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## **BIOMETRICS, CERTIFIED SOFTWARE SOLUTIONS, AND THE JAPANESE CONSUMPTION TAX: A PROPOSAL FOR THE TAX COMMISSION**

RICHARD THOMPSON AINSWORTH

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# BIOMETRICS, CERTIFIED SOFTWARE SOLUTIONS, AND THE JAPANESE CONSUMPTION TAX: A PROPOSAL FOR THE TAX COMMISSION

Richard Thompson Ainsworth

Significant change is anticipated in the Japanese Consumption Tax. This is the conclusion of the Japanese Tax Commission in its mid-term report, presented to Prime Minister Junichiro Koizumi on June 17, 2003. When the Tax Commission's Chairman, Professor Hiromitsu Ishi,<sup>1</sup> submitted *A Sustainable Tax System for Japan's Aging Society*<sup>2</sup> the Commission indicated that it was responding to a "state of crisis. . . [brought about by the current system where] only about half of Japan's annual expenditure is covered by tax revenue."<sup>3</sup>

Japan's "super-aging" society will only make the fiscal situation worse, unless new sources of revenue are identified. "[B]y 2015 when the 'baby boomers' join the older generations, one in four people will be an elderly person. . . [T]he population is expected to decline after reaching a peak in 2006."<sup>4</sup> The Tax Commission's goal is to show how the country can bring revenue into balance with expenditure "at the earliest time possible in the 2010s."<sup>5</sup>

Is it any wonder that the very dependable and under utilized (by European standards<sup>6</sup>) Consumption Tax has drawn the attention of the Tax Commission? Three very significant Consumption Tax changes have been proposed: the rate should double;<sup>7</sup> multiple rates should be employed;<sup>8</sup> and the "bookkeeping method" of accounting should be abandoned and replaced with the significantly more complex "invoice method" that is used in Europe.<sup>9</sup>

These are dramatic changes for the Consumption Tax. While revenue needs drive the primary change (the rate increase), it is the inherent regressivity of the tax that drives the second (the adoption of multiple rates). The third change (the use of an invoice method of accounting) is an inevitable consequence of multiple rates. Thus, aside from

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<sup>1</sup> For the public announcement of the presentation of the mid-term report see

[http://www.kantei.go.jp/foreign/koizumiphoto/2003/06/17zeicho\\_e.html](http://www.kantei.go.jp/foreign/koizumiphoto/2003/06/17zeicho_e.html)

<sup>2</sup> TAX COMMISSION, *A SUSTAINABLE TAX SYSTEM FOR JAPAN'S AGING SOCIETY* (Jun. 2003) is available in an "informal English translation" at

<http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN019941.pdf>.

<sup>3</sup> *Id.* at 3.

<sup>4</sup> *Id.* at 4.

<sup>5</sup> *Id.* at 3.

<sup>6</sup> OECD, *CONSUMPTION TAX TRENDS: VAT/GST AND EXCISE RATES, TRENDS AND ADMINISTRATION ISSUES* (2004) at 22 (indicating that as a percent of total tax revenue the Consumption Tax in Japan raised 9.5% of revenue as compared with the European VATs in Belgium 15.7%; Czech Republic 17.3%; Denmark 19.9%; Finland 18.2%; France 16.7%; Germany 18.0%; Greece 23.5%; Hungary 24.3%; Ireland 25.0%; Italy 15.0%; Luxembourg 15.5%; Netherlands 19.2%; Poland 22.6%; Portugal 22.9%; Slovak Republic 22.7%; Spain 16.6%; Sweden 18.4% and the United Kingdom 19.4%).

<sup>7</sup> *A SUSTAINABLE TAX SYSTEM FOR JAPAN'S AGING SOCIETY* *supra* note 2 at 9.

<sup>8</sup> *Id.* at 9.

<sup>9</sup> *Id.* at 9.

the rate increase itself it is the structural regressivity of this tax on consumption that is the driver of the most significant of the proposed structural changes. Can this inherent characteristic be changed?

### THE TAX COMMISSION'S DILEMMA

There is a clear sense of frustration in the Commission's report. Without stating so specifically, the Commission seems to believe that it has been handed a tax policy dilemma. The aging population drives the need for a tax increase (making the Consumption Tax an obvious target for revenue enhancement) at exactly the same time the population is shrinking in overall size, thereby reducing the number of working-consumers who can pay the higher tax. Thus, the obvious target (taxing consumption) becomes the worst target (taxing the fixed-income elderly). Stated another way, enhancing revenue through a regressive consumption tax will significantly increase the burden on the exact segment of the population that most needs the government's assistance.

The Commission recognizes that the source of its dilemma is the regressivity of the Consumption Tax. It does not see a solution in the re-design of the tax. Adopting a multiple rate structure and moving to an invoice system are only partial solutions. The Commission says that policy makers must seek solutions elsewhere. "[A]s far as the issue of the regressiveness (to income) of the consumption tax is concerned, deliberations must not be conducted on the consumption tax alone; rather, judgment must be made on the overall tax system as well as on overall fiscal measures including benefits under social security systems and others."<sup>10</sup>

### A WAY OUT FOR JAPAN

This paper proposes a way out for the Commission. It proposes a design change in the Consumption Tax (alone) that will resolve the regressivity of the tax. This proposal is technology-intensive. It is a solution that will permit a significant rate increase. It will also allow tax relief to be surgically extended to the needy (the elderly, the handicapped or the poor) at zero-rates, thereby avoiding the need for multiple rates. However, if revenue or other needs require more limited relief, and if multiple rates are needed, then this solution will permit relief to be surgically targeted. Regardless of the rate decision, this solution will allow Japan to retain its traditional "bookkeeping method" of accounting and not require European-style tax invoices.

The proposal is for certified transaction tax software at the point of (final) sale, and the distribution (for voluntary use by the needy) of IDs embedded with (a) digitally recognized biometric identifiers and (b) digital tax exemption certificates. An individual-based evaluation of exemption entitlement—limited as appropriate in quantity or value terms—will be required. This evaluation process can be demanding or not, depending on the scope of the relief desired. For example, the evaluation process could specifically associate particular goods or services with an individual's entitlement profile allowing an

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<sup>10</sup> *Id.* at 9.

exceptionally granular measure of tax relief, or it could generally grant broad relief to classes of the poor. If tradition were a guide, Japan would most likely opt for the granular approach.

This paper briefly considers Japan's current approach to granting tax relief under the Consumption Tax, and then presents the digital solution (certified transaction tax systems, smart cards with biometric identifiers and digital exemption certificates). A closing section considers two alternate applications of transaction tax technology that Japan might consider—one less intensive than software certification, the Australian approach of establishing a software registry—the other more intensive than software certification, the Brazilian approach of direct government e-invoicing.

### JAPAN'S TRADITIONAL APPROACH TO CONSUMPTION TAX RELIEF

The Consumption Tax proposals of the Tax Commission will most likely move forward.<sup>11</sup> If they are implemented in the manner proposed, more than tax accounting procedures will change. These changes will fundamentally move Japan away from its traditional approach to Consumption Tax relief. Under present law, Japan goes to great lengths to identify specific individuals-in-need and tries hard to provide relief only to these individuals. It resists broad or universal exemptions that permit all consumers to benefit from a provision, when to do so would be to provide tax relief to large numbers of people who are outside the target group.

VAT systems that attempt to lift the burden from those in need through the use of universally applicable multiple rates (as the Tax Commission seems to be considering) approach regressivity indirectly. An indirect system first identifies necessities that are heavily utilized by the poor. It then applies a low or zero-rate to all purchases of these supplies. Rich and poor alike therefore receive a tax reduction or full exemption on these purchases. The Japanese approach is much more direct, and much more surgical. The Japanese method is to first identify the individuals-in-need and then exempt these people when they make purchases from a narrow list of necessities. Simply stated, where the indirect approach focuses primarily on the specific goods or services (the necessities); the direct approach focuses primarily on the people-in-need.

The Japanese exemptions are listed in thirteen discrete categories in Appendix I of the Consumption Tax law.<sup>12</sup> The exemptions are of two basic types: universal

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<sup>11</sup> Johnathan Rickman, *Japanese Finance Minister Proposes to Double Consumption Tax Rate*, 2006 WTD 148-3 [Doc. 2006-14495] (Aug. 2, 2006) (indicating that "Japan's Finance Minister Sadakazu Tanigaki has announced he would move to increase the country's consumption tax rate from 5 percent to at least 10 percent by some time within the next 10 years if chosen to succeed Prime Minister Junichiro Koizumi as Liberal Democratic Party (LDP) president and presumptive prime minister.").

<sup>12</sup> JAPAN'S REVISED CONSUMPTION TAX LAW (SHOUHIZEIHO), LAW NO. 108, 1988, and APPENDIXES by approving the changes contained in LAW NO. 49, 2000; CABINET ORDER (SHOUHIZEIHO SEKOUREI) NO. 360, 1988 (most recent amendment, ORDER NO. 147, 2000 *available at*: <http://law.e-gov.go.jp/cgi-bin/idxsearch.cgi>. (in Japanese). For an English translation of the Consumption Tax law based on Law No. 108, 1988 by approving changes contained in Law No. 49, 2000, see *Consumption Tax Law*, tr. Vickie L. Beyer, 2000 WTD 247-20 (December 22, 2000). For a translation of the appendixes to Japan's revised

exemptions (the first five, as well as the eighth, ninth and tenth), and surgical (the remaining five). The initial five exemptions respond to theoretical or administrative concerns that are common to all broad-based consumption taxes. The list has not been added-to nor has it been significantly modified since the adoption of the law. Included are exemptions for the loan of or the transfer of land;<sup>13</sup> the transfer of negotiable securities;<sup>14</sup> interest paid on loans, government or corporate bonds, and insurance premiums;<sup>15</sup> postage or certificate stamps and gift certificates;<sup>16</sup> and most government services provided either by national or local public entities.<sup>17</sup> Similar exemptions can be found in almost every VAT.

The remaining universal exemptions were added to the law with the 1991 amendments (Law No. 73, 1991). They are relatively minor, and respond to situations where the statute did not need to discriminate among beneficiaries, because the nature of the exempt item itself defined the target group. These exemptions deal with transfers of goods (not services) associated with midwifery;<sup>18</sup> burial and cremation expenses;<sup>19</sup> and transfers or lease of goods for use by the physically handicapped that are further itemized in cabinet orders.<sup>20</sup>

The final five exemptions are quintessentially Japanese. They have a classic individual-in-need, or surgical design. They are for medical treatment,<sup>21</sup> home and social welfare services,<sup>22</sup> educational services,<sup>23</sup> educational texts,<sup>24</sup> and rentals of dwellings.<sup>25</sup> Each is the product of adjustments, modifications, and refinements through the years. Each is very precisely drawn, and is born of political, rather than theoretical or administrative necessity. In each instance the care with which the exemptions are drafted displays a thought process that is primarily concerned with identifying a class of people-

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consumption tax law, Law No. 108 see *Translation of Exemptions to Japan's Revised Consumption Tax Law*, tr. Vickie L. Beyer, 2000 WTD 247-21 (Dec. 22, 2000). For a translation of the final regulations, Cabinet Order No. 360, 1988 (most recent amendment, Order No. 147, 2000) see *An Order for the Enforcement of the Consumption Tax Law*, tr. Vickie L. Beyer, 2001 WTD 36-24 (Feb. 20, 2001).

<sup>13</sup> Vickie L. Beyer, tr., *Translation of Exemptions to Japan's Revised Consumption Tax Law*, *supra* note 12, at Appendix I(1).

<sup>14</sup> *Id.* at Appendix I(2).

<sup>15</sup> *Id.* at Appendix I(3).

<sup>16</sup> *Id.* at Appendix I(4). With respect to the taxation of stamps, it was determined that the stamp tax was a more effective mechanism for imposing tax in this area (Barry M. Freiman, *Comment: The Japanese Consumption Tax: Value-Added Model or Administrative Nightmare?* 40 AM. U. L. REV. 1265, 1281 n.130 (1991)).

<sup>17</sup> *Id.* at Appendix I(5).

<sup>18</sup> *Id.* at Appendix I(8).

<sup>19</sup> *Id.* at Appendix I(9).

<sup>20</sup> *Id.* at Appendix I(10); The Enforcement Ordinance of the Consumption Tax Law (*Shouhizeihou Sekourei*) 14-4 lists the following goods: artificial arms and legs, safety sticks for the blinds, artificial eyes, Braille point writers, artificial larynxes, wheel chairs and other goods that the Minister of Health, Labor and Welfare may designate as the goods that have special traits, structures and functions for the use of physically handicapped people, but only after consultation with the Minister of Finance.

<sup>21</sup> *Id.* at Appendix I(6).

<sup>22</sup> *Id.* at Appendix I(7).

<sup>23</sup> *Id.* at Appendix I(11).

<sup>24</sup> *Id.* at Appendix I(12).

<sup>25</sup> *Id.* at Appendix I(13).

in-need, and then associates goods and services that should be exempt for members of the group. This is a process designed to disqualify individuals (based on their status) who would be engaged in similar or identical transactions.

*Medical treatment exemption.* A series of exemptions under Appendix I (6)(a) and (b) exempt *goods and services* provided in a medical treatment context. The exemption broadly includes all goods and services provided in a medical or hospitalization context, but narrows the exemption only to individuals whose medical treatment is “based on the provisions of” one of the following laws: the Health Insurance Law (No. 70, 1922); the People’s Health Insurance Law (No. 192, 1958); the Seamen’s Health Insurance Law (No. 73, 1939); the National Civil Servants Mutual Aid Association Law (No. 128, 1958); the Local Civil Servants Mutual Aid Association Law (No. 152, 1962); the Private School Employees Mutual Aid Law (No. 245, 1953) or the Elderly Act (No. 80, 1982).<sup>26</sup>

Further medical exemptions are found under Appendix I (6)(c), (d), (e) and (f).

Appendix I (c) exempts only medical *services*, and narrows the scope of the exemption to individuals whose medical treatment is “based on the provisions” of the Disabled Persons Welfare Law (No. 183, 1950); the Law Concerning Mental Health and the Welfare of the Mentally Disabled (No. 123, 1950) the Daily Life Protection Law (No. 144, 1950); the Law Concerning Support for the Victims of the Atomic Bombs (no. 117, 1994).<sup>27</sup>

Appendix I (d) and (e) are similar. They exempt medical *treatment* and medical *expenses* for individuals whose qualification is “based on the provisions of the Law Concerning Indemnification for Environmental Pollution-Related Health Injuries (No. 111, 1971),<sup>28</sup> and the Laborer’s Disaster Indemnification Insurance Act (No. 50, 1947) respectively.

Appendix I (f) exempts medical *treatment* pertaining to payments of damages for losses” under the Automobile Accident Indemnification Guarantee Act (No. 97, 1955).<sup>29</sup>

Thus, medical treatment is not universally exempt under the Consumption Tax. The core limitation on the exemption (which is sometimes further limited to cover only services and not both good and services) relates to individuals who are specified under fourteen other non-tax laws. The overall impact is to tax medical services when they are provided to wealthy individuals and foreigners, or generally to individuals outside the scope of the fourteen specific statutes.

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<sup>26</sup> Vickie L. Beyer, tr., JAPAN’S REVISED CONSUMPTION TAX, , *supra* note 12, at Article 6 as further specified in Appendix I-6(a) & (b).

<sup>27</sup> *Id.* at Article 6 as further specified in Appendix I-6(c).

<sup>28</sup> *Id.* at Article 6 as further specified in Appendix I-6(d).

<sup>29</sup> Vickie L. Beyer, tr., *Translation of Exemptions to Japan’s Revised Consumption Tax Law*, *supra* note 12, at Appendix I-6(f).

A further example of the surgical design of these exemptions can be seen in the operation of the 1994 Amendments (Law No. 56, 1994). This law specifically added ‘hospitalization meals’ to the list of exempt supplies (when provided in the context of medical treatment) but only with respect to medical treatment under Appendix I (6)(a) and (b), and not the medical treatment under Appendix I (6)(c), (d), (e) and (f).

Thus, the operation of the Consumption Tax with respect to food and medical services is very complex, but very precise. Meals, considered outside the medical context, are fully taxable. Medical treatment is also taxable unless the individual receives treatment ‘based on the provisions of a law listed in Appendix I (6). In some instances meals provided in the context of exempt medical treatment are also exempt. But in other instances only the medical treatment, not the meals are exempt. Thus, three individuals could rest side-by-side in the same hospital after undergoing the exact same medical procedure by the exact same medical staff, and each could have different tax results when the time came to pay their bills.

Comparatively, the approach of the New Zealand GST is far simpler. Food (within the medical context and outside of it) as well as medical services (in any context at all) is taxable.<sup>30</sup> Similar simplicity is apparent in South Africa, although the tax outcome is different. South Africa exempts all basic foodstuffs,<sup>31</sup> as well as all medical or dental procedures, provided they are insured procedures.<sup>32</sup> Thus, in New Zealand and South Africa it would be unusual for three people hospitalized for the same procedure to have different tax results.

With respect to the exemption of medical treatment and related hospital meals, both the New Zealand and South African GSTs are simpler than the Japanese Consumption Tax. The New Zealand base is simpler and *broader*; the South African base is simpler and *narrower*. The critical difference for this study is that both the New Zealand and South African treatment is universal, whereas the Japanese is surgical. The Japanese statute targets its exemption specifically, because Japan provides relief from the regressive nature of the Consumption Tax directly rather than indirectly.

*Home care services.* Japanese exemptions for home care services and welfare services are treated in a manner similar to those for medical treatment. Under Appendix I (7)(a), home care services (limited to visiting home care, visiting bath care, and other specified services) are exempt (if they are provided at a residence or an institution), but only if the fees are based on the provisions of the Home Care Insurance Law (No. 123, 1997).<sup>33</sup> Under Appendix I (7)(b), assets transferred by a Social Welfare Service are also

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<sup>30</sup> GOODS & SERVICES TAX ACT §§ 11, 11A AND 11B) (1985) (N.Z.), available at <http://www.ird.govt.nz/library/publications/business/ir375.pdf>.

<sup>31</sup> VAT Act §11(1)(j) and SCHED. 2(B)(1) (S.A.), amended up to and including Taxation Laws Second Amendment Act, 2005 (No. 10 of 2005) (S.A.) available at: <http://www.acts.co.za/vat/index.htm>.

<sup>32</sup> *Id.* at VAT Act §10(21A) (S.A.)

<sup>33</sup> Vickie L. Beyer, tr., *Translation of Exemptions to Japan’s Revised Consumption Tax Law*, *supra* note 12, at Appendix I-7(a).



exempt, but only if provided for in the Social Welfare Services Law (Article 2) and the Rehabilitation Sponsorship Enterprise Law (No. 86, 1995).<sup>34</sup>

Once again, the net effect of these provisions is to distinguish between two groups of individuals, those who have personal circumstances that make them entitled to relief, and those who do not. Wealthy individuals and foreigners are among those who are disqualified from the exemption. If they secure the same home care or welfare-type services, as do the poor and elderly, they do not qualify for exemption from the Consumption Tax.

*Educational services and books for educational purposes.* Two sections of Appendix I deal with education-based exemptions, section (11) deals with educational services, and section (12) deals with books used in educational settings. Section (12) was added with the 1991 Amendments (Law No. 73, 1991). The 1991 Amendments also renumbered section (8) in the original law into section (11), thereby placing both of the education-related exemptions side-by-side. Both sections (11) and (12) identify groups entitled to exemption through references to the School Education Law (Law No. 26, 1947).

Why then, did the 1991 Amendments not simply add “educational texts” to one or more of the pre-existing exemptions for educational services in the same manner as “hospitalization meals” were added to some of the pre-existing exemptions for medical treatment in 1994? The reason has all to do with the particularity with which the Japanese legislature differentiates among the classes of individuals it deems to be in need, and how carefully it associates those classes with the goods or services that it wishes to provide exemption. The answer is simply then, that a judgment has been rendered that the class of individuals who should receive exempt “educational services” is not the same as those who have been deemed entitled to exemption when purchasing “educational texts.” The former class is much larger than the later.

The exemption for educational services covers amounts paid for tuition fees, entrance fees, facility equipment costs, and certain other fees provided for in cabinet orders.<sup>35</sup> Following the familiar pattern, the exemption for educational services does not apply to all schools, and does not apply to all courses of instruction in all schools.

Appendix I (11)(a) references the schools in Article 1 of the School Education Law. These schools are the basic primary, elementary, junior high, and high schools, as well as all colleges whether public or private, which fall under the certification provisions

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<sup>34</sup> *Id.* at Appendix I-6(b).

<sup>35</sup> There is some awkwardness when rendering Japanese into English in this section. For example the statute says at Appendix I (11)(a) “The educational services that a person who establishes a school designated in Article 1 of the School Education Law (Law No. 26, 1949) provides [to his students] at his school [are exempt from the Consumption Tax].” This phraseology is explained by Professor Hiroki Akioka as: “Note: In Japanese laws the phrase of a person who establishes some organization is used as the organization itself. So the item above means that the educational services that a regular school in the law provides to its students at the school are exempt.” E-mail communication, November 13, 2006 from Hiroki Akioka to Richard Ainsworth (on file with authors.)

of the School Education Law.<sup>36</sup> Appendix I (11)(b) exempts “high level courses, specialty courses or general courses” provided under Article 82-2 by “Specialty Schools,” a classification that includes all professional schools. Appendix I (11)(c) provides an exemption for “more than one year courses of study” at “miscellaneous schools” under Article 83(1).<sup>37</sup>

When the 1991 Amendments added the exemption for “books for educational purposes” in section (12) the class of individuals-in-need was determined to be less than those attending the schools covered in Article 1 of the School Education Law. The students not entitled to exemption were those attending post-secondary schools. Section (12) defines this class by referencing the following articles of the School Education Law: Article 21(1)—dealing with educational books for Primary Schools; Article 40—dealing with educational books for Junior High Schools; Article 51—dealing with educational books for Senior High Schools; Article 51-9—dealing with educational books for Junior Educational Schools; Article 76—dealing with educational books for Special Education.<sup>38</sup> Thus, it would be possible for three students to receive tuition bills that included a charge for the same required text, a dictionary for example, and for each to have an entirely different tax results, if one was a high school student, another was a college student, and the third was a student attending a post secondary school educational program that will last less than one year.

*Rentals of dwellings for human habitation.* The exemption provided for the rental of residences in Appendix I (13) was added by the 1991 Amendments (Law No. 73, 1991). Much like the “hospitalization meals” and “books for educational purposes” exemptions considered above, the exemption for rentals of dwellings for human habitation is an adjustment to prior exemptions. In this case it is the exemptions for real estate transactions in Appendix I (1) that are being adjusted. Appendix I (1) provides for an exemption for the “loan or transfer..of land.”

Prior to the inclusion of section (13) four rules related to the treatment of real estate transactions were derived from the language of Appendix I (1). These rules were: (a) for *sales* of land (only) with or without a building of any kind on the land, the sale is exempt;<sup>39</sup> (b) when a building is *sold* along with the land on which it rests, then the

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<sup>36</sup> This provision would mean that a school operating in Japan, but not under Japanese certification (perhaps a school catering to foreigners as a branch campus of an American college or in some other independent capacity would not qualify for exemption from the Consumption Tax. E-mail communication, November 2, 2006 from Shigero Ino to Richard Ainsworth (on file with authors.) A classic example would be a semester abroad program [less than one year] offered by an American school and which was not affiliated with an accredited Japanese school.

<sup>37</sup> The Enforcement Ordinance of the Consumption Tax Law (Shouhizeihou Sekourei) 15 further defines these courses of study as those with provide in excess of 680 “hours of instruction per annum.”

<sup>38</sup> Vickie L. Beyer, tr., *Translation of Exemptions to Japan’s Revised Consumption Tax Law*, *supra* note 12, at Appendix I-12.

<sup>39</sup> Primary Regulation Notice 6-1-1 (specifying not only that the sale of only land, as well as its lease (for more than one month is exempt).

building is taxable (but the sale of the land remains exempt);<sup>40</sup> (c) for *rentals* of land (only) without a building, the rental is exempt (provided the rental is for more than one month);<sup>41</sup> (d) when a building is rented along with the land on which it rests, then both building and land are taxable.<sup>42</sup>

Section (13) refines the last of these rules. It distinguished between rental transactions where a building is rented along with the land, based on whether or not the building is a dwelling for human habitation. Only in cases where the real estate rental is for longer than one month and where it contains a dwelling for human habitation is the transaction exempt from tax.

## A THREATENED TRADITION

There has been no public discussion about the exact contours of the multiple rate structure the Tax Commission is considering, but we know enough about multiple rates in other systems and the current exemption provisions under the Consumption Tax to consider (hypothetically) the threat that this proposal poses to the traditional Japanese response to regressivity.

*Basic hypothetical facts.* Assume that Japan adopts a standard rate of ten percent for goods and services, with a reduced rate of five percent for some items along with full exemptions for a limited number of other transactions.<sup>43</sup> If global consumption tax patterns can be a guide,<sup>44</sup> one of the goods that Japan might zero-rate or subject to the reduced (5%) rate is food for home consumption. Following the global pattern Japan would then subject all other food purchases to the standard (10%) rate. Two questions are raised by this hypothetical: (1) Would Japan zero-rate or would it apply the reduced (5%) rate to food for home consumption? (2) If Japan did zero-rate or apply the reduced (5%) rate to food for home consumption, would it do so universally (for everyone) or surgically (only for those deemed to be in need)?

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<sup>40</sup> Vickie L. Beyer, tr., *Translation of Exemptions to Japan's Revised Consumption Tax Law*, *supra* note 12, at Appendix I (1); Vickie L. Beyer, tr. *An Order for the Enforcement of the Consumption Tax Law* (Primary Regulation Notice) *supra* note 12, at 6-1-1.

<sup>41</sup> *Id.* at (Primary Regulation Notice) 6-1-1.

<sup>42</sup> *Id.* at (Primary Regulation Notice) 6-1-5.

<sup>43</sup> There is no indication that a 5% rate will be proposed as a reduced rate by the Tax Commission, nor is there any indication that the Tax Commission is considering capping the standard rate at 10%. These rates have some basis in the fact that the current rate is 5%, and there has been discussion of a maximum rate "in excess of 10%," but their use in this discussion is purely hypothetical.

<sup>44</sup> RICHARD BIRD & PIERRE-PASCAL GENDRON, *VAT REVISITED: A NEW LOOK AT THE VALUE ADDED TAX IN DEVELOPING AND TRANSITIONAL COUNTRIES* 94 (2005) *available at*: <http://www.fiscalreform.net/research/pdfs/VATR%20Final%20Report%20181005.pdf> at 94 (indicating that in both VAT and RST "... by far the most common exemption for equity reasons is that of food"); *See, e.g.*, VALUE ADDED TAX ACT 1994, Sched. 8 Group 1 General Item 1 (U.K.) (zero-rating "food of a kind used for human consumption") *available at* [http://www.opsi.gov.uk/acts/acts1994/Ukpga\\_19940023\\_en\\_1.htm](http://www.opsi.gov.uk/acts/acts1994/Ukpga_19940023_en_1.htm); MASS. GEN. LAWS ch. 64H, §6(h) and MASS. REGS. CODE tit. 64H.6.5(4), § 830 (exempting food products for human consumption unless they are included in a meal sold by a restaurant).

*Analysis – Food for home consumption.* The Tax Commission seems to indicate that Japan would apply multiple rates to food,<sup>45</sup> but it also seems apparent that it would recommend that Japan not follow conventional wisdom and zero-rate food for home consumption. Three observations suggest that the Japanese approach would be to subject food for home consumption to the reduced (5%) rate, and then impose the standard (10%) rate on prepared food. The observations supporting this suggestion are: (1) the *status quo* – food for home consumption is currently subject to tax at 5%, with only the very limited exceptions for “hospitalization meals” under Appendix I (6)(a) and (b); (2) revenue loss–zero-rating food for home consumption would reduce the current revenue stream significantly, maybe by as much as 20%;<sup>46</sup> and (3) political opposition–the elderly would probably oppose an increase in the tax on groceries from five to ten percent.

Given Japan’s revenue needs and the importance of food in the consumption base, the real question for Japan is not whether it would zero-rate some food from the consumption tax base, but whether it would subject all food to a standard (10%) rate? This is the point where the regressivity of the Consumption Tax becomes a serious political issue. The issue is political because, while it is one thing to expect the elderly to accept a continuation of the current (5%) tax on food, it is quite another matter to assume that they will accept a doubling of the tax on groceries—and if the elderly do anything, they vote.

The Tax Commission is understandably concerned that it not adversely impact the popular acceptance of the Consumption Tax with its proposals.<sup>47</sup> The Japanese have not always been receptive to the Consumption Tax. The Shoup Mission’s VAT was rejected in 1954,<sup>48</sup> as was another VAT that was proposed in 1979.<sup>49</sup> Prime Minister Nakasone withdrew a VAT proposal as recently as 1987<sup>50</sup> because of widespread public opposition.

The drafters of the Consumption Tax have always been aware that flexibility is needed in the imposition of this tax. When pressed, the traditional Japanese inclination has been to first impose a standard rate generally (a “fairness” criteria based in horizontal

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<sup>45</sup> A SUSTAINABLE TAX SYSTEM FOR JAPAN’S AGING SOCIETY, *supra* note 2, at 9 (describing the need for relief, suggesting that multiple rates would be needed, and specifying one commodity as an example of where one might expect to find multiple rates if their proposals are adopted with the expression “food and others”).

<sup>46</sup> JOHN F. DUE & JOHN L. MIKESSELL, SALES TAXATION: STATE AND LOCAL STRUCTURE AND ADMINISTRATION 74 and 79 (2d ed. 1994) (noting that the exemption for food for home consumption is “... the most expensive ... cost[ing] a state from 20 percent to 25 percent of sales and use tax revenue... [and] is perhaps the largest mistake the states have made in their sales tax structures, ... Larger volumes of expenditure of persons above the lowest income levels are freed from tax for no justification whatsoever”).

<sup>47</sup> A SUSTAINABLE TAX SYSTEM FOR JAPAN’S AGING SOCIETY *supra* note 2, at 4 & 9 (indicating the Tax Commission’s belief that the tax system “by nature” is supposed to “inspire confidence among the people” and that the “[c]onsumption tax has become well accepted by the people as one of the fundamental taxes in the Japanese system, [but that] ... the reliability and transparency of the consumption tax must be improved in view of the importance of this tax in the aging society.”).

<sup>48</sup> Keimei Kaizuka, *The Shoup Tax System and the Postwar Development of the Japanese Economy*, 82 AM. EC. REV. 221, 222 (May 1992).

<sup>49</sup> HIROMITSU ISHI, THE JAPANESE TAX SYSTEM 273 (1989)

<sup>50</sup> *Id.* at 280.

equities), and then secondly to find a mechanism through which a surgically drafted exemption will relieve just those individuals-in-need (and no more) from the base (a 'fairness' criteria based in a limited sense of vertical equity). This is how Appendix I (a) and (b) function with respect to hospitalization meals.

Could the "hospitalization meals" solution be applied to the present hypothetical? If all food were to be taxed at the standard (10%) rate and only the poor, elderly or handicapped were allowed to purchase food for home consumption at a reduced (5%) rate, both (a) the difficulty of the rate increase would be solved in a traditionally "fair" manner (dual "fairness" criteria applied with horizontal equity dominant over vertical), and (b) a considerable amount of new revenue would be derived from those who were not poor, elderly or handicapped as they paid at the standard (10%) rate whenever they made food purchases of any kind.

There are considerable difficulties in applying the "hospitalization meals" solution. First, the size of the preferred group (maybe upwards of twenty-five percent of the population) is very large. Secondly, the number of locations around the country where such a reduced (5%) rate would need to be applied and enforced are most likely in the hundreds of thousands. This is a difficult solution to implement.

Then again, the difficulties are all administrative (audit and compliance), not conceptual or theoretical. It is one thing to audit (or comply with) an exemption of hospital meals provided to patients whose medical treatment is "based on the provisions of one of the following laws—the Health Insurance Law (No. 70, 1922); the People's Health Insurance Law (No. 192, 1958); the Seamen's Health Insurance Law (No. 73, 1939); the National Civil Servants Mutual Aid Association Law (No. 128, 1958); the Local Civil Servants Mutual Aid Association Law (No. 152, 1962); the Private School Employees Mutual Aid Law (No. 245, 1953) or the Elderly Act (No. 80, 1982)—but it is quite another thing to audit (or comply with) the application of a reduced rate of tax on the purchase of groceries anywhere in the country by only the poor, elderly or handicapped.

Faced with these administrative burdens in applying the traditional solution, the Tax Commission seems to be contemplating a Consumption Tax proposal that would apply a universal reduced (5%) rate of tax to the purchase of food for home consumption. In doing so, the Japanese tradition of providing surgical relief for regressivity would be abandoned in favor of a European approach to the problem. Rich and poor would equally benefit from the exemption and potential revenue yields would be reduced, as only the restaurant meals segment of the food business would be making significant new revenue contributions.

#### BIOMETRIC IDs AND CERTIFIED TAX SOFTWARE FOR THE JAPANESE CONSUMPTION TAX

If Japan would like to maintain its traditional approach to providing surgical tax relief within the Consumption Tax, but if the scope of this relief needs to be both broader and more complex, then technology offers a solution. Two problems need to be

overcome. First, Japan would need to easily, securely and accurately verify the identity of individuals-in-need at hundreds of thousands of retail locations across the country twenty-four hours a day, seven days a week. Secondly, Japan would need to have a simple and inexpensive way to adjust the tax charged (item-by-item) on sales to certain final consumers (qualified individuals making qualified purchases). In addition, the solution would need to integrate seamlessly with the current economy. Multiple and mixed transactions would need to be handled without interruption to normal retail processes. The solution should be virtually invisible to the casual observer.

The technology to solve both of these problems is available today. The first problem—the identity issue—can be solved through biometric identifiers in ‘smart’ ID cards embedded with encrypted zero-rate (or reduced rate) certificates for specific goods or services. Limitations based on volume or monetary values could be included. The second problem—the tax determination issue—can be solved with certified transaction tax software that is installed on site or remotely accessed in the same manner that credit or debit cards operate today. The tax calculation accuracy of this software would need to be certified by the government. Assurances would need to be extended to retail businesses that they would not be liable for tax determination errors, barring fraud.

#### 1. ‘Smart’ IDs with Biometric Identifiers—in Japan

National identity cards with biometric identifiers play a central role in present day public and private sector efficiency<sup>51</sup> and security efforts.<sup>52</sup> As these cards become more

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<sup>51</sup> UNITED STATES GENERAL ACCOUNTING OFFICE, ELECTRONIC BENEFITS TRANSFER: USE OF BIOMETRICS TO DETER FRAUD IN THE NATIONWIDE EBT PROGRAM, GAO/OSI-95-20, SEPT. 1995 at 4 (reporting that from June 1991 through July 1994 the Los Angeles County Department of Public Services used fingerprinting of welfare recipients to eliminate 3,000 previously-approved entitlement cases, saving over \$14 million); John D. Woodward, *Biometric Scanning, Law and Policy: Identifying the Concerns – Drafting the Biometric Blueprint*, 59 U. PITT L. REV. 97, 152 (1997) (indicating that the states of Connecticut, Illinois, Massachusetts, New Jersey, New York, Pennsylvania and Texas are using similar fingerprint imaging to prevent welfare fraud).

Globally it is the health care sector is a leader in identifying where smart card efficiency gains can be found – increasing quality and decreasing the cost of care. Both government and private sector institutions have adopted smart card technology. For example, an EU Council Regulation made health care available to citizens temporarily present in another Member State, and this in turn quickly lead to the adoption of private sector smart cards containing patient medical data, as well as an EU-wide smart card to facilitate the sharing of services among countries. Commission Regulation 1408/71 of 14 June 1971 on the application of social security schemes to employed persons, to self-employed persons, and to members of their families moving within the community, Article 22(1)(a), 1971 O.J. (L 149) available at [http://www.dwp.gov.uk/advisers/docs/lawvols/bluevol/pdf/a9\\_2001.pdf](http://www.dwp.gov.uk/advisers/docs/lawvols/bluevol/pdf/a9_2001.pdf). See also Attila Naszlady & Janos Naszlady, *Patient Health Record on a Smart Card*, 48 INT. J. MED. INFORMATICS 191 (1998) (studying the adoption of smart card technology in Hungary for efficient communication of patient histories and the findings of physical examinations); Administrative Commission on Social Security for Migrant Workers Decision 189 of 18 June 2003 aimed at introducing a European insurance card to replace the forms necessary for application of Council Regulation (EEC) No 1408/71 and (EEC) No 574/72 as regards access to health care during a temporary stay in a Member State other than the competent State or the State of residence, O.J. (L 276) 1; Administrative Commission on Social Security for Migrant Workers Decision 190 of 18 June 2003 concerning the technical specifications of the European health insurance card, O.J. (L 276) 4.

and more commonplace, it is time for the tax collector to consider whether or not there is a willingness to use some of the excess functionality of these cards for tax purposes— functionality that would accurately and immediately associate the identified person with a deserved Consumption Tax exemption (or reduced rate).

Security concerns have understandably received heightened attention in the post September 11<sup>th</sup> world, and the capabilities of “smart cards” in this context are precipitating a global convergence of identity information.<sup>53</sup> Privacy concerns are considerable.<sup>54</sup>

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Outside of the E.U. *see also* Alvin T. S. Chan, *WWW+ Smart Card: Towards a Mobile Health Care Management System* 57 *INT. J. MED. INFORMATICS* 127 (2000) (presenting a study on extending medical smart card technology through World Wide Web applications as a standard interface tool for accessing medical records contained within smart cards, conducted and implemented in Hong Kong); Benoit A. Aubert & Genevieve Hamel, *Adoption of Smart Cards in the Medical Sector: the Canadian Experience*, 53 *SOC. SCI. & MED.* 879 (2001) (presenting a Canadian study on the adoption of smart card technology in the medical sector that stresses the need for providing both direct benefits to the user and completeness of information for acceptance by the medical professional).

Similar efforts in the U.S. were advanced under a reform of the U.S. health care system. Although ultimately unsuccessful, the Clinton Health Security Act (H.R. 3600/ S.1757, 103d Cong., 1<sup>st</sup> Sess. (1993)) made the issuance of a Health Security “Smart” Card a key component in the program. The card was intended to identify the holder as a person entitled to health benefits and was designed to permit access to patient medical data through a system of databases, improving the quality of care and minimizing administrative costs. William H. Minor, *Identity Cards and Databases in Health Care: The Need for Federal Privacy Protections*, 28 *COLUM. J.L. & SOC. PROBS.* 253, 256 (1995).

<sup>52</sup> UNITED STATES GENERAL ACCOUNTING OFFICE, *ELECTRONIC GOVERNMENT: AVIATION SECURITY: CHALLENGES IN USING BIOMETRIC TECHNOLOGIES*, GAO-04-785T, MAY 19, 2004 at 24 (reporting on progress made in the adaptation of biometric smart card technologies in airport security systems); UNITED STATES GENERAL ACCOUNTING OFFICE, *ELECTRONIC GOVERNMENT: PROGRESS IN PROMOTING ADOPTION OF SMART CARD TECHNOLOGY*, GAO-03-144, JAN. 2003 at 13-14 (reporting on the progress of 62 U.S. government smart card security and efficiency oriented programs established over the prior two year period); UNITED STATES GENERAL ACCOUNTING OFFICE, *TECHNOLOGY ASSESSMENT: USING BIOMETRICS FOR BORDER SECURITY*, GAO-03-174, NOV. 2002 at 4-5 (providing an assessment of the seven leading biometric technologies including facial recognition, fingerprint recognition, hand geometry, iris recognition, retina recognition, signature recognition, and speaker recognition and determining that the first four not only are suitable for border security, but have successfully been used in border control pilot projects); UNITED STATES GENERAL ACCOUNTING OFFICE, *INFORMATION SECURITY CHALLENGES IN USING BIOMETRICS*, GAO-03-1137T, SEPT. 9, 2003 at 4-5 (subcommittee testimony of the Chief Technologist of Applied Research and Methods, Keith A. Rhodes, assessing the costs and benefits of using biometric identifiers in a national border control security system).

<sup>53</sup> Biometric identifiers were added to EU passports and travel documents. Facial image biometrics are required, fingerprint biometrics are optional. Council Regulation (EC) No 2252/2004, 2004 O.J. (L 385) 1, at Art. 1(2). The express reason for the biometric facial image was that, “[t]he facial image is interoperable and can be used in our relations with third countries such as the U.S. However, the fingerprint could be added as an option for Member States who wish to do so, if they want to search their national databases, which would be currently the only possibility for identification.” Commission Proposal for a Council Regulation on standards for security and biometrics in EU citizens’ passports, COM(2004)116 final at 7. On June 2, 2006 the Commission proposed applying biometric identifiers to E.U. visas through the Common Consular Instructions (CCI). In a press release the Commission Vice-President Franco Frattini, Commissioner responsible for freedom, security and justice, declared:

This Proposal will have a knock on effect: it will facilitate the visa issuing procedure, prevent visa shopping, facilitate checks at external borders and strength the fight against fraud and, within the territory of the Member States, assist in the identification and return of illegal immigrants and the prevention of threats to the internal security of the Member States. ... Common Application Centers will have the advantage of reinforcing and

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streamlining local consular cooperation between Member States as resources can be pooled and shared, which will be of benefit to both states and visa applicants. One central access point will even ensure that the data protection requirements, to which I attach the greatest importance, are more easily met.

Press Release IP/06/717 (June 2, 2006) available at <http://ec.europa.eu/idabc/en/document/5674/355>

<sup>54</sup> There is general consensus that privacy rights are threatened by national identity cards systems, a threat that grows more serious when smart card technologies are involved. Some societies have for a long time resolved this issue in favor of identity cards others have not. A growing body of legal scholarship is responding to the new technologies. Some focuses on security issues and terrorist threats, others focus on the promise of governmental or commercial efficiencies. Inconsistent conclusions have been reached. Some find that an individual's right of privacy weighs more heavily than society's needs – others reach the opposite result.

These differences are more than mere "preferences." One of the main reasons for inconsistency centers on the definition privacy. James Whitman argues that Europeans and Americans respond to identity cards differently precisely because their understand of privacy is different. According to Whitman, a European's understanding of privacy is a dignity-based concept – privacy is violated when there is an unauthorized portrayal of the self. However, an American's sense of privacy is more liberty-based – privacy is violated when the state makes an unauthorized intrusion into the sanctity of the home. Whitman synthesizes his observations with the following rhetorical questions: "Why is it that Americans comply with court discovery orders that open essentially all of their documents for inspection, but refuse to carry identity cards? Why is it that Europeans tolerate state meddling in their choice of baby names?" James Q. Whitman, *The Two Western Cultures of Privacy: Dignity Versus Liberty*, 113 YALE L.J. 1151, 1160, 1204 (2004).

When legal scholars consider the privacy problem of embedding national identity cards with smart chips therefore, it is conceptually much easier to identify and protect against an abuse of privacy rights when privacy rights are defined in dignity terms – the European conception – rather than in liberty terms – the American conception. Identity cards are acceptable in dignity terms as long as comprehensive regulations are in place that will prevent unauthorized disclosures. The classic dignity-based defense of privacy can be found in the E.U. Data Protection Directive. (Directive 95/46/EC of the European Parliament and of the Council 95/46/EC, on the protection of individuals with regard to the processing of personal data and on the free movement of such data, 1995 O.J. (L 281) 31 available at <http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31995L0046:EN:HTML>) (setting out detailed rules on all aspects of data processing, the confidentiality and security of the processing, the criteria to be met for appropriate data processing systems, the information required to be provided to the data subject, the data subject's right of access, right to object, and the establishment of authorities to supervise and provide remedies in cases of privacy violations).

When Whitman considers the roots of the American, liberty-based sense of privacy he focuses on the Bill of Rights, in particular the Fourth Amendment's prohibition of unlawful search and seizure. The classic statement of liberty-based privacy rights is found in *Boyd v. United States*, 116 U.S. 616 (1886) (forbidding the government to seize the documents of a merchant in a customs case where the court issued an aggressive declaration of the "sanctity" of the American home). Liberty-based privacy advocates therefore, object to more than the unauthorized disclosure of private information, they object to the State's mandate that identity data be assembled and made readily available to the State.

When legal scholars with a liberty-based sense of privacy consider national identity cards with embedded smart chips the scale weighs heavily against the cards. Preventing unauthorized disclosure, no matter how efficient, cannot blunt the impact of the State's mandate itself, and with the seemingly limitless capacity of smart chips to hold data the privacy defense of a national smart ID card becomes difficult. See Richard Sobel, *The Demeaning of Identity and Personhood in National Identification Systems*, 15 HARV. J. L. & TECH. 319 (2002) (arguing that even before September 11, 2001 the movement in America toward a system of national identification numbers, databanks and identity cards contradicted the "constitutional and philosophical bases of democratic government and undermine[d] the fundamental foundations of political and personal identity ... by transforming personhood from an intrinsic quality inhering in individuals into a quantity designated by numbers, represented by physical cards, and recorded in computer banks."). Sobel's argument (based in a liberty-based conception of privacy) cannot be met head-on by advocates of smart identity cards that define privacy in dignity terms. See Daniel J. Steinbock, *National Identity Cards:*



Nevertheless, both advocates and opponents of national identity smart cards agree that there is little likelihood that this movement will slow down.<sup>55</sup> The best that can be done is to offer protections against mistakes, misuse,<sup>56</sup> and abuse,<sup>57</sup> while we try to extend the social benefits of this highly accurate and immediate form of identification.

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*Fourth and Fifth Amendment Issues*, 56 FLA. L. REV. 697 (2004) (assuming the existence of identity cards to be inoffensive per se, and then demonstrating that adequate Fourth and Fifth Amendment protection exist to protect individual privacy.)

Whitman's privacy dichotomy is both analytically useful and deceptively simple. Its usefulness comes from its ability to ferret out the nuances of the privacy debate. Its deception is in its suggestion that the dichotomy he offers is a real culturally specific attribute – so that the national smart ID card could be accepted in the E.U. after comprehensive data protection rules are put in place, while they will never be accepted in the U.S. because the card itself is an offensive state mandate. The social reality of the dichotomy is its deception. It is reasonably clear that most countries have privacy concern with smart national ID cards that has both dignity and liberty components.

The U.S. has a strong tradition of seeing privacy in dignity terms. Perhaps the most cited of all American law review articles, the Warren and Brandeis article on *The Right of Privacy* makes this argument. Warren and Brandeis argue that privacy is the “right to be let alone,” and that public disclosure of private facts so affronts human dignity that it should be protected as a matter of constitutional right. Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193, 195 (1890). For Whitman, the Warren and Brandeis position is an anomaly. It is a “patch” of continental law that like a “... patch[es] of snow [that] sometimes survive[s] in a hollow on an early spring day ... [will soon] melt away.” (Whitman *supra* at 1203). It would be a mistake for national identity card advocates to ignore either the dignity or the liberty conception of privacy. The first can be met by making the cards voluntary, the second by adopting comprehensive data protection rules.

<sup>55</sup> Gwen Wendy Kennedy, *Thumbs Up for Biometric Authentication!* 8 COMP. L. REV. & TECH. J. 379, 379 (2004) (favoring biometric identity cards and indicating that “[t]he only remaining impediment to the large-scale deployment of biometric authentication devices is the perceived threat to privacy.”); Lawrence O. Gostin et al., *Privacy and Security of Personal Information in a New Health Care System*, 270 JAMA 2487, 2487 (1993) (indicating that even though the Clinton Health Security Act was defeated, “[t]he collection and transmission of vast amounts of health information in automated form will occur with or without reform of the health care system.”); Sobel *supra* note 54, at 320 (opposing biometric identity cards but indicating that the movement toward a national identity system in the U.S. had begun and seemed unstoppable long before the terrorist attacks of September 11, 2001).

<sup>56</sup> Stephen Moore, *A National Identification System: Testimony Before the US House of Representatives Subcommittee on Immigration and Claims, Judiciary Committee*, (May 13, 1997) (reporting that over 500 IRS agents were uncovered in 1995 using the government's confidential taxpayer database to check on the financial status of friends, neighbors, or famous people, and that public outrage was considerable, but that less than 10 agents lost their jobs, and within two years later a similar incident occurred, again with hundreds of agents) available at <http://www.cato.org/testimony/ct-sm051397.html>; OFFICE OF TECHNOLOGY ASSESSMENT, CONGRESS OF THE UNITED STATES, INFORMATION SECURITY AND PRIVACY IN NETWORK ENVIRONMENTS, 2-3 (1994) (OTA-TCT-606).

<sup>57</sup> Sobel *supra* note 54, at 343-49 (recording the most notorious abuses of national identity card systems as: (1) the requirement that American slaves carry “passes” in order to travel away from plantations before the American Civil War, (2) the power of the Secretary of State to deny passports (a national identity document) to individuals deemed to be Communists under the Passport Act of 1926 before the Supreme Court found the statute unconstitutional in *Kent v. Dulles*, 357 U.S. 116 (1958), (3) the use of identity cards by the Nazis to identify Jews for extermination during World War II, (4) the use of “passes” by the South African government to control the movement of black men and women during apartheid, (5) the system of identity cards used in Rwanda for distinguishing between Hutus and Tutus that facilitated the genocide, (6) the use of the Census Bureau by Franklin Delano Roosevelt prior to Pearl Harbor to collect data on Japanese-Americans for later isolation in internment camps); see also Neda Matar, *Are You Ready for a National ID Card? Perhaps we don't have to choose between Fear of Terrorism and Need for Privacy*, 17 EMORY INT'L L. REV. 287, 310-13 (2003).

*National identity cards – history.* National identity cards have been around for a long time, and have served many purposes. Identity cards were introduced in France in the 1890s and were used primarily to regulate immigration, integration and assimilation. The French cards were seen as a means of preserving the ‘Frenchness of France.’<sup>58</sup>

Hong Kong made paper national identity cards mandatory in 1949. The Hong Kong cards performed social service functions in addition to providing a measure of national security from ‘foreign’ Chinese nationals. The Hong Kong cards were intended to ‘assist measures that might be found necessary for the maintenance of law and order and for the distribution of food or other commodities as a result of prevailing conditions of political and economic unrest (emphasis added).’<sup>59</sup> Hong Kong probably holds the record for the longest continual use of a mandatory national identity card system (among the democratic governments where they are currently in use). Even with its assimilation into the People’s Republic of China, Hong Kong has no intention of discontinuing identity cards. On August 19, 2003 Hong Kong began a transition to ‘smart’ ID cards,<sup>60</sup> a process that is ongoing.<sup>61</sup>

*Biometric identifiers – history.* Considered by themselves, biometric identifiers have a longer history than identity cards. Fingerprints pressed in wax were used as far back as the third century B.C. to authenticate written documents. Documents from the Qin Dynasty in China are the oldest extant evidence of the use of biometrics as identifiers (fingerprints in this case).<sup>62</sup> Fingerprints remain among the most reliable of all biometric

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<sup>58</sup> Gerard Noiriel, *The French Melting Pot: Immigration, Citizenship, and National Identity*, tr. Geoffroy de Laforcade (Minneapolis, University of Minnesota Press, 1996) xix, 45-90 (discussing the revolution in identity that occurred during this period and the critical role that identity cards played in making this happen).

<sup>59</sup> Hong Kong Special Administrative Region Identity Card Project, *Initial Privacy Impact Assessment Report* at 15 (Nov. 2000) [citing from Speech by Attorney General Moving the First Reading of the Registration of Persons Bill 1949 and Objects and Reasons for the Bill, Hong Kong Legislative Council Hansard, 1949, pp. 225-27] available at <http://www.legco.gov.hk/yr00-01/english/fc/esc/papers/esc27e1.pdf> (last visited Aug. 2, 2006).

<sup>60</sup> LEGISLATIVE COUNCIL PANEL ON SECURITY: POLICY INITIATIVE OF THE SECURITY BUREAU, LC PAPER NO. CB(2)64/05-06(01) at 6 (indicating that by the end of August 2005 an estimated 2.85 million residents had been issued new smart identity cards) available at <http://www.legco.gov.hk> (last visited Aug. 2, 2006).

<sup>61</sup> LEGISLATIVE COUNCIL BRIEF, APPLICATION FOR NEW IDENTITY CARDS (PERSONS BORN IN OR BEFORE 1942, IN 1990 TO 1992 OR 1997 TO 2003) ORDER, SBCR 1/1486/81 (setting out the schedule based on year of birth for mandatory smart card replacement for three additional groups of residents) available at <http://www.legco.gov.hk> (last visited Aug. 2, 2006).

<sup>62</sup> Two original (ancient) Chinese documents record the use of fingerprints. The first is by Prime Minister Hsiao He. In the text HAN DISCIPLINES, written approximately in 200 B.C., it was required that legal testimonials must be certified with “hand prints.” The second source is from the Qin Dynasty (B.C. 248 to B.C. 206). In 1975 archeologists found bamboo slices (essentially ancient books where the writing was engraved on the bamboo) that describe the ancient science and technology of identifying murders and other criminals. In one case a thief is identified through footprints previously taken. (Personal communication from Professor Xiaoqiang Yang, Sun Yat-Sen University School of Law, Guangzhou, China, on file with author, and confirmed by Li-Huan (Joyce) Lin, Senior Tax Associate, Taxware, L.P.). See also David Lyon, *Identity Cards: Social Sorting by Databases*, Oxford Internet Institute, Internet Issue Brief No. 3 (Nov. 2004) available at <http://www.internet-institute.ox.ac.uk/resources/publications/IB3all.pdf> (last visited Aug. 2, 2006); Johan Bloommé, *Evaluation of Biometric Security Systems Against Artificial Fingers* (PhD dissertation, Linköping University, Sweden, 2003) at 10-11 (considering the history of fingerprints in

identifiers,<sup>63</sup> and along with iris, and face recognition are the most easily digitized and incorporated into the memory chips on smart cards.

*National identity cards & biometric identifiers – Contemporary use.* Modern security concerns are digitally merging biometric identification into the traditional ID card—a move from paper to plastic.<sup>64</sup> Before Hong Kong converted to smart identity

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more detail, and indicating their use not only in the Chinese Qin Dynasty, but in Babylon, as well as 14<sup>th</sup> century Persia; and also reviewing the work of Professor Marcello Malpighi at the University of Bologna in 1686, Sir William Hershel's fingerprinting of Indian natives in 1856, Dr. Henry Faulds' method of fingerprint classification devised in the 1870's, the work of Sir Francis Galton whose book "Fingerprints" in 1892 first observed that fingerprints were scientifically unique identifiers, and finally the work of the Argentine police officer Juan Vucetich, who is credited with the modern world's first criminal fingerprint identification case in 1892) available at: <http://www.ep.liu.se/exjobb/isy/2003/3514/> (last visited Aug. 2, 2006).

<sup>63</sup> BIOMETRICS AT THE FRONTIERS: ASSESSING THE IMPACT ON SOCIETY, TECHNICAL REPORT FOR THE EUROPEAN PARLIAMENT COMMITTEE ON CITIZENS' FREEDOM AND RIGHTS, JUSTICE AND HOME AFFAIRS (LIBE), INSTITUTE FOR PROSPECTIVE TECHNOLOGICAL STUDIES (Feb. 2005) at 35 (indicating that biometric identifiers are commonly divided into three broad categories: (1) physiological biometric features – height, weight, body odor, the shape of the hand, the pattern of veins, retina, or iris, the face and patterns on the skin of thumbs or fingers; (2) behavioral biometrics – voice patterns, signature and keystroke sequences and gait (the body movement while walking); (3) DNA) available at [http://cybersecurity.jrc.es/docs/LIBE%20Biometrics%20March%2005/iptsBiometrics\\_FullReport\\_eur21585\\_en.pdf](http://cybersecurity.jrc.es/docs/LIBE%20Biometrics%20March%2005/iptsBiometrics_FullReport_eur21585_en.pdf) (last visited Aug. 2, 2006).

<sup>64</sup> Embedding a biometric (fingerprint) on a microchip in a card is an exceptionally easy task. A detailed and technical explanation of the process in the context of a biometrically secure credit card is provided by Jain and Pankanti:

Here's how it would work. When activating your new card, you would load an image of your fingerprint onto the card. To do this, you would press your finger against a sensor in the card—a silicon chip containing an array of micro-capacitor plates. (In large quantities, these fingerprint-sensing chips cost only about \$5 each.) The surface of the skin serves as a second layer of plates for each micro-capacitor, and the air gap acts as the dielectric medium. A small electrical charge is created between the finger surface and the capacitor plates in the chip. The magnitude of the charge depends on the distance between the skin surface and the plates. Because the ridges in the fingerprint pattern are closer to the silicon chip than the valleys, ridges and valleys result in different capacitance values across the matrix of plates. The capacitance values of different plates are measured and converted into pixel intensities to form a digital image of the fingerprint. Next, a microprocessor in the smart card extracts a few specific details, called minutiae, from the digital image of the fingerprint. Minutiae include locations where the ridges end abruptly and locations where two or more ridges merge, or a single ridge branches out into two or more ridges. Typically, in a live-scan fingerprint image of good quality, there are 20 to 70 minutiae; the actual number depends on the size of the sensor surface and the placement of the finger on the sensor. The minutiae information is encrypted and stored, along with the cardholder's identifying information, as a template in the smart card's flash memory.

At the start of a credit card transaction, you would present your smart credit card to a point-of-sale terminal. The terminal would establish secure communications channels between itself and your card via communications chips embedded in the card and with the credit card company's central database via Ethernet. The terminal then would verify that your card has not been reported lost or stolen, by exchanging encrypted information with the card in a predetermined sequence and checking its responses against the credit card database.

cards it surveyed similar programs in Finland,<sup>65</sup> Brunei<sup>66</sup> and Malaysia.<sup>67</sup> Smart cards in Finland are voluntary, whereas those in Brunei and Malaysia are mandatory. Biometric identification systems can be effectively certified, and their performance can be independently validated.<sup>68</sup>

*European Leadership.* Accelerated by the US move to incorporate biometric identifiers in U.S. visas and a U.S. mandate that similar technology be used in foreign

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Next, you would touch your credit card's fingerprint sensor pad. The matcher, a software program running on the card's microprocessor, would compare the signals from the sensor to the biometric template stored in the card's memory. The matcher would determine the number of corresponding minutiae and calculate a fingerprint similarity result, known as a matching score. Even in ideal situations, not all minutiae from the input and template prints taken from the same finger will match. So the matcher uses what's called a threshold parameter to decide whether a given pair of feature sets belong to the same finger or not. If there's a match, the card sends a digital signature and a time stamp to the point-of-sale terminal. The entire matching process could take less than a second, after which the card is accepted or rejected.

Anil K. Jain & Sharathchandra Pankanti, *A Touch of Money*, IEEE SPECTRUM ON-LINE (July 2006) available at <http://www.spectrum.ieee.org/jul06/4123> (last visited Aug. 2, 2006).

<sup>65</sup> Implemented in December 1999, the Finnish cards are valid for three years. They are issued to Finnish citizens and foreigners residing permanently in Finland. It is an official travel document in the EU and features a photograph and a microchip. The face of the card shows the ID card number, name, sex, personal identity code, date of expiration, nationality (Finnish citizens only), issuing authority, photograph of the holder and signature of the holder. The microchip digitally stores all of the data on the face of the card. In addition the microchip holds certificates that will allow the holder to make electronic transactions within administrations of social and health service organizations, perform on-line authentications as well as provide encryption and digital signature. Certificates hold the following information: name of the issuer of the certificate, name of the certificate holder, electronic transaction identifier of the certificate holder, validity of the certificate, data on the method for calculating the public key of the certificate holder, country code of the issuer of the certificate, serial number of the certificate data on the calculation method for signing the certificate, data on the certificate policy, data on the storage of the certificate, and other technical data needed for use of the certificate. BILLS COMMITTEE OF THE LEGISLATIVE COUNCIL: REGISTRATION OF PERSONS (AMENDMENT) BILL 2001, EXPERIENCE OF USING SMART IDENTITY CARDS IN OTHER COUNTRIES, LC PAPER NO. CB(2)2836/01-02(02) 1 & ANNEX 3-7 available at <http://www.legco.gov.hk> (last visited Feb. 23, 2006).

<sup>66</sup> As of July 2000, Brunei required identity cards for all citizens and permanent residents aged twelve or above, and all temporary residents staying in Brunei for longer than three months. The data collected for the Brunei card includes the name (including Chinese characters, if any) full address of place of residence, race, place and date of birth, physical abnormalities (if any), citizenship, blood type photograph, fingerprint impressions, and other information deemed necessary by the registration officer. Although confirmation was not provided by Brunei it is assumed that this information is both digitally stored on the embedded chip and available on the face of the card. *Id.* 1 & ANNEX 3-6.

<sup>67</sup> As of July 2001, Malaysia required identity cards for all Malaysian citizens or permanent residents aged twelve or above (approximately 18 million cards). The face of the card includes the card number, name resident address, citizenship, sex, religion (only for those of Muslim faith), the old ID card number and a serial number. The microchip stores all of the data on the face of the card, and includes a digital photo, digital fingerprint, driving license information, passport number, and expiration of passport, e-cash information. *Id.* at 1 & ANNEX 3-7.

<sup>68</sup> Satat Dass, Yongfang Zhu & Anil Jain, *Validating a Biometric Authentication System: Sample Size Requirements*, IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE (forthcoming 2006) available at [http://biometrics.cse.msu.edu/Publications/GeneralBiometrics/DassZhuJain\\_SampleSize\\_PAMI06.pdf](http://biometrics.cse.msu.edu/Publications/GeneralBiometrics/DassZhuJain_SampleSize_PAMI06.pdf) (last visited Aug. 2, 2006).

passports under the Visa Waiver Program,<sup>69</sup> European governments redoubled existing

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<sup>69</sup> Theodore H. Cohen, *Cross-Border Travel in North America: The Challenge of U.S. Section 110 Legislation*, CANADIAN AMERICAN PUBLIC POLICY NO. 40 (Oct. 1999) Occasional Paper Series of the Canadian-American Center, University of Maine at Orono (noting that the automated entry-exit system for all U.S. border crossing was mandated in 1996, and that the Immigration and Naturalization Service was to have in place an operational database (without biometric identifiers) by the end of 1998 (Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA), Pub. L. No. 104-208, § 110, 110 Stat. 558-59 (1996), 8 U.S.C. 1221), but that the deadline for this database assembly was pushed back in October 1998 in response to opposition from U.S. business groups bordering Canada when concerns were raised by U.S. automakers at the Detroit-Windsor crossing where just-in-time production lines crossed the border).

Because the volume of data, even with smart card technology, exceeded INS capacity Congress amended section 110 and limited the entry-exit system to the 50 most highly trafficked land ports by the end of 2004, and all ports of entry by the end of 2005 (Immigration and Naturalization Service Data Management Improvement Act of 2000 (DMIA), Pub. L. 106-215, § 2, 114 Stat. 337 (2000), 8 U.S.C. 1365a). The visa tracking system that existed prior to September 11, 2001 was improving, however it primarily covered passengers arriving by airplane and consisted of a paper form stamped at the port of entry, returned to the airline, and then entered manually into the database.

This paper-based, manual data entry system was transformed into a highly automated system of machine-readable, tamper-resistant visas and passports with digitized biometric identifiers after September 11, 2001. By October 26, 2004 all U.S. visas were required to incorporate a biometric identifier. Facial recognition (digital photo) and fingerprint scanning (electronic fingerprints) were taken of all non-immigrant visa applicants at U.S. embassies and consulates. Upon arrival the biometrics on the visa could then be compared with the biometrics of the person presenting the visa (Enhanced Border Security and Visa Entry Reform Act of 2002 (EBSVER), Pub. L. No. 107-173, §§ 301-03, 116 Stat. 552-53 (2004), 8 U.S.C. 1731-32) The database may be made available to other Federal, State and local law enforcement officials. (8 U.S.C. 1365a(f))

Citizens of the twenty-seven countries that participate in the U.S. Visa Waiver Program, many of them European (Andorra, Australia, Austria, Belgium, Brunei, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Liechtenstein, Luxembourg, Monaco, the Netherlands, New Zealand, Norway, Portugal, San Marino, Singapore, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom) are treated differently. Because individuals holding passports from these countries are allowed to enter and stay within the U.S. for 90 days without a visa, these countries were required to issue machine-readable, tamper-resistant passports containing biometric data. The deadline for biometric passports was the same as the deadline for the issuance of biometric visas, October 26, 2004. (EBSVER §303(b)(1), 116 Stat. 553, 8 U.S.C. 1732(b)(1)) With this set of requirements, all persons entering and leaving the U.S. were now subject to the same biometric data requirements.

The U.S. is pushing for comprehensive biometric identification at the borders as fast, or faster than technology and inter-governmental relations will allow. For example, the deadline of October 26, 2004 set by EBSVER for biometrics identifiers in passports issued by the countries in the Visa Waiver Program was too ambitious, and needed to be extended for one year to October 26, 2005. (Pub. L. 108-299, 118 Stat. 1100, 8 U.S.C. 1732 (August 9, 2004). But even with this extension two of the twenty-seven countries in the Visa Waiver Program (France and Italy) failed to meet the deadline, and as a result citizens of these countries will be required to secure a visa to enter the U.S. if they hold non-electronic passports issued prior to October 26, 2005. These passports are required to have digitized biometric identifiers. Valid machine-readable passports issued prior to this date are still accepted. (eGovernment News, *France and Italy Miss U.S. Passport Deadline* (Nov. 1, 2005) available at <http://europa.eu.int/Idabc/en/document/5095/355> (last visited Aug. 2, 2006).

The only exceptions to the requirement for biometrics in visas or passports to enter the U.S. involve citizens (but not permanent residents) of Canada, and citizens of the British Overseas Territory of Bermuda (unless criminally ineligible or have previously violated the terms of their immigration status). Citizens and permanent residents of Mexico must secure a Border Crossing Card (also known as Laser Visa), which is a biometric, machine-readable document obtained like a visa at US Embassies and

efforts toward the development of an integrated system of mutually recognized passports and national identity cards, both with embedded biometric identifiers.<sup>70</sup> The push and pull of security and privacy concerns are more than evident in the E.U. debates. The Madrid bombings further underscored the need for immediately accurate national identity cards.<sup>71</sup> At the same time, longstanding concerns over the creation of new centralized databases and the digital integration of pre-existing databanks were heightened as the scope of the privacy threat posed by digital IDs was now global in scope, rather than purely local.<sup>72</sup>

Italy currently leads all European governments in the use of smart card technology for identification. Over 13.1 million cards have been issued as of October 2005.<sup>73</sup> The rest of Europe has issued about 1.8 million smart cards with Estonia (800,000) and Belgium (585,000) falling a distant second and third.<sup>74</sup>

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Consulates. None of these exceptions are universal. Exceptions-to-these-exceptions apply in each instance.

<sup>70</sup> Thessaloniki European Council, Presidency Conclusions at 3 (Jun. 19 & 20, 2003) (“... [A] coherent approach is needed in the EU on biometric identifiers or biometric data, which would result in harmonized solutions for documents for third country nationals, EU citizens passports and information systems (VIS and SIS II). The European Council invites the Commission to prepare the appropriate proposals, starting with visas, while fully respecting the envisaged timetable for the introduction of the Schengen Information system II.”) available at [http://europa.eu.int/constitution/futurum/documents/other/oth200603\\_en.pdf](http://europa.eu.int/constitution/futurum/documents/other/oth200603_en.pdf) (last visited Aug. 2, 2006).

<sup>71</sup> See REBEKAH ALYS LOWRI THOMAS, BIOMETRICS, INTERNATIONAL MIGRATION AND HUMAN RIGHTS 4 (Global Commission on International Migration, Global Migration Perspectives, No. 17, Jan. 2005).

<sup>72</sup> The following sequence of events is instructive. (1) On February 18, 2004 the European Commission submitted a draft resolution on standard security features and biometrics in E.U. citizens’ passports. In this draft the Commission proposed that passports and other travel documents should include a storage medium with a digital facial image. Although the facial image was mandatory, Member States were allowed to add digital fingerprints into the passports by national law. The draft regulation suggests the fingerprints be stored in a national database. (COM(2004) 116 final, O.J. (C 98) 39). (2) On October 25-26, 2004 the text of the proposal was changed as a result of input from the Justice and Home Affairs Council so that both facial and fingerprint biometrics were incorporated as mandatory features. (COM 15139/2004). (3) The European Parliament’s non-binding resolution of the Commission’s proposal for a Council regulation was adopted on December 2, 2004 with 471 votes in favor, 118 votes against and 6 abstentions. However, the Parliament rejected both the mandatory inclusion of biometric fingerprints, and the creation of a central database of E.U. passports and travel documents. (4) On December 13, 2004 the Council adopted Regulation (EC) No. 2252/2004 which did not take into account the suggestions of the Parliament. The regulation came into force on January 18, 2005 and envisages the inclusion of digital facial images within 18 months and digitized fingerprints within 36 months after the adoption of technical specifications and standards. (5) Technical specifications and standards were adopted on February 28, 2005. (COM(2005) 409 final).

<sup>73</sup> IDABC [Interoperable Delivery of European e-Government Services to Public Administrations, Businesses and Citizens] E-GOVERNMENT NEWS (OCT. 13, 2005) reporting on a study published in CARD TECHNOLOGIES (indicating that of the 13.1 million smart cards 10 million are National Service Cards for the online authentication of citizens and another 2 million are electronic identity cards that include a digital photo and fingerprint of the holder, and that beginning in January 2006 these e-ID cards will replace all paper IDs with the expectation that each citizen will have one within five years) available at <http://europa.eu.int/idabc/en/document/4985/355> (last visited Aug. 2, 2006).

<sup>74</sup> *Id.* at summary table.

The IDABC benchmarking survey has assessed European adoption of smart card technology for national ID's and government e-services each year for the past five years. The European Commission announced the creation of IDABC on February 22, 2001, and the Internal Market Council agreed upon the benchmarks and measured functionalities of the survey.<sup>75</sup> On March 23-24, 2001 the Stockholm European Council endorsed the Commission's benchmarking methodology.

The fifth IDABC report<sup>76</sup> issued in May 2006 draws three important conclusions: (1) E.U. adoption of smart ID card technologies is very fast growing. Of the twenty-five E.U. Member States: (a) seven already have national smart card ID's (five are voluntary,<sup>77</sup> two are mandatory<sup>78</sup>); (b) fourteen have smart ID card programs under development;<sup>79</sup> and (c) only four have no announced plans for national smart ID cards.<sup>80</sup> (2) All E.U. countries have web portals. Most allow direct and secure interaction between citizens and government agencies through these portals either with digital signatures contained in smart ID cards or with digital certificates issued by accrediting agencies. (3) Tax administrations have aggressively adapted to smart ID card technological opportunities.

*America following close behind.* The U.S. has no national ID, and certainly has no government standard for digital identification—it has no e-government infrastructure that will facilitate easy citizens-to-government digital correspondence. Thus, the kinds of secure digital correspondence that most citizens in the E.U. expect to have with their government as a matter of course are simply not the norm in the U.S. This is changing.

The events of September 11, 2001 fundamentally altered the American perception of the appropriateness of "smart" national IDs. The U.S. is far more accepting today of the proposition that biometric identifiers (and more) should be embedded in national IDs. There have been two notable pushes in the U.S. for these kinds of IDs—the first push was for secure identity documents at the borders (passports and visa documents of foreigners<sup>81</sup>)—the second push is domestic, standardized biometric IDs for all Americans (the Real ID Act of 2005).

Based on the E.U. experience, American taxpayers should expect to see significant tax service delivery improvements when the American "smart" IDs are in place. The Real ID Act should change the way Americans relate to their taxing authorities—even

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<sup>75</sup> European Commission, eGovernment Indicators for Benchmarking eEurope (Feb. 22, 2001) *available at* <http://ec.europa.eu/idabc/servlets/Doc?id=18401> (last visited Aug. 2, 2006).

<sup>76</sup> IDABC e-Government Observatory, e-Government in the Member States of the European Union, 5<sup>th</sup> Edition (May 2006) *available at* <http://europa.eu.int/idabc/egovo> (last visited Aug. 2, 2006).

<sup>77</sup> See IDABC Report *supra* note 76 (indicating that the five countries are: Austria, Finland, Italy, the Netherlands, and Sweden).

<sup>78</sup> See IDABC Report *supra* note 76 (indicating that the two countries are: Belgium and Estonia).

<sup>79</sup> See IDABC Report *supra* note 76 (indicating that the fourteen countries are: Cyprus, France, Germany, Hungary, Ireland, Latvia, Lithuania, Malta, Poland, Portugal, Slovakia, Slovenia, Spain and the United Kingdom).

<sup>80</sup> See IDABC Report *supra* note 76 (indicating that the four countries are: Czech Republic, Denmark, Greece, and Luxembourg).

<sup>81</sup> Cohen *supra* note 69.

though improving this relationship was certainly not one of the stated or intended benefits of the Real ID Act.

On May 11, 2005 President Bush signed the Real ID Act of 2005 into law.<sup>82</sup> The Act sets minimum document requirements for state driver's licenses, without which "a Federal agency may not accept, for any official purpose, a driver's license or identification card issued by a State to any person."<sup>83</sup> The minimum requirements are:

- (1) The person's full legal name.
- (2) The person's date of birth.
- (3) The person's gender.
- (4) The person's driver's license or identification card number.
- (5) A digital photograph of the person.
- (6) The person's address of principle residence.
- (7) The person's signature.
- (8) Physical security features designed to prevent tampering, counterfeiting, or duplication of the document for fraudulent purposes.
- (9) A common machine-readable technology, with defined minimum data.<sup>84</sup>

Three parts of this federal legislation make the Real ID into a *de facto* national ID in the minds of many: (1) the standardized requirements specifying how the states must verify the minimum required data on driver's licenses,<sup>85</sup> (2) the requirement that the source documents for this verification be retained in digital files,<sup>86</sup> and (3) the requirement that all states link their databases.<sup>87</sup>

*Japanese "smart" IDs with biometric identifiers.* Japan is a technologically advanced economy with a deep digital penetration. Like the E.U. and the U.S., Japan can adopt advanced solutions if it determines that technology offers more efficient solutions to traditional consumption tax problems. There are signs that Japan is receptive to this technology (in the specific context of digital, biometric identification criteria employed in a direct-to-consumer sales transactions), and is in the process of adopting it commercially to facilitate law enforcement.

For example, starting in March of 2008 Japan Tobacco will begin to operate vending machines equipped with "smart" card ID recognition systems to prevent teenagers from purchasing tobacco products. Biometric identifiers in the card will be used to confirm that the tobacco purchaser is the adult to whom the card was issued. The program will begin in Kagoshima and Miyazaki, and gradually spread throughout Japan. It is expected that eventually these ID cards will be required to be presented even in the smallest tobacco stores to purchase tobacco products, and that about thirty percent of the Japanese population will carry them.

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<sup>82</sup> The Real ID Act started out as H.R. 418, which passed the House. It was attached to a military spending bill (H.R. 1268) and was enacted as Pub. L. No. 109-13.

<sup>83</sup> *Id.* at § 202 (a)(1).

<sup>84</sup> *Id.* at § 202 (b).

<sup>85</sup> *Id.* at § 202 (c)(2)(B) & (3).

<sup>86</sup> *Id.* at § 202 (d)(1).

<sup>87</sup> *Id.* at § 202 (d)(12).



The cards, called Taspo, will incorporate prepayment functionality, called Pidel, a service currently offered by JCB<sup>88</sup>. By the end of 2008 Japan Tobacco will have installed the “adult identifier” on all of the 620,000 tobacco vending machines in operation in Japan requiring the smoking population (approximately 43% of Japanese males and 12% of Japanese females) to carry the card, if they want to make a purchase.<sup>89</sup>

The figures in the Japan Tobacco story are remarkably close to what would be needed at a minimum for the effective implementation of a “smart” card that would verify the identity of individuals who qualify for consumption tax relief. These cards, the CT-ID, would need to be distributed to the 25% of the Japanese population that is poor, elderly or handicapped, and would need to be able to interface with terminals at the nearly 445,000 food and beverage retail establishments in Japan. Japan Tobacco expects to have its Taspo card in the hands of nearly 30% of the Japanese population with “adult identifier” and payment functionality in over 620,000 vending machines in 2008. Could the Consumption Tax administration do the same for a CT-ID card that would reduce people’s taxes?

*The function creep effect.* The survey that supported Hong Kong’s adoption of “smart” IDs observed that function creep was one of the most notable characteristics of national identity smart cards. E.U. documents refer to this characteristic as “the diffusion effect.”<sup>90</sup> Function creep occurs when new technology (in this instance biometrics in identity cards) becomes so established or accepted in a society<sup>91</sup> that adaptations both unforeseen and unintended by the technology initiators become commonplace.<sup>92</sup>

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<sup>88</sup> JCB stands for Japan Credit Bureau. It is the dominant credit card company in Japan, and has formed business alliances with Discover Card in the US.

<sup>89</sup> *Tabaco youni senyoudenshimoney/ 08nen downyu no seijinshikibetsuhanbaiki* (Electric money for Tabacco/ Vending machines with age-check system from 2008) Shikoku Shinbunsha (Shikoku News) Oct. 2006 available at <http://www.shikoku-np.co.jp/national/economy/article.aspx?id=20061019000438> (in Japanese). Translation by Chikara Iida, Master Degree candidate in International Private Law, Ritsumeikan University, Kyoto, Japan. E-mail correspondence on file with authors.)

<sup>90</sup> BIOMETRICS AT THE FRONTIERS, *supra* note 63, at 10.

<sup>91</sup> John T. Cross, *Comment: Age Verification in the 21<sup>st</sup> Century: Swiping Away Your Privacy*, 23 J. MARSHALL J. COMPUTER & INFO. L. 363 (2005) (discussing the common use of driver’s licenses for age verification at bars and convenience stores by swiping the license through a scanning machine that then records name, address, expiration date, and sometimes social security number, electronic fingerprint and the electronic image of the holder, and the lack of state of federal laws protecting the data); Rina C.Y. Chung, *Hong Kong’s “Smart” Identity Card: Data Privacy Issues and Implications for a Post-September 11<sup>th</sup> America*, 4 ASIAN-PACIFIC L. & POL’Y J. 442 (2003) (discussing instances where bar management uses scanned ID data to “... develop customer lists based on specific characteristic, and target groups of customers for a particular event (e.g., an ‘all-male-performer show’ that would appeal to women in the 21-34 age range),” an example which is based on a news report by Jennifer Lee, *Welcome to the Database Lounge*, N.Y. TIMES, MAR. 21, 2002, at G1.)

<sup>92</sup> THOMAS *supra* note 71, at 11-13 (indicating that function creep’s downside is the privacy concerns raised by increased profiling, skimming of data, private companies improperly obtaining [retaining] data, and the use of comprehensive cross-data-base searching all because biometrics embedded in national identity cards provide the “handle” to do so, resulting in abusive ‘stop and search’ procedures for migrants). *See supra* note 14.

If Japan Tobacco and JCB can see the ready diffusion (and acceptance) of the Taspo card throughout Japan in 2008, how much more readily would a “smart” ID card that identified consumers entitled for a reduced Consumption Tax at the cash register be accepted? If global “smart” ID card practices are replicated in Japan, it will only be a matter of time before one “smart” ID card will serve multiple identity verification purposes—for example both to identify and pay for an adult’s tobacco purchases as well as to facilitate a reduction of consumption tax obligations when purchasing necessities (if the individual meets age, poverty or handicap criteria)?

The Malaysian identity card provides several good examples of function creep. Formally called the Government Multi-Purpose Card (GMPC) the Malaysian card is the product of an open-ended collaboration of five government agencies, the National Registration Department, the Road Transportation Department, the Immigration Department, the Ministry of Health and the Royal Malaysian Police. The Malaysian card functions as a passport, a driver’s license, and an access card to government facilities. The open infrastructure of the card allows it to serve in the private sector—and this is the function creep effect—as E-cash and an Automated Teller Machine (ATM) access card, as well as a vehicle for the payment of fees for public transport services, and “Touch and Go” auto toll and parking services. The implementation of Public Key Infrastructure (PKI) within the cards in 2003 allows e-commerce transactions and ensures the authenticity and integrity of data.<sup>93</sup> The ID card legislation in Malaysia does not restrict future incorporation of additional non-government data on the card.<sup>94</sup> The same is true in Finland and Brunei.<sup>95</sup>

Thus, based on the experience of other countries with open technology smart IDs, once the ID becomes widely held, is easily and frequently used by a large portion of the population, at low or no cost to government and citizen, then all forms of tax delivery services begin to change. Why not imagine a “smart” card that would zero or reduce rate purchases of necessities by those in need? To measure the change that should be anticipated in Japan one simply needs to look globally, and project Japanese developments along the trajectories set in the E.U., U.S. or other Asian country.

## 2. Certified Transaction Tax Software-in Japan

“Smart” national IDs are part of a larger context of technological change that is having a powerful effect on consumption tax administration. The consumption tax itself is digitizing. As “smart” national ID technologies merge with digital consumption tax regimes not only will the delivery of tax services be transformed but also the nature of the tax itself will be transformed from a regressive to a progressive levy. This kind of change will come as certificates (zero-rate, or reduced rate entitlements) are embedded in national IDs, and digital compliance systems are reconfigured to recognize the certificate

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<sup>93</sup> REGISTRATION OF PERSONS (AMENDMENT) BILL 2001, EXPERIENCE OF USING SMART IDENTITY CARDS IN OTHER COUNTRIES *supra* note 65 at 3 & ANNEX 15-16.

<sup>94</sup> *Id.* at ANNEX 15-16.

<sup>95</sup> *Id.* at ANNEX 15-16.

and act upon it. Technology will exempt or reduce-rate the poor from paying tax on necessities while the wealthy will remain subject to tax on the same purchases.

The speed of these changes in Japan will depend entirely on the degree to which technology has penetrated the tax administration and society at large. The business community is ready for this change now. As the Japan Tobacco example indicates business is ready for exceptionally granular identity functionality with countrywide application in tandem with even small volume, small value, cash or credit purchases.

Business is ready because almost all business information today—including all critical data needed for determining consumption taxes—is digitized.<sup>96</sup> Working with digitizing business data has not been a problem for some time now. In the world's largest businesses the problem has not been the data, it has been the controls—what is done with the data. As a result tax administrations and security regulators have been stepping in to certify (pre-audit and confirm) the accuracy of the software and computer systems that handle the data.

Corporate governance reform in the wake of Enron and other accounting failures have focused attention on the certification of financial data and the processes that gather, summarize and analyze this data. Running parallel to the certification of financial data is a movement to fully digitize and government-certify the software systems that determine transaction tax compliance. This only makes sense, because tax compliance is, after all is said and done, simply a subset of the larger field of accurate enterprise-wide financial reporting.

*Certification of transaction tax software today.* Although the OECD has considered and encourages the certification of transaction tax software in VAT, the present reality is that only the members of the Streamlined Sales and Use Tax Agreement are actually certifying software. The SSUTA provides three models for software certification: the certified service provider (CSP);<sup>97</sup> the certified automated system (CAS);<sup>98</sup> and the certified proprietary system (CPS).<sup>99</sup> In 2001 the viability of the CSP model was successfully tested in a pilot project,<sup>100</sup> and on June 1, 2006 three software

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<sup>96</sup> School of Information Management and Systems at the University of California at Berkeley study titled “*How Much Information.*” (indicating that 93 % of the three billion gigabytes of data generated worldwide (in 1999) was computer generated) available at: <http://www.cni.org/tfms/2000b.fall/handout/How-KSwearingen2000Ftf.pdf> (last visited 12 April 2004); Peter Lyman and Hal R. Varian, *How Much Information? 2003* (School of Information Management and Systems at the University of California at Berkeley, release date October 27, 2003) in the Executive Summary (of the 5 exabytes of new information created in 2002, 95% was stored on magnetic media, mostly hard disks) available at: [http://www.sims.berkeley.edu/research/projects/how-much-info-2003/printable\\_report.pdf](http://www.sims.berkeley.edu/research/projects/how-much-info-2003/printable_report.pdf).

<sup>97</sup> STREAMLINED SALES AND USE TAX AGREEMENT, at §203, available at:

<http://www.streamlinedsalestax.org/Final%20Agreement%20As%20Amended%2011-16-04.pdf>.

<sup>98</sup> *Id.* at § 203.

<sup>99</sup> *Id.* at § 207.

<sup>100</sup> In 2001 four states (Kansas, Michigan, North Carolina, and Wisconsin) participated in a pilot project to test the CSP concept. Three firms applied to participate as CSP's, (Taxware International, Pitney-Bowes/Vertex, and esalestax), two were certified as CSPs, (Taxware International, Pitney-Bowes/Vertex). The pilot project was successful in establishing the viability of the CSP concept. The Streamlined Sales

companies, Taxware, L.P., Exactor and Avalara, became the first three CSPs. Taxware additionally was certified as a CAS.

Two of the SSUTA certifications, the Certified Automated System (CAS) and the Certified Proprietary System (CPS), allow for the certification of automated systems that are kept in-house.<sup>101</sup> Unlike with the CSP model, relief from liability under a CAS or a CPS model is dependent on the taxpayer properly using the certified system.<sup>102</sup> Under the CSP it is a third party who operates the system remotely and who accepts liability for errors. Questions about liability allocation among all these systems (CSP, CAS and CPS) remain, and even though they are fully operational these certification systems are best considered “works-in-progress” until they are tested for a number of tax cycles.<sup>103</sup>

The SSUTA certification process involves measuring the software against third party standards: (1) the AICPA’s SAS 94<sup>104</sup> and (2) the US- GAO Federal Information Systems Control Audit Manual.<sup>105</sup> In addition, CSPs and CAS software developers must comply with (3) ISO Number 17799<sup>106</sup> of the International Organization for Standardization. A similar set of objective standards for certification is discussed in the OECD materials.<sup>107</sup>

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Tax Project web site indicates: “The pilot project established that the use of a third-party provider was viable. Systems and procedures were established that resulted in the actual collection and remittance of sales and use tax by a vendor on behalf of a retailer. Knowledge and experience was obtained by the participating states and vendors.” See <http://www.streamlinedsalestax.org> (last visited Aug. 2, 2006).

<sup>101</sup> STREAMLINED SALES AND USE TAX AGREEMENT, *supra* note 97 at § 501 (C) and (D).

<sup>102</sup> UNIFORM SALES AND USE TAX ADMINISTRATION ACT (as approved on Dec. 22, 200, and as amended on Jan. 22, 2001) at §§ 9(b) and (c) (for CAS and CPS respectively).

<sup>103</sup> Stephen Moore, *An Uneasy Marriage: Sellers and Certified Service Providers*, 21 J. STATE TAX’N 65, 72 (2003). (“The relationship [between sellers and service providers] is inherently adversarial and each party needs to develop audit strategies for protecting itself from the other party in what may prove to be an unhappy marriage for these partners in commerce. ... Can CSPs audit sellers to determine whether there is probably cause to believe that a seller has committed fraud or made a material misrepresentation?” Moore asks what would happen if a seller simply provides faulty information to the CSP without, rising to the level of misrepresentation or fraud, but there tax collection was short nevertheless?).

<sup>104</sup> STREAMLINED SALE TAX PROJECT, CERTIFICATION STANDARDS (rev. 5/17-04) available at <http://www.streamlinedsalestax.org/> (provides a detailed application of SAS 94, FISCAM and ISO 17799 to the SSUTA); STREAMLINED SALES AND USE TAX AGREEMENT, *supra* note 97; AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS, PROFESSIONAL STANDARDS, Vol. 1 AU § 319 *The Effect of Information Technology on the Auditor's Consideration of Internal Control in a Financial Statement Audit*, as amending SAS No. 55 *Consideration of Internal Control in a Financial Statement Audit*.

<sup>105</sup> STREAMLINED SALES AND USE TAX AGREEMENT, *supra* note 97; U.S. GOVERNMENT ACCOUNTING OFFICE, ACCOUNTING AND INFORMATION MANAGEMENT DIVISION, FEDERAL INFORMATION SYSTEMS CONTROL AUDIT MANUAL, (FISCAM) Vol. 1 (GAO-AIMD12.19.6) available at <http://www.gao.gov/special.pubs/ai12.19.6.pdf>.

<sup>106</sup> STREAMLINED SALES AND USE TAX AGREEMENT, *supra* note 97; INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, ISO 17799: INFORMATION TECHNOLOGY, SECURITY TECHNIQUES, CODE FOR INFORMATION SECURITY MANAGEMENT (ISO/IEC 17799:2005).

<sup>107</sup> OECD, ELECTRONIC COMMERCE: FACILITATING COLLECTION OF CONSUMPTION TAXES ON BUSINESS-TO-CONSUMER CROSS-BORDER E-COMMERCE TRANSACTIONS (Feb. 11, 2005) at 17-18 (discussing a range of government “approvals” for tax accounting software and indicating that at one extreme is “accreditation” – an approval process functions simply as a mechanism to “formally identify” software that meets certain criteria of acceptability – while at the other extreme is “certification” – an approval process that designates

Essentially SSUTA certification is conducted in two steps; (1) an extensive security check of the software system, the developer and the service provider is performed, and then (2) a comprehensive test of tax calculation and return preparation capabilities is carried out by running thousands of hypothetical tax scenarios through the system.

Properly programmed, it is a relatively easy matter for an automated tax calculation system to match up the skew code of a good or service with a specified tax rate to determine the tax due. It is not at all a large leap in technology for a tax calculation system to be programmed to recognize that a different rate should be applied where an exemption (zero-rate, or reduced rate) code is received from a “smart” ID passed during the purchasing process.

From a systems perspective the question presented by the “smart” ID with an embedded exemption (zero-rating or reduced rate) certificate, is no different than the problem that is presented to an automated system when the same item is processed through the system, but in multiple taxing jurisdictions. Different jurisdictions frequently have different rates, exemption requirements, and reporting standards for the same items. Functionally, the poor, elderly, or disabled person qualifying for an exemption is seen by an automated system as simply another taxing jurisdiction with a different set of rates and requirements. Rather than discriminating among geographic jurisdictions, the system in this instance discriminates within the same jurisdiction among purchasers based on a set of codes activated by authorization procedures initiated in encrypted codes embedded in the certificate of a “smart” ID.

Thus, because highly discriminatory, multi-jurisdictional tax calculation systems are certified today under the SSUTA, it is not difficult to imagine that the same type of discrimination function (within the single jurisdiction of Japan) can be certified as equally accurate. This level of automated tax processing only awaits the adoption of certificates of exemption in “smart” IDs. The programming and systems design barriers have already been overcome in software that easily handles the 5,788 retail sales tax jurisdictions in the U.S. as well as the VAT regimes of 170 different countries.

This technology has allowed internet retailers (who could be located in a small town anywhere on the planet) to be tax-compliant in every jurisdiction in the world where there is a transaction tax. For large internet retailers, like Amazon.com it is common to have an internal system that would be certified as a CAS or CPS, but for a small internet seller the CSP model would be the best fit as this would require only a data-link to a provider who would determine the tax remotely.

## CONCLUSION

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software as “an officially authorized mechanism to perform specified functions” – reaching a conclusion that the SSUTA the OECD uses the term “certification” in this same manner even though the OECD discussion is broader than that found in SSUTA documents) *available at* <http://www.oecd.org> (last visited Aug. 2, 2006).

If we begin with the premise that Japan is a technologically advanced economy with a deep digital penetration, then there would seem to be no technological barrier preventing it from adopting the solution offered here to the tax policy dilemma faced by the Tax Commission. Like the E.U., and the U.S., Japan can adopt technology-intensive solutions if and when it determines that they offer more efficient outcomes. It is a pleasant circumstance indeed when technology not only offers efficiency, but offers efficiency in a manner that preserves long-standing, traditional approaches to a tax policy questions.

To go down this technology road, Japan will need to do three things: (1) establish an identity card system<sup>108</sup> with biometric identifiers and embed within the “smart” chip digital zero-rate or reduced-rate authorization codes; (2) define the classes of citizens who will be authorized for zero-rate or reduced-rate purchases, and associate these qualified purchasers with goods or services they could purchase at each rate,<sup>109</sup> and (3) establish a software certification regime for program used at the retail sale level.<sup>110</sup> It would be necessary for this software to recognize both the reduced-rate or zero-rate codes and correctly associated them with the goods and services qualified for special treatment for a specific taxpayer. The software would need to calculate the tax and retain an audit file for each transaction.

With this technology in place Japanese policymakers could take one of two paths. Japan could either (1) continue to have a single (higher) rate Consumption Tax, but with a new series of exemptions for the poor, elderly, or handicapped, or it could (2) adopt a multiple rate system where the poor, elderly or handicapped qualified for reduced rates. Either of these solutions can be efficiently implemented and if the rates and qualifications are carefully monitored will increase the yield of the Consumption Tax and resolve its regressivity. Both of these paths preserve Japan’s traditional approach to consumption tax relief.

Thus, referring again to the hypothetical presented earlier where Japan determines that it should have a standard rate set at 10%, a reduced rate at 5%, along with a number of exempt goods or services then the following would happen. In all instances businesses

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<sup>108</sup> There is no need for this ID to be mandatory. Those who qualify for reduced or zero rates would not need to secure an ID card, if they had privacy concerns. Cards could always be secured, but not used if there were selective privacy concerns. However, without a “smart” ID card it would not be possible for an individual to secure a reduced rate of tax. If this result was deemed unfair, or if the National Tax Administration determined that for various reasons (power outages, system failures, etc.) that an alternate (back-up paper) system should be implemented to manage the privacy issue, then this individual might be allowed to make reduced or zero rated purchases in another manner.

<sup>109</sup> It is expected that much of this work would be done by social services agencies. It should also be expected that this program would start out small and expand in scope and granularity as time went on.

<sup>110</sup> There is no need to make use of this software mandatory. In all instances where a retailer decided not to install certified software, the Consumption Tax would be due at the standard rate (10%) for all sales in the same manner as under the present regime. There would, of course, be considerable pressure from customers who qualified for an exempt or reduced rate to have the software installed. Thus, free market pressures and self-interest would facilitate wide acceptance of the software.

would report as they do today under Japan's "credit-subtraction VAT without invoices,"<sup>111</sup> or "bookkeeping" method. The rate of tax would be 10%.

In instances where the business filing the return makes sales to final consumers, and some of those consumers have qualified for a reduced rate of tax (5% or 0%), then the record of those transactions recorded in the audit file of the software program would allow those businesses to record a tax credit for the full amount of the difference between the tax that should have been collected (at 10%) and the amount that was actually collected (at 5% or 0%).

## ALTERNATE SYSTEMS

This paper is premised on the adoption of a government certification system for software that would be provided to retailers by third parties. The government could make this software available for free to retailers, as is done under some circumstances in the Streamlined Sales Tax in the U.S. or it could leave it up to the retailer to purchase the software.<sup>112</sup> However there are two other models that Japan could look to, a software registration model in use in Australia since 1999, and a government owned and operated software model under initial testing and development in Brazil. The Australian model provides (non-certified) tax calculation, the Brazilian provides certified documentation (without a tax calculation function).

The Australian model is to not certify software, but instead to provide a registry of all software that has satisfactorily completed a set of tests.<sup>113</sup> The registry is operated by the Software Industry Information Center. A software provider who would like to have its product listed in the Australian Tax Office's registry simply needs to run the tests provided on that site, get the correct results, indicate this to the ATO and then ask to be registered.

Because the Australian model does not certify software there is less demand on ATO resources at initial stages, but there remains heavy reliance on the ATO's audit function. There is no certainty that the software on the Software Industry Information Center's registry is accurate in all instances, and for all businesses, nor is there any kind of liability protection to providers or users if the software fails to perform as expected.

The Brazilian model is potentially at the other extreme, but at the moment lacks a tax calculation component. It would be a large step forward legally, but a relatively small step technologically for the Brazilian model to become a fully certified tax document and calculation model.

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<sup>111</sup> ALAN SCHENK & OLIVER OLDMAN, VALUE ADDED TAX: A COMPARATIVE APPROACH IN THEORY AND PRACTICE 38 (2001).

<sup>112</sup> Streamlined Sales and Use Tax Agreement (SSUTA) *supra* note 97, at §§ 601-03.

<sup>113</sup> The registry can be found at: [www.ato.gov.au/softwaredevelopers](http://www.ato.gov.au/softwaredevelopers). There are currently 175 software products listed under the GST in this registry. The GST test can be found at: [www.ato.gov.au/rsf](http://www.ato.gov.au/rsf).

At the moment the Brazilian developments are centered in the municipality of Sao Paulo.<sup>114</sup> The city has instituted an e-invoice system to replace the older paper invoice system in the local services tax.<sup>115</sup> The system is designed to fight tax avoidance by giving tax breaks to compliant taxpayers. Service providers and service receivers (individuals or corporations) register at a dedicated portal. When a service is rendered by a registered service provider to a registered service receiver, the service provider log-ins all relevant information (type of service, price etc.) and the service receiver receives a return e-mail from the city of Sao Paulo with the invoice, issued on behalf of the service provider.<sup>116</sup>

With this invoice individuals are allowed to reduce their property taxes. For every dollar of service tax paid the property tax can be reduced by 30% of that amount, up to a limit of 50% of the property taxes due. Corporate service receivers can reduce their property taxes up to 10%. However, in the Sao Paulo model the tax is calculated by the taxpayer and remains the full responsibility of the taxpayer.<sup>117</sup>

Following on the success of the Sao Paulo initiative a larger project has begun that involves similar concepts but with the *Impostos Sobre Circulação de Mercadorias e Prestação de Serviços* (ICMS). This state-level tax in Brazil functions like a traditional credit-invoice VAT.

On September 30, 2005 the Brazilian states and the federal government signed an *Ajuste Sinief* (No. 07),<sup>118</sup> an agreement among the governments, to create (1) the e-invoice (*Nota Fiscal Eletrônica*) and (2) the auxiliary document of the e-invoice (*Documento Auxiliar da Nota Fiscal Eletrônica*).<sup>119</sup> Under the system being developed, the seller will issue an e-invoice and send a file containing all the fiscal information of the commercial deal to the other party. The electronic file must be sent with electronic signature. The file is then sent by the internet to the tax authority of the other state which will pre-validate the file and will send back another file confirming that the file was received. This file is necessary to the physical transport of the goods. The file is also sent to the Federal IRS (functioning as the national keeper (back up) of the e-invoices issued.

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<sup>114</sup> See <http://ww2.prefeitura.sp.gov.br/nfe/index.asp> (in Portuguese).

<sup>115</sup> The service tax is called *Imposto Sobre Serviços de Qualquer Natureza* (ISSQN). It is not a VAT, but a cascading tax on services performed locally. The tax does not have a credit function to offset the amounts collected against the amounts paid. The e-invoice system is based on Municipal Decree No. 44.540/2004.

<sup>116</sup> See [www.nfe.fazenda.gov.br](http://www.nfe.fazenda.gov.br) (in Portuguese)

<sup>117</sup> Personal e-mail communication Mr. Mario R. Crevatin, Prefeitura do Município de São Paulo, Secretaria Municipal de Finanças, Departamento de Fiscalização (audit department, Sao Paulo, Brazil) on file with authors (Nov. 22, 2006).

<sup>118</sup> This document can be found at:

[http://www.sef.rj.gov.br/legislacao/tributaria/convenios\\_ajustes\\_protocolos/confaz/ajustes/2005/aj05007.shtml](http://www.sef.rj.gov.br/legislacao/tributaria/convenios_ajustes_protocolos/confaz/ajustes/2005/aj05007.shtml) (in Portuguese).

<sup>119</sup> This document can be found at:

[http://www.sef.rj.gov.br/legislacao/tributaria/convenios\\_ajustes\\_protocolos/confaz/pareceres\\_ecf/2005/ato072.shtml](http://www.sef.rj.gov.br/legislacao/tributaria/convenios_ajustes_protocolos/confaz/pareceres_ecf/2005/ato072.shtml) (in Portuguese).



In the phase of the project (three phases are anticipated) the transport of the goods will be made with an auxiliary document of the e-invoice, called DANFE (*Documento Auxiliar da Nota Fiscal Eletrônica*). This paper document will have a key that will allow a search for the e-invoice over the internet and will also contain a bar code that will facilitate the capture of the information on the e-invoice by the tax authorities. The taxpayer who receives the goods can then book the data from this auxiliary document (but the real value of the data depends on the existence of the e-invoice at the files of the tax authorities involved). There is no functionality at the present time for the tax authorities to determine the tax due based on the invoice.