT, *supra* note 21, at 92–99.

society might be better off with a “misleading” tax-exclusive price system.¹⁴¹ Under this system, certain commodities are not burdened by taxes, while taxes on the remainder of commodities are ignored due to confusion. This results in no distortion due to redistribution or complexity; a differentiated tax rate can help the poor or relieve complexity, while inducing no substitution toward the non-taxed or lower-taxed commodities.¹⁴²

In sum, the principal theory supporting the notion of tax-inclusive pricing is most likely based on a specific goal of regulating behavior. Acknowledging this helps us draw two conclusions. First, the scope of prescribing tax-inclusive pricing is more limited than what is envisioned under the “consumer confusion” hypothesis. Consumption taxes are mostly designed with non-regulatory goals in mind.¹⁴³ Second, price indication laws should not necessarily aim to prevent consumer confusion in general, but may rather attempt to reinforce the regulatory function of taxes. A corollary of this conclusion is that the focal location of tax-inclusive regulation should be within tax law, rather than in consumer protection law.

V. EXTENSIONS

A. *Income-based Taxes*

The price of effort—that is, work—is typically stated gross-of-tax and the tax burden on work effort is not separately stated. Accordingly, a consistent approach to individual cognitive biases—which supports a “consumer confusion” hypothesis—would posit an analogous argument in the individual-worker case: “worker confusion” or “worker over-valuation” hypothesis. Suppliers of work may be confused or misled by gross-of-tax salaries that are offered in the market. An individual who offers her human capital in the market may be misled to believe that the return is higher than it actually is net of wage taxes, and hence would choose to work (and invest

141. Although it is not a necessary result under the theory of second-best, there is no reason to believe, in this case, that the additional tax distortion (*i.e.*, due to complexity or redistribution) may increase welfare.

142. Admittedly, the same caveats (*see supra* text accompanying notes 104, 105) similarly apply to this case.

143. The analysis focused only on public-interest-based reasons for designing a differentiated tax scheme—*i.e.*, regulating behavior, redistribution, and complexity. Private-interest reasons—*e.g.*, assisting a particular industry—may be suggested as well. To the extent that private interests influence the design of consumption taxes, the conclusion is similar: taxes should not be included in prices because the differentiated tax rate would cause an unwanted substitution effect.

in human capital) too much. A “worker protection” measure can take the form of “salary indication” regulation that requires presentation of only net-of-tax salaries. Presumably, the reason that no “salary indication” regulation is advocated is its relative complexity. Because income taxes are far from uniform across equal-income taxpayers, net-of-tax indications would require gathering and processing individual information (some which may be private) for every wage offer.¹⁴⁴

This Article offers an additional rationale for gross-of-tax wage presentation. If workers are completely confused by gross-of-tax wages (and are being paid with sufficient frequency), they are better off. Mised workers will supply effort (and invest in human capital) as if no income taxes are imposed; they will not substitute leisure for work. Complete ignorance of wage taxes will transform a second-best optimal tax scheme into first-best optimal lump-sum taxes. Like “tricking” consumers, “tricking” workers may improve social welfare.

Furthermore, the potential drawbacks of misperceived commodity taxes are largely absent from a (generally equivalent¹⁴⁵) wage tax.¹⁴⁶ First, the effect of wage taxes is uniform across consumption items, and hence misperception of taxes cannot distort choice among consumption possibilities. Second, the potential distortion to the income effect due to ignored taxes is most likely much smaller under a wage tax. Wage taxes directly reduce taxpayers’ nominal income, and hence real income. A taxpayer, who is completely ignorant of levied wage taxes, still has access to an independent source of budgetary information—for example, checking her wallet or bank account. Whether or not a taxpayer is aware of the wage taxes she pays, she can be easily informed of her budget or net income. Individuals do not aggregate tax payments in order to calculate net available income. In order to make correct (consumption and work) choices, individuals just check how much resources (for example, money) they own at each relevant point of time. Even where individuals are not aware of levied taxes, they are still typically aware of the amount of money they possess. As long as a taxpayer adjusts her behavior to her net income status, it does not matter if her income is lower due to taxes or any other reason, and being aware of tax payments is irrelevant. That is, the income effect is most likely fully accounted for by a taxpayer who completely misperceives wage taxes.

The only necessary constraint is that the taxpayer net income

144. Interestingly, in Italy, wages are commonly stated in net-of-tax terms.

145. See Louis Kaplow, *Taxation and Risk Taking: A General Equilibrium Perspective*, 47 NAT’L TAX J. 789, 793–94 (1994) [hereinafter Kaplow, *Risk Taking*].

146. See *supra* notes 104, 105 and accompanying text.

actually diminishes due to wage taxes; that is, it depends on the frequency of wage tax payments. It makes some difference whether wages are being paid weekly, biweekly, monthly or yearly. Assume, for example, that an employee is being paid a biweekly salary of, say \$5,000 before income taxes, where a flat 30% wage (or income) tax applies. At the beginning of a two weeks work, a confused employee may plan her consumption given an expected increase of \$5,000 to her net income. Once she gets her salary, her bank account shows an increase of \$3,500 only (due to income taxes). Assuming individuals do not ignore net income information obtained from their bank account, her consumption choices can be distorted only to the extent of \$1,500. That is, she might make wrong consumption choices thinking (constantly) she is \$1,500 richer. Such distortion to the income effect is most likely negligible. Indeed, had salaries been paid on a yearly basis, she may (constantly) overestimate her net income by \$36,000 (= \$120,000 annual salary times 30% tax rate).¹⁴⁷ Accordingly, frequent payments of wage taxes minimize the distortion in individual consumption choices due to the income effect.

This analysis may be further expanded to other components of an income tax base. For example, interest, dividend or rent income may also be presented net-of-tax. Again, stating the return to capital investment or loans gross-of-tax may confuse taxpayers; they may believe the gain is higher than the actual net-of-tax return, and hence tend to excessively invest or provide credit. Furthermore, unlike wage taxes, in various jurisdictions interest and dividend tax rates are flat rather than graduated, which make it quite simple to indicate returns net-of-tax.¹⁴⁸ The repeated argument in this Article is that stating returns in gross-of-tax terms may thwart the substitution effect in these cases if taxpayers are confused, and hence may minimize the excess burden.

B. Demand-Increasing Market Strategies

The discussion and analysis in this Article may take us even further beyond the tax-exclusive/inclusive question. For the purposes of this subsection, ignore the previous discussion of confusion and misperception of non-included taxes. Specifically, assume that either an optimal and perfectly perceived consumption tax (like VAT or sales tax) or a wage tax

147. In reality, wages taxes are paid frequently (weekly, biweekly, or monthly) due to the withholding at source mechanism.

148. The situation grows further complicated upon the assumption that payers of income may also be confused and misperceive the deductions to which they are entitled (for payments of interest or salary).

exists, or both—that is, a second-best optimal tax system that (optimally) distorts behavior due to the substitution effect described above. Additionally, assume a uniform (rather than differentiated) consumption tax rate or a proportional wage tax rate, which are actually equivalent.¹⁴⁹ Accordingly, the tax induced distortion is of labor and leisure: under either tax system, individuals similarly tend to work less (and consume less in the market) and alternatively consume more leisure.

Now, focus on the uniform commodity tax scheme. It is second-best optimal due to the labor-leisure distortion, which is absent under a lump-sum tax. Under a lump-sum tax, the demand for consumption (and correspondingly, supply of work) is higher since substitution effect is nil.¹⁵⁰ Therefore, exogenously increasing consumers' demands, holding all else constant, counteracts the substitution effect and is thus a welfare-increasing strategy. Indeed, as discussed above, confusing or deceiving consumers who consequently ignore the imposed tax can be considered as one such strategy. Another strategy might be spontaneously offered by the market.

Sellers of goods and services are involved, to a large extent, in increasing consumer demand for their products. Marketing tactics, advertising, price presentation, etc. are all attempts by sellers to gain market share among a limited pool of consumers and to increase demand without reducing prices. These demand-increasing strategies are based not just on revealing necessary information to the consumer, but also on consumer confusion or misperception. Marketing methods are often developed to exploit the cognitive biases of consumers. The marketing literature presents and examines a wide range of such marketing strategies that are employed in the market. A few examples of price presentation strategies were presented in Section II.¹⁵¹ Numerous other examples are available in the marketing literature.¹⁵² For example, nine-ending prices prove to affect sales;¹⁵³ different promotional forms influence demand differently;¹⁵⁴

149. See, e.g., Kaplow, *Risk Taking*, *supra* note 145, at 791–94 (discussing the equivalence between a uniform commodity tax and a proportional wage tax).

150. See *supra* note 92 and accompanying text.

151. See *supra* notes 61–74 and accompanying text.

152. See generally THOMAS T. NAGLE & REED K. HOLDEN, *THE STRATEGY AND TACTICS OF PRICING: A GUIDE TO PROFITABLE DECISION MAKING* 265 *et seq.* (4th ed. 2006).

153. See generally, e.g., Mark Stiving & Russell S. Winer, *An Empirical Analysis of Price Endings with Scanner Data*, 24 J. CONSUMER RES. 57 (1997) (showing experimentally the price underestimation effect of prices ending with the digit 9); Robert M. Schindler & Patrick N. Kirby, *Patterns of Rightmost Digits Used in Advertised Prices: Implications for Nine-Ending Effects*, 24 J. CONSUMER RES. 192 (1997) (same); Manoj Thomas & Vicki Morwitz, *Penny Wise and Pound Foolish: The Left-Digit Effect in Price Cognition*, 32 J. CONSUMER RES. 54 (2005) (same); Eric Anderson & Duncan Simester, *Effects of \$9 Price Endings on Retail Sales: Evidence from Field Experiments*, 1 QUANTITATIVE MARKETING AND ECONOMICS 93 (2003) (suggesting, based on field experiments, that the effect of 9

temporal price framing may reduce the perceived cost of consumption,¹⁵⁵ comparative price advertising increase consumers' demand by raising their perceived reference price.¹⁵⁶

Generally, marketing strategies that exploit consumer cognitive biases may be deplored as misleading and deceiving. But, regulating such market behavior may not necessarily be socially wise given the existence of commodity (or wage) taxation. These demand-increasing strategies offer a social value. They offer potential offsets to the demand-reducing effect of second-best optimal taxes. Misleading consumers in a manner that increases their demand for products is effectively no different than generating an under-estimation of commodity prices. That is, in a no-tax world, such marketing strategies are welfare reducing as they induce excessive consumption (and work). But if distortive consumption taxes are employed, the extra consumption (and work) induced by these marketing strategies becomes restorative rather than excessive.

This Article does not necessarily advocate misleading consumers in order to increase their demand for consumption. In particular, the difference between consumer under-estimation due to tax-exclusive prices and marketing strategies is that only under the former there may be a good reason to believe that consumers will be *uniformly* confused across all commodities.¹⁵⁷ Marketing strategies, on the other hand, may differentially affect the consumption of different products. Such a differentiated effect generates its own distortion—i.e., substitution across commodities.¹⁵⁸

The purpose of this discussion is to elucidate to consumer

endings is informational).

154. See, e.g., David M. Hardesty & William O. Bearden, *Consumer Evaluations of Different Promotion Types and Price Presentations: The Moderating Role of Promotional Benefit Level*, 79 J. RETAILING 17, 18–22 (2003) (comparing the effects of price discounts and bonus packs); Chen et al., *supra* note 66, at 357–69 (comparing the effects of price discounts and coupons); see also generally Indrajit Sinha & Michael F. Smith, *Consumers' Perceptions of Promotional Framing of Price*, 17 PSYCHOL. & MARKETING 257 (2000) (arguing that the framing of deals—i.e., price reduction versus volume promotion—affects perception).

155. See generally, e.g., John T. Gourville, *Pennies-a-Day: The Effect of Temporal Reframing on Transaction Evaluation*, 24 J. CONSUMER RES. 395 (1998) (showing experimentally and theorizing the effect of temporal framing of pricing).

156. See generally, e.g., Dhruv Grewal et al., *The Effects of Price-Comparison Advertising on Buyers' Perceptions of Acquisition Value, Transaction Value, and Behavioral Intentions*, 62 J. MARKETING 46 (1998); Larry D. Compeau & Dhruv Grewal, *Comparative Price Advertising: An Integrative Review*, 17 J. PUB. POLICY & MARKETING 257 (1998).

157. See *supra* notes 104, 145–46 and accompanying text.

158. Additionally, the extent to which marketing strategies mislead consumers and increase demand is also important. Marketing strategies should not be allowed to have an excessive effect on demand (though intuitively it seems to be far from excessive given current tax rates in developed countries).

protection regulators the positive effect of market-based strategies based on consumer confusion, where consumption or wage taxes exist. The demand-increasing marketing strategies described above (and others) should not necessarily be on the front line of consumer protection regulation; they are not all bad.

CONCLUSION

Rather than restating the analysis and conclusions of this Article, this final section discusses a few closely related issues. First, on the issue of methodological approaches, this Article adopts a welfarist method. Under a welfarist methodology, legal rules are evaluated according to their effect on social welfare, which is the aggregate of individual well-being.¹⁵⁹

Clearly, other methods of analysis are possible, such as “rights” or entitlement approaches that can be based on the Kantian idea of personal autonomy. Consumers, under a “rights” approach, are entitled to certain regulatory protection regardless of any competing considerations—such as social welfare.¹⁶⁰ Another potential approach is based on the concept of community/public values. In this context, consumer protection regulation promotes values such as honesty and fairness, and contributes to the development of trust and confidence in society.¹⁶¹ One may alternatively adopt a theory of liberal values,¹⁶² promote collective desires and aspirations,¹⁶³ attempt to redesign individual preferences,¹⁶⁴ stress various public policy goals,¹⁶⁵ etc. Under any of the non-welfarist approaches, the analysis and conclusion may change. The welfarist analysis in this paper can provide advocates of other approaches with a social welfare benchmark

159. See generally KAPLOW, *THEORY OF TAXATION*, *supra* note 1, at 348–58 (describing the welfarist methodology).

160. See, e.g., Richard B. Stewart & Cass R. Sunstein, *Public Programs and Private Rights*, 95 HARV. L. REV. 1193, 1232–36, 1307–16 (1982) (discussing the concept of entitlement as affecting the relationship between private rights and public law); Richard B. Stewart, *Regulation in a Liberal State: The Role of Non-Commodity Values*, 92 YALE L. J. 1537, 1556–59 (1983) (discussing the concept of entitlement as a basis for regulation).

161. See, e.g., Stewart & Sunstein, *supra* note 160, at 1238.

162. See, e.g., Stewart, *supra* note 160, at 1566–87 (presenting and applying a non-commodity approach to regulation).

163. See CASS R. SUNSTEIN, *AFTER THE RIGHTS REVOLUTION: RECONCEIVING THE REGULATORY STATE* 57–60 (1990).

164. See *id.* at 64–67.

165. See, e.g., Marshall S. Shapo, *A Representational Theory of Consumer Protection: Doctrine, Function and Legal Liability for Product Disappointment*, 60 VA. L. REV. 1109, 1369–88 (1974) (using various public policy criteria to evaluate a suggested approach to consumer protection).

against which other non-welfarist considerations can be weighed.

A closely related issue to this paper's discussion is the fiscal illusion hypothesis, which maintains, *inter alia*, that taxpayers misperceive certain non-salient or hidden taxes.¹⁶⁶ It is a political hypothesis, and its concern is the political outcome where voter-taxpayers under-value their tax burden. For example, an excessively large government is expected under the fiscal illusion hypothesis.¹⁶⁷ Even though the empirical validity of the hypothesis is questionable,¹⁶⁸ it does seem to weigh on contemporary tax policy and design.¹⁶⁹ For example, it is argued that tax-inclusive prices under a VAT system hide the commodity tax burden from taxpayers who observe only final prices, and hence may not be aware of included taxes.¹⁷⁰

Accordingly, the "consumer protection" and "fiscal illusion" hypotheses appear to contradict each other. The "consumer protection" hypothesis assumes that consumers under-value the commodity tax burden under a *tax-exclusive* price system, while the "fiscal illusion" hypothesis argues that consumers under-value the tax burden under a *tax-inclusive* price system. These contradicting hypotheses are not easily reconciled. This Article argues against the "consumer protection" hypothesis, and hence incidentally relieves this alleged tension.

Finally, also related are issues of paternalism and de-biasing through law. Paternalism has long been a source of regulation.¹⁷¹ The paternalistic justification for governmental intervention in the market has recently gained considerable force with the flood of studies examining cognitive errors and limitations.¹⁷² The understandable uneasiness with

166. See *supra* note 4. Another related political conjecture is the tax aversion hypothesis, which asserts that people are averse to taxes and that hidden taxes circumvent such cognitive bias. See, e.g., McCaffery, *Cognitive Theory*, *supra* note 49, at 1878 ("[T]here may be a phenomenon of 'tax aversion,' akin to but distinct from loss aversion, whereby individuals attach disproportionate disutility to government extractions perceived or labeled as 'taxes'"). See also *supra* note 54 in its entirety.

167. BUCHANAN, *supra* note 4, at 126–143.

168. See *supra* note 27.

169. For example, the U.S. President's Advisory Panel (2005) was reluctant to fully support a federal VAT system, *inter alia*, on the basis of fiscal illusion. See PRESIDENT'S ADVISORY PANEL, *supra* note 130, at 204; see also BIRD & GENDRON, *supra* note 131, at 210–12.

170. PRESIDENT'S ADVISORY PANEL, *supra* note 130, at 204; see also BIRD & GENDRON, *supra* note 131, at 210–12.

171. See, e.g., STEPHEN BREYER, REGULATION AND ITS REFORM 33–34 (1982) (indicating that paternalism may justify regulatory measures).

172. See, e.g., Rachlinski, *supra* note 3 (reviewing and critiquing studies that support paternalistic interventions on the basis of cognitive biases); Edward L. Glaeser, *Paternalism and Psychology*, 73 U. CHI. L. REV. 133 (2006) (explaining on the basis of incentives and political theory why cognitive errors should rarely require paternalistic reaction).

paternalism has led scholars to suggest “softer” paternalistic interventions,¹⁷³ such as debiasing through law.¹⁷⁴

In these respects, this Article presents a unique legal situation. A paternalistic approach, built on consumer protection reasoning, would prescribe tax-inclusive pricing. However, as this Article shows, such a measure—based on the cognitive limitation of individuals—may actually diminish consumer well-being. De-biasing in this context is not necessarily desirable. Under-valuation of tax burdens might be generally a welfare-increasing bias. If any paternalistic measure is to be considered—although none is advocated by this Article—it might be one that supports bias, rather than de-bias, in consumer under-valuation of taxes.

To conclude, tax-inclusive price regulation may appear, at first glance, to be the socially appropriate response to consumer under-valuation errors: Regulation of tax-inclusive pricing presents no constitutional obstacles;¹⁷⁵ it is simple to implement,¹⁷⁶ it seems to present no potential

173. See Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1184–88 (2003) (suggesting an approach of steering individuals in a direction that improves their welfare); RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008) (same); J.D. Trout, *Paternalism and Cognitive Bias*, 24 LAW & PHIL. 393, 425–33 (2005) (advising using individuals’ biases to improve their welfare); Ted O’Donoghue & Matthew Rabin, *Optimal Sin Taxes*, 90 J. PUB. ECON. 1825, 1827–36 (2006) (arguing that given self-control biases in consumption, corrective taxes can improve social welfare); Colin Camerer et al., *Regulation for Conservatives: Behavioral Economics and the Case for “Asymmetric Paternalism”*, 151 U. PA. L. REV. 1211, 1219–33 (2003) (describing “asymmetric paternalism” which benefits biased individuals with little effect on non-biased individuals). Compare Glaeser, *supra* note 172, at 149–56 (warning against soft paternalism).

174. See, e.g., Linda Babcock et al., *Creating Convergence: Debiasing Biased Litigants*, 22 LAW & SOC. INQUIRY 913 (1997) (proposing a procedure to debias litigants’ self-serving biases); Christine Jolls & Cass R. Sunstein, *Debiasing Through Law*, 35 J. LEGAL STUD. 199, 206–24 (2006) (suggesting legal reforms that would tend to debias individuals who suffer from bounded rationality); McCaffery, *Cognitive Theory*, *supra* note 49, at 1935–36 (suggesting certain ways of debiasing biased taxpayers). Debiasing procedures have been examined in the psychological literature as well. See, e.g., JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES, pt. VIII (Daniel Kahneman et al. eds., 1982).

175. See, e.g., Pitofsky, *supra* note 108, at 671–73.

176. Tax inclusion as information regulation is considerably simpler than most other kinds of information regulation. See, e.g., Howard Beales et al., *The Efficient Regulation of Consumer Information*, 24 J. L. & ECON. 491, 513–31 (1981) (suggesting regulatory measures that aim at providing missing market information); Paul H. Rubin, *Information Regulation*, in 3 ENCYCLOPEDIA OF LAW AND ECONOMICS 271 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000) (discussing the advantages and limitations of information regulation); see also generally Clifford Winston, *The Efficacy of Information Policy: A Review of Archon Fung, Mary Graham, and David Weil’s Full Disclosure: The Perils and Promise of Transparency*, 46 J. ECON. LITERATURE 704 (2008) (presenting a skeptical view of information regulation).

problems of government (regulatory) failure;¹⁷⁷ and it appears to be an appropriate case for *ex ante* regulation.¹⁷⁸ Nonetheless, this Article shows that consumer under-valuation of taxes can be beneficial for consumers, and therefore, to the extent that tax-exclusive pricing induces under-valuation, it can be socially desirable. Thus, if consumers under-estimate tax-exclusive prices—whether for the short run only or whether only a portion of consumers are biased—society may be better off. If consumers are actually not confused or misled by tax-exclusive prices and can easily or quickly educate and debias themselves, then tax-inclusive prices are also unnecessary. The case for tax-inclusive pricing regulation, therefore, is weaker than commonly believed and can be justified on a much narrower scope.

177. See, e.g., CHARLES WOLF, *MARKETS OR GOVERNMENTS: CHOOSING BETWEEN IMPERFECT ALTERNATIVES* Chs. 4, 5 (1989) (discussing government failures and their causes); SUNSTEIN, *supra* note 163, Ch. 3 (1990) (same); JAMES Q. WILSON, *BUREAUCRACY: WHAT GOVERNMENT AGENCIES DO AND WHY THEY DO IT* (1989) (closely studying bureaucratic failures); Richard A. Posner, *Theories of Economic Regulation*, 5 *BELL J. ECON. & MGMT. SCI.* 335 (1974) (analyzing public choice theories of regulation).

178. See, e.g., Steven Shavell, *Liability for Harm versus Regulation of Safety*, 13 *J. LEGAL STUD.* 357 (1984).