

Seminar on Public Finance

Lecture #12: April 17

Consumption Taxation: Theory and Systems

Consumption Tax Prototypes

Consumption Tax Prototypes

We'll look at 4:

1. Consumed Income Tax (hybrid)
2. Value Added Taxes
3. Flat Tax and X Tax
4. National Retail Sales Tax

Recall: these tax systems are equivalent at a high level:

Income less Savings	→	Consumed Income Tax
Business Sales less Investment	→	Value-Added Tax, Flat Tax
Sum of Final Sales to Consumers	→	National Retail Sales Tax

The Consumed Income Tax: Mechanics

- The Consumed Income Tax (or Savings-Exempt Income Tax) is a “post-payment” consumption tax.
 - Think of an IRA, exclude from income now, but pay tax on principal and interest upon withdrawal from account when it is “consumed.”
 - Note:
 - Under constant tax rates pre-paid and post-paid consumption taxes are equivalent (prospectively).
 - This equivalence does NOT hold under progressive rates. Tax burden could increase or decrease.

The Consumed Income Tax: Getting There

- Getting there from here:
 - All savings accounts based on traditional IRA, 401(k) models.
 - Remove all limits on contributions and withdrawals.
 - **Include debt (borrowing) in the tax base (this is dissaving).**
 - Repeal capital gains taxes (due to retained earnings or savings).
 - Repeal gift and estate taxes (already taxed).
 - Repeal corporate income tax (possibly replace with VAT).
 - Note: “returns to capital” such as interest, dividends and capital gains are taxed when they are removed from savings and consumed.

Savings

- Think of two motivations for saving, hence two uses for savings:

1. Consumption Smoothing

- Translate uneven earnings into “smoothed” consumption moving earnings to times of greater need such as retirement, for education, medical needs.
 - Referred to as “ordinary” savings.
 - Precautionary.
- Note that under a progressive tax system, the saver is likely in the same or a lower tax bracket during those times.

2. Consumption Shifting

- Using capital to raise or lower future standard of living.
 - Do not want to simply maintain consumption, but want to consume at higher level in future.
- Saver might shift into higher tax bracket when those savings are used.
- Saver likely shifting large amount of current income and can afford to do so.

Smoothing Transactions



The Consumed Income Tax with Progressive Rates

- Recall:
 - Under constant tax rates pre-paid and post-paid consumption taxes are equivalent (prospectively).
 - This equivalence does NOT hold under progressive rates. Tax burden could increase or decrease.
- There are really three choices of tax base if we have progressive rates:
 1. Income tax: double taxes both uses of savings
 2. Pre-paid consumption: ignores both uses, similar to a wage tax when we transition from income to consumption (See Slemrod-Bakija, Chapter 6)
 3. Post-paid consumption: Consumed income tax, levied when funds are spent, favors the smoothing motivation (time value of money), tax burden falls on shifting motivation

Pre-Pay vs. Post-Pay Consumption Taxes

- Pre-pay: Wage Tax
 - Wage Tax (Yield-Exempt Tax) and Consumption Tax both remove the effect of taxes on the incentive to save.
 - Tax wages (returns to labor) and not interest, dividends, capital gains and profits.
 - The Roth IRA approach (pre-pay method) is like a wage tax.
 - It simply ignores all future returns to savings.
 - This type of treatment will turn the consumption tax into a wage tax upon transition.
 - Crucial distinction is the transition to a consumption tax.
 - Will pre-existing wealth be taxed in new system when used for consumption?
 - Under pre-pay method (wage tax) it is not taxed. Wealth never faces consumption taxation.
 - Under a pure wage tax, there is a windfall gain to all holders of wealth. The prospect of all future taxes are removed.
 - See Slemrod-Bakija, Chapter 6.

Pre-Pay vs. Post-Pay Consumption Taxes

- Post-Pay:
 - Under a shift to a post-pay consumption tax, there is a windfall loss upon holders of wealth.
 - For example, assume all prices went up by 10% due to a new NRST.
 - For most wage earners, the trade off is largely a wash.
 - The way we address this is through “transition relief”. But, more transition relief turns the consumption tax into a wage tax.
 - This windfall loss acts as a tax on existing wealth. It is now worth less. While it may not appear so, the gov't will eventually collect the revenues (see Slemrod-Bakija, p. 209-212)
 - **Consumption tax = wage tax + lump sum tax on wealth**
 - Much of the efficiency gains from switch to consumption tax come from this lump sum tax in lieu of other distorting taxes.
 - It would be politically difficult not to give transition relief for switch to post-pay
 - But if do this, then lose efficiency gains, simplification

The Consumed Income Tax with Progressive Rates

- A progressive consumed income tax “splits the difference” between no and full taxation of savings, by taxing people when they spend under progressive rates.
 - Some savings are taxed, some are not.
 - Moving consumption from high earnings periods to those of greater need lowers overall taxes (presumably moving to same or lower tax bracket)
 - Saver maintains a fairly constant (real) consumption profile
 - Conversely, living “better” off the yield to capital raises overall taxes (presumably moving consumption to higher tax bracket)
 - Horizontal equity norm: lifetime income vs. lifetime consumption.
 - Pattern of income should not matter.
 - Pattern of consumption better tax base.
- Recall, tax brackets indexed for inflation.

The Consumed Income Tax, Transition Issues

- Old Wealth under Roth IRA vs. Regular IRA in new system.
 - Is it ever taxed in the new system?
 - Everything that gives rise to consumption should be taxed in new system, regardless of what happened in old system.
- Treating new and old wealth differently
 - Reduces ability to simplify the tax system
 - Necessary for horizontal equity

Consumed Income Tax: Pros

- Encourages savings for “ordinary” purposes
- In theory, taxes capital when its yield is eventually used to elevate or enhance lifestyles, not otherwise
- Discourages consumptive debt (dissavings are included in base)
 - Taxing debt not unusual, we do it with other consumption tax systems like VATs and NRSTs.
 - Now it is explicit.
- May not need higher rates than current system
 - We eliminate capital gains taxes, but add debt-financed consumption
- Real simplification gains:
 - Unified approach to savings
 - No need for concept of “basis” since capital gain not taxed
 - No capital gains tax, no gift and estate tax, no corporate income tax

Consumed Income Tax: Cons

- Complex rules needed to account for all possible saving and dissaving transactions.
 - All “old savings” and existing wealth must be accounted for. Can take many different forms.
 - Must distinguish between old saving, new saving, gross saving and net saving at first.
 - Who will track? Privacy concerns?
 - Increased pressure on returns to capital vs. labor for pass-through businesses (partnerships, s corps, sole props)

Major problem is pre-enactment basis such as remaining depreciation on business investments.

- Much pressure on transition rules.
 - Fairness concerns.
 - Intergenerational shifts.

Consumed Income Tax: US Example

- See McCaffery (2005).
 - Previous incarnation is USA Tax proposed in 1995
 - USA = Unlimited Savings Allowance
 - Bill sponsors were Sam Nunn (GA) and Peter Dominici (NM)
 - Major Problems
 - Too complex
 - Didn't tax debt (dissaving)

Value Added Taxes

Value Added Taxes: Background

- Relatively new. First VAT introduced in France in 1954.
- Does not become commonplace until 1990s. Approximately two-thirds of all national VATs introduced 1990 or later.
- 192 countries in UN; roughly 145 have a national VAT.
- Why were VATs adopted by so many countries?
 1. Fiscal stability and growth. Much more stable than other revenue sources such as corporate income tax. Broad base means low rates generate significant revenues.
 2. Tax administration. Self-enforcing aspects. Much administration shifted to firms.
 3. IMF. Played major role in global tax reform. Adoption of VAT previously a pre-condition for assistance.
 4. EU. Also played major role. Attempt to harmonize tax systems of members. VAT is “border adjustable” so eliminates double taxation.

Value Added Tax Base

- A tax that is levied at each stage of production (manufacturer, wholesaler, retailer) on each firm's "value added".
 - "Value added" is equal to
 - Sales - Purchases from Other Businesses
 - Total Revenue - Cost of Materials/Inputs (really anything from another firm)
 - Equal to a retail sales tax that is levied at final stage on retailers (in theory).
- Over time, Revenues must be used to pay off various expenses or accrue to owners as profits.
 - Total Revenue = Profits + Total Costs
 - Total Revenue = Profits + Labor Costs + Cost of Materials + Depreciation + Interest + Rent
 - Value Added = Total Revenue - Cost of Materials
 - Value Added = Profits + Labor Costs + Depreciation + Interest
 - Because VATs are consumption taxes, we give firms an immediate deduction for purchases of new capital
 - **Value Added = Profits + Labor Costs + Depreciation + Interest - Investment**

Country	Start Year	Standard rate				Reduced Rate
		1980	1990	2000	2009	
Australia	2000	-	-	10.0	10.0	-
Austria	1973	18.0	20.0	20.0	20.0	10.0/12.0
Belgium	1971	16.0	19.0	21.0	21.0	6.0/12.0
Canada	1991	-	-	7.0	5.0	-
Czech Republic	1993	-	-	22.0	19.0	9.0
Denmark	1967	22.0	22.0	25.0	25.0	-
Finland	1994	-	-	22.0	22.0	8.0/17.0
France	1968	17.6	18.6	20.6	19.6	2.1/5.5
Germany	1968	13.0	14.0	16.0	19.0	7.0
Greece	1987	-	18.0	18.0	19.0	4.5/9.0
Hungary	1988	-	25.0	25.0	20.0	5.0
Iceland	1989	-	22.0	24.5	24.5	7.0
Ireland	1972	25.0	23.0	21.0	21.5	4.8/13.5
Italy	1973	15.0	19.0	20.0	20.0	4.0/10.0
Japan	1989	-	3.0	5.0	5.0	-
Mexico	1980	10.0	15.0	15.0	15.0	
Netherlands	1969	18.0	18.5	17.5	19.0	6.0
New Zealand	1986	-	12.5	12.5	12.5	-
Norway	1970	20.0	20.0	23.0	25.0	8.0/14.0
Spain	1986	-	12.0	16.0	16.0	4.0/7.0
Sweden	1969	23.5	23.5	25.0	25.0	6.0/12.0
Turkey	1985	-	10.0	17.0	18.0	1.0/8.0
UK	1973	15.0	15.0	17.5	15.0	5.0

Value Added Tax: Three Basic Types

1. Addition Method (not currently used, previously used by **Michigan**)
 - Sum of the individual components that comprise value added
 - Profits + Depreciation + Wages + Interest - Investment
 - Any payments to the factors of production (labor, capital, land)
2. Subtraction Method (used only by Japan)
 - Equal to **Sales less Purchases** from other business
 - Implemented on an annual basis (not transactions)
 - Also known as a Business Transfer Tax (BTT)
 - Although simple, has many weaknesses
3. Credit Invoice (used by all other countries)
 - Same tax base: Sales less cost of inputs from other business
 - Implemented on a transaction basis (in theory)

Value Added Tax: Wage Tax + Wealth Tax

- A VAT is equivalent to a flat-rate tax on labor income tax + flat-rate tax on existing wealth.
 - During lifetime, Present Value of current + future consumption = Present Value current and future labor income + value of current wealth
 - $PVC = PVL + W$
 - Budget constraint: $(1+t) PVC = PVL + W$ (assume flat rate)
 - PV of consumption plus taxes = present value of resources
 - True for all consumption taxes
- But what about bequests, gifts and inheritances?
- Then we simply expand this budget constraint beyond the individual and include multiple generations. Must still hold.

Additional Method VAT: Michigan's VAT

Exhibit 10

Components of the Michigan Tax Base, 1994-95 (billions of dollars)

<u>Business Sector</u>	<u>Labor Comp</u>	<u>Federal Business Income</u>	<u>Depreciation, Interest Paid and Other</u>	<u>Misc Subtractions</u>	<u>Michigan Tax Base</u>	<u>Share of Total</u>
Agriculture	0.4	0.1	0.1	0.0	0.6	0.4%
Mining	0.5	-0.2	0.4	-0.1	0.6	0.4%
Construction	4.7	0.5	0.7	-0.1	5.8	4.1%
Manufacturing	43.8	5.8	17.9	-5.9	61.5	43.0%
Transportation	2.2	0.0	1.0	-0.1	3.1	2.1%
Comm. and Utilities	4.1	1.8	4.0	-0.4	9.5	6.6%
Wholesale Trade	3.8	0.6	1.2	-0.2	5.4	3.8%
Retail Trade	14.4	1.1	3.4	-0.6	18.4	12.9%
Fin., Ins. and Real Est.	5.0	3.5	5.6	-2.6	11.4	8.0%
Services	19.3	2.3	5.7	-1.6	25.6	17.9%
Not Else. Class./Misc.	0.4	-0.1	1.3	-0.4	1.1	0.8%
Unclassified	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.1</u>	<u>0.1%</u>
TOTAL	98.5	15.3	41.3	-12.0	143.0	100.0%
Share of Tax Base	68.8%	10.7%	28.9%	-8.4%	100.0%	

Michigan VAT Experience: Take-Aways

- From the perspective of firms, the addition method VAT looked like a tax on profits plus wages.
 - In no way does it appear equivalent to a retail sales tax.
 - Perception is that firms bear the tax incidence.
- Should Michigan have used a “subtraction method” VAT?
 - Used addition method so (1) computation could start with Federal profits and (2) tax base was transparent.
 - Less resistance if tax base = Sales - Purchases from Other Firms?
- Tax was rife with special exemptions and computations.
 - Small business credit, utility credit, special reductions if tax liability exceeded a certain percentage of gross receipts or labor compensation.
 - Appears to penalize labor intensive firms and low margin firms.
 - Point: Comparing our current income tax system to an idealized consumption tax system is misleading.
It won't happen.

Subtraction Method VAT Issues

- Although simple, Subtraction Method VAT does not accommodate multiple rates easily
 - Can use invoices to show proof of sales and purchases, but not proof of VAT paid on inputs.
 - Assume a manufacturer, wholesaler and retailer and two VAT rates, 5% on machines and 10% on cars, and they share similar parts.
 - Under credit invoice, it is not necessary to determine what the final product is and the relevant rate. Could charge either rate.
 - The retailer then charges appropriate VAT rate on final sale and computes difference with VAT paid to wholesaler.
 - There is a “true-up” process.
 - Under subtraction method, no way to vary the rate at early stages based on sale of final product. No true-up.

Credit-Method Value Added Tax

- Credit-Method VAT is the most commonly used tax on consumption
 - Levied by approximately 150 countries worldwide, including all 25 members of the European Union (“EU”)
- Credit-Method VAT has administrative and political advantages over other indirect consumption taxes, such as the BTT and NRST
 - Requires firms maintain detailed **records that are cross indexed** with supporting documentation. A VAT shown on the sales invoice of one firm is the same as the VAT shown on the purchase order of another firm. Hence, the credit invoice method allows tax auditors to cross check the records of firms.
 - Each firm has a vested interest in insuring that Purchase and VAT amounts shown on invoice **is not understated** so the firm can receive full credit against VAT liability for VAT previously paid.
 - This is the self-enforcing mechanism.

Indirect Consumption Taxes: A Comparison

(slides are borrowed from McLures presentation to 2005 Tax Panel)

(Tax Rate = 10%)

Economic activity	Farmer	Miller	Baker	Total
Basic transactions (excludes tax pushed forward)				
1. Sales	\$ 300	\$ 700	\$ 1,000	
2. Purchases	\$ 0	\$ 300	\$ 700	
3. Value added (sales-purchases)	\$ 300	\$ 400	\$ 300	\$ 1,000
Subtraction-Method Business Transfer Tax (BTT)				
4. Business Transfer Tax (10% of line 3)	\$ 30	\$ 40	\$ 30	\$ 100
Credit-Method VAT (VAT)				
5. Tax on sales (10% of line 1)	\$ 30	\$ 70	\$ 100	
6. Less: input tax on purchases	\$ 0	\$ 30	\$ 70	
7. Net VAT liability	\$ 30	\$ 40	\$ 30	\$ 100
Retail Sales Tax (RST)				
8. Retail Sales Tax	Exempt	Exempt	\$ 100	\$ 100

Indirect Consumption Taxes: A Comparison

(slides are borrowed from McLures presentation to 2005 Tax Panel)

(Tax Rate = 10%)

Economic activity	Farmer	Miller	Baker	Total
Basic transactions (excludes tax pushed forward)				
1. Sales	\$ 300	\$ 700	\$1,000	
2. Purchases	\$ 0	\$ 300	\$ 700	
3. Value added (sales - purchases)	\$ 300	\$ 400	\$ 300	\$1,000
Subtraction-Method Business Transfer Tax (BTT)				
4. Business Transfer Tax	\$ 30	\$ 40	\$ 30	\$100
Credit-Method VAT (VAT)				
5. Tax on sales	\$ 30	\$ 70	\$ 100	
6. Less: input tax on purchases	\$ 0	\$ 30	\$ 70	
7. Net VAT liability	\$ 30	\$ 40	\$ 30	\$100
Retail Sales Tax (RST)				
8. Retail Sales Tax	Exempt	Exempt	\$100	\$100

- In their pure forms, BTT, VAT, and RST have identical effect: taxation of consumption
- Under VAT, invoices showing tax paid must support all input credits claimed, VAT tracked separately
- Firm remitting tax to gov't indifferent since they collect from next in line. Simply a collection agent.
- If tax underreported or not reported, next firm does not get credit and will have to make up difference
- Under BTT and VAT much of tax is collected before the last stage
- Under RST, tax collector gets only "one bite at the apple," at the last stage, compliance issues

Is a Value Added Tax Progressive?

- Because it includes a lump sum tax on existing wealth, VAT is more progressive than typically perceived.
- What is the proper base against which to measure the progressivity of alternative tax structures?
 - Annual income? Lifetime Income? Consumption?
- If it is Present Value of Resources (PVR), then VAT is actually more progressive than income tax.
- Income tax would appear regressive.
 - Individuals would face income tax, but no tax on their initial wealth.
- Elderly would bear a disproportionate burden since they hold most of accumulated assets.
- NOTE: lump sum tax on wealth only efficient if all believe it will not re-occur

VAT Exemptions and Special Rates

- In order to alleviate regressivity, many countries **exempt** or “**zero rate**” certain industries and/or goods-services
 - Exemption
 - Generally used when it is not desirable to tax activity but some tax on final consumption is warranted.
 - Might target a particular industry.
 - e.g., Exempt certain firms, such as small firms
 - No need to register or file a return if exempted from VAT
 - Zero-rating
 - Desirable when the objective is to exclude the consumption of the product *completely* from tax (exports).
 - E.g. Zero-rate medical supplies.
 - Need to register and file return

VAT Exemptions and Special Rates

- Reasons for preferences
 - VAT difficult to collect because some sellers could easily avoid reporting, such as expenditures for domestic services.
 - Equity basis, reduce burden on lower-income taxpayers
 - Merit goods, goods that society wishes to encourage

Credit-Method VAT: Exempting and Zero-Rating of Final Stage

(Tax Rate = 10%)

Economic activity	Farmer	Miller	Baker	Total
Basic transactions (excludes tax pushed forward)				
1. Sales	\$ 300	\$ 700	\$ 1,000	
2. Purchases	\$ 0	\$ 300	\$ 700	
3. Value added (sales – purchases)	\$ 300	\$ 400	\$ 300	\$ 1,000
Exemption of Last Stage (Baker)				
4. Tax on sales (10% of line 1)	\$ 30	\$ 70	Exempt	
5. Less: input tax on purchases	\$ 0	\$ 30	\$ 0	
6. Net VAT liability	\$ 30	\$ 40	\$ 0	\$ 70
Zero-Rating of Last Stage				
7. Tax on sales (10% of line 1)	\$ 30	\$ 70	\$ 0	
8. Less: input tax on purchases	\$ 0	\$ 30	\$ 70	
9. Net VAT liability	\$ 30	\$ 40	-\$ 70	\$ 0

- Input credits are allowed for zero-rated sales, but not for exempt sales
- Exemption of last stage eliminates tax only on value added at that stage
- Zero-rating of last stage eliminates tax on entire value of sales at all stages through credits at last stage
- Zero-rating is common for exports
- Note that firm merely recoups tax embedded in price

Credit-Method VAT: Exempting and Zero-Rating of Intermediate Stage

(Tax Rate = 10%)

Economic activity	Farmer	Miller	Baker	Total
Basic transactions (excludes tax pushed forward)				
1. Sales	\$ 300	\$ 700	\$ 1,000	
2. Purchases	\$ 0	\$ 300	\$ 700	
3. Value added (sales – purchases)	\$ 300	\$ 400	\$ 300	\$ 1,000
Exemption of Intermediate Stage				
4. Tax on sales (10% of line 1)	\$ 30	Exempt	\$100	
5. Less: input tax on purchases	\$ 0	\$ 0	\$ 0	
6. Net VAT liability	\$ 30	\$ 0	\$ 100	\$ 130
Zero-Rating of Intermediate Stage				
7. Tax on sales (10% of line 1)	\$ 30	\$ 0	\$ 100	
8. Less: input tax on purchases	\$ 0	\$ 30	\$ 0	
9. Net VAT liability	\$ 30	-\$ 30	\$ 100	\$ 100

- Exemption of intermediate stage breaks chain of credits and **increases tax** (neither exempt seller nor customer is allowed input credit for VAT paid by exempt seller)
- Exemption creates “**cascading**” of tax, incentives for self-supply, and other economic distortions; zero-rating does not
- **Producers of intermediate stage goods and services do not want to be exempt; make VAT optional for small firms**
- Zero-rating of intermediate stage has **no effect** on ultimate tax liability

Effects of Exemption of Intermediate Stage under VAT and BTT

(Tax Rate = 10%)

Economic activity	Farmer	Miller	Baker	Total
1. Sales	\$ 300	\$ 700	\$ 1,000	
2. Purchases	\$ 0	\$ 300	\$ 700	
3. Value added (sales – purchases)	\$ 300	\$ 400	\$ 300	\$ 1,000
Subtraction-Method Business Transfer Tax (BTT)				
Business Transfer Tax (10% of value added in line 3)	\$ 30	Exempt	\$ 30	\$ 60
Credit-Method VAT				
Tax on sales (10% of line 1)	\$ 30	Exempt	\$100	
Less: input tax on purchases	\$ 0	\$ 0	\$ 0	
Net VAT liability	\$ 30	\$ 0	\$ 100	\$ 130

- Subtraction-Method VAT / BTT: exemption of intermediate stage reduces tax

- politically vulnerable to requests for exemptions

Credit-Method VAT: exemption of intermediate stage increases tax

- much less vulnerable: intermediate stages do not want to be exempt

Choosing between Exemption and Zero-rating

- Exports: only zero-rating eliminates tax at pre-export stages
 - All exports are zero-rated per GATT.
- Both have been used to reduce regressivity.
 - Multiple rates have also been used.
 - Neither is optimal. Significantly reduces efficiency.
 - Progressivity best accomplished through a simple income tax.
- Small business
 - Zero-rating does not eliminate administrative burden; exemption does
 - But exemption increases taxation, except if done at final stage
 - Make registration and normal treatment optional
 - Suggested small business thresholds typically range from \$50k to \$100k.
 - Could compute optimal business size threshold via a $MB = MC$ computation (benefit is efficiency of tax, cost if admin burden on firms).

Credit-Method VAT: Neutrality

- Ignoring timing issues, businesses are immediately reimbursed for the tax paid on purchases.
 - They simply credit it against the tax on sales.
- No net tax collected on transactions between registered businesses.
 - One remits tax to gov't, the other gets a credit.
- Net tax liability triggered only at the end of the chain, when the consumer pays the full tax to the retailer.
 - The tax was simply pushed forward into the price along the chain.
 - Firms remit the taxes in proportion to their value added embedded in the final product.

Basic Transactions (excludes 10% VAT)

<u>Chain</u>	<u>Purchases</u>	<u>Sales</u>
Producer	0	400
Manufacturer	400	1200
Wholesaler	1200	1400
Retailer	1400	2000
Consumer	2000	

10% VAT Payments to Suppliers and by Buyer

<u>Chain</u>	<u>VAT Paid to Supplier</u>	<u>VAT Paid by Buyer</u>
Producer	0	40
Manufacturer	40	120
Wholesaler	120	140
Retailer	140	200
Consumer	200	

Fractional Collection of VAT Paid by Consumer

<u>Chain</u>	<u>Tax Paid to Supplier</u>	<u>Tax Paid to Gov't</u>
Consumer	200	
Retailer	140	60
Wholesaler	120	20
Manufacturer	40	80
Producer		40

Credit-Method VAT: Neutrality

- Properly designed VAT will not distort business decisions. Ignoring timing issues, it is not a “real” cost to businesses.
 - They are simply collection agents for the gov’t.
- In practice, firms do not compute the value added for each and every transaction and then apply tax.
- On a bi-weekly or monthly basis, they apply the VAT rate to Total Sales, then deduct VAT amounts already paid (the credit) based on invoices received from other businesses during that time.
 - Hence there are timing issues. Many firms get a “float.”
- For any given payment period, firms might have a negative tax liability (purchases exceed sales), and therefore are due a refund
 - e.g., start up firms that are building inventories).
 - This is the big compliance problem with the credit-method VAT.

Credit-Method VAT: Neutrality

- The effective rate of tax is the same regardless of
 - Number of stages of production before reaching final consumer.
 - When value is added in the production process.
 - The nature of the production process: capital or labor intensive.
 - Corporate and non-corporate forms.
 - Domestic vs. foreign made goods.

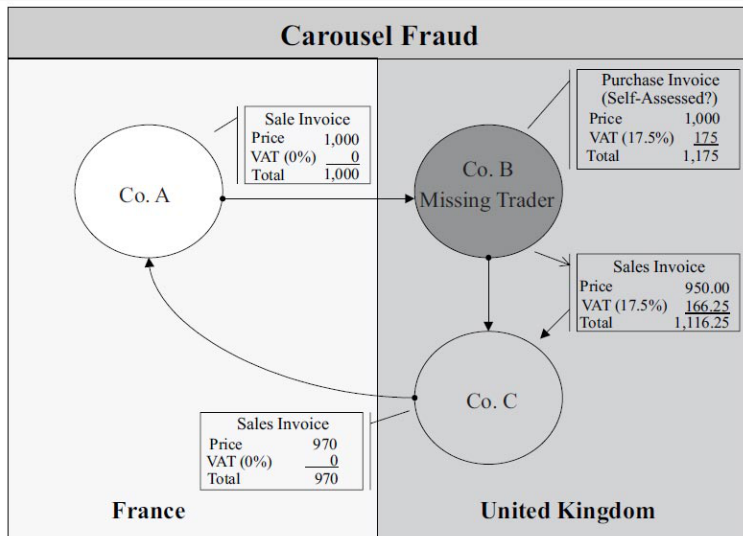
Value Added Taxes: Evasion

- Limited research on VAT compliance and broad ranges:
 - Agha and Haughton (1996) find the following non-compliance rates for selected countries:
 - Belgium (8%), France (3%), Italy (40%), Netherlands (16%)
 - UK does only true formal analysis, estimates tax gap of 12%-16%
 - Other European gov't's do not publish studies, but informal estimates are 10% or less
- Overall compliance rates for VATs are somewhat better than income taxes:
 - Rules are less complicated
 - Credit invoice VAT creates paper trail, self reinforcing
 - Auditors can compare information from VAT invoices to income tax returns, could increase compliance for both
 - Non-compliant firms only remove a portion of the revenue stream associated with a final sale

Value Added Taxes: Evasion

- Businesses that sell products that are zero rated or receive preferential rates may mischaracterize some of their sales (grocery stores)
- Firm simply underreports sales (used by retailers since they are at the “end of the line,” tax is pocketed)
- Firm collects VAT and disappears (missing trader)
- Carousel Fraud - EU problem since VAT on imports should be self-assessed. No trade borders where duties are assessed.
- **Fraudulent refund claims are a BIG issue.**
 - In Canada, 50% of gross VAT revenues are paid out as refunds. For UK, it is 41%. In theory, there is no limit to fraudulent refunds that might be paid.
 - Similar to corporate income taxes if we fully and immediately refunded all tax losses. Potentially, no limit to fraud. But by forcing firms to use losses to offset past or future profits, there is a ceiling to fraud.

VAT: Carousel Fraud



VATs and State Autonomy

- Would a VAT encroach on state tax autonomy over their sales tax? Would they be forced to conform to the national VAT base?
 - Sales taxes comprise roughly one-third of state tax collections.
- States could piggy-back on a federal VAT.
 - VAT base would likely be broader than sales tax base, hence a lower rate could be charged. VAT would most likely cover most services, whereas most state retail sales taxes do not.
 - Could potentially allow states to tax both Internet and mail-order sales (a big deal).
- Would states relinquish their autonomy?
 - In 1972, legislation allows states to have the federal gov't collect their income tax without any cost to state. No state accepts offer.
 - States do not want to relinquish autonomy. Decreases power of state legislature.
 - Canadian experience suggests that harmonization of state and federal systems could take many years, and might not occur.

Would the VAT be a “Money Machine”?

- This was a strong concern of the 2005 tax panel. Certain members thought that VATs lend themselves to bigger government.
 - Small increase in rate generates significant revenues.
 - Gale and Steuerle (Brookings Institute, 2005) find that a broad VAT would generate 0.4% of GDP for each percentage point of tax rate. 2008 GDP is \$14.4 trillion, so that a 1% VAT might generate roughly \$60 billion.
 - VAT might be hidden or embedded in final price of good unless retailers are made to itemize it separately.
 - Even if itemized, taxpayers might have less intuition about the amount they pay in federal taxes during the year.
- Studies mixed, but most suggest no. Difficult to establish direction of causality between tax structure and size of government.

Getting there: Morphing the Corporate Income Tax

- The corporate income tax can be easily modified to change it into a consumption tax that is levied at the business level and then to a VAT.
- Step 1: Convert to a “Cash Flow” Tax.
 - Tax base is actual cash flows. Ignore any financial transactions such as capital gains or dividends. Disallow interest deduction.
 - Allow expensing of investment. Firms do not need to track inventories since we base on actual cash spent or received.
 - Levy on all firms regardless of type of entity. Note again that profits that exceed the “return to waiting” are taxed at business level.
- Step 2: Convert to a VAT.
 - Disallow deductions for any payments to labor.
 - Special considerations for financial entities. May require a separate system.
 - Establish invoice system for business to business purchases.

Equivalent Tax Bases

- As noted, the various consumption taxes all have the same economic effects and incidence:
 - VAT = sum of value added by businesses, sales less any purchases from another business
 - Consumed Income Tax = personal income less savings
 - Retail Sales Tax = all final sales to consumers
 - Flat Tax = subtraction method VAT + wage tax
- However, significant differences in how they are administered, administrative and compliance burdens.

VATs: Tax on Wages + Wealth (Again)

- Recall the following identity (ignore gov't and foreign):
 - $Y = C + I = C + S = W + R$
 - $Y =$ total income, $W =$ wages, $R =$ all capital income, $C =$ consumption and $S =$ savings.
- So, $C = Y - S = W + R - I$
 - These are the three consumption tax bases: NRST, Consumed Income Tax and VAT
 - “Business Cash Flow” = $R - I$.
 - If NO economic rents or inframarginal returns (returns $>$ “normal rate”), then $R = I$.
- We can also interpret I as the PV of services rendered by new assets discounted by the normal return.
 - Under a new consumption tax, the new tax is “capitalized” in the form of lower values of old assets suffered by owners.

VAT Pros:

- Efficiency
 - Broad Base
 - No intermediate goods taxed
 - Achievable under VAT. RST has difficulty reaching services performed by small businesses (no links or chain).
 - Lower rates can result from broader base
- Destination principle
 - Exports free of tax, imports face tax
 - VATs much better equipped for border tax adjustments.
 - This is required by GATT.
 - All tax is removed (through a refund, they are zero-rated) prior to export.
 - Credit Method best here:
 - BTTs do not have paper trail. Cannot establish tax embedded in price.
 - Addition method VAT, flat tax and consumed income tax all levied on “origin” basis. Not able to make border tax adjustments.
- Administration and Compliance
 - Overlap with existing income tax system.
 - Multiple collection points reduces tension.
 - Self-reinforcing. Audit trail

VAT Cons:

- Equity
 - Can't take personal circumstances into account (true for all indirect cons taxes)
 - Exemptions and zero-rating are a poor way to handle equity concerns
- Administration and Compliance
 - Compliance rates (even with Credit Method VAT) still don't appear to be much better than with income tax

Consumption Tax Prototypes

1. Consumed Income Tax
2. Value Added Tax
3. **Flat Tax**
4. X Tax
5. National Retail Sales Tax

The Hall-Rabushka “Flat Tax” System

- This particular flat tax system designed by economists Robert Hall and Alvin Rabushka.
- Idea: move from current system to more of a consumption tax base, while retaining progressively
- Revenue neutral reform

Flat Tax: Mechanics

- Businesses:
 - A subtraction method VAT (Sales less purchases from other businesses (full deduction for investment)), but firm also deducts labor costs (wages and pensions)
 - These will be taxed at individual level - don't want double tax
 - NOTE: interest paid is included in the base. No deduction for borrowing.
 - But, all interest payments to businesses or individuals are exempt.
 - Flat rate
- Individual
 - Tax on wages
 - No tax on interest, dividends, capital gains
 - This is a "pre-payment" method (no need for tax-exempt savings acts)
 - Keep payroll taxes
- Both businesses and individuals face the same rates (19%).
- It looks like an income tax, but is really a consumption tax.

Goals of the flat tax:

- Administrative advantages of a VAT
- Can address progressivity through personal exemptions to the wage tax
- Simple for individual filers to calculate tax
 - Can do it “on a postcard”

Incorporating Progressivity in the Flat Tax

- Large personal exemptions can make the tax progressive
 - \$41,000 for family of four in 2005 (see Hall presentation).
 - At \$50k, ATR = 3.6%; \$100k = 11.8%; \$200k = 16%; \$500k = 18.4%
 - By comparison, current income tax personal exemption plus standard deductions approximately \$26,000 (but higher for itemizers).
- European countries use multiple rates to make VAT progressive
 - Much more complicated
 - Invites abuse and non-compliance.
 - Canada computes a “rebate” so that family below poverty level essentially pays no VAT, but this also invites fraud.
- The Flat Tax method maintains the simplicity of a single rate.
- An offset for consumption tax paid on essentials could be built via higher personal exemptions.
 - No need to file for rebate, it simply offsets wage tax. Firms withhold less wage tax.
 - Might need to make refundable. That is, if tax is negative, taxpayer is due a refund.

Distribution of Consumption By Income Percentile, 2010¹

Income Class ²	Tax Units (thousands)	Average Income	Consumption as a Share of Income (Percent)
Lowest Quintile	35,426	13,252	163.2
Second Quintile	35,207	33,224	112.3
Middle Quintile	31,997	61,044	93.0
Fourth Quintile	26,526	104,869	81.8
Top Quintile	23,513	291,784	54.3
All	153,472	86,077	75.1
Addendum			
80-90	12,000	164,999	76.8
90-95	5,652	225,553	68.9
95-99	4,671	367,429	54.4
Top 1 Percent	1,190	1,592,930	20.8
Top 0.1 Percent	120	7,173,593	9.1

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0509-3).

(1) Calendar year. Assumes current law.

A Flat Tax Example

Activity	Farmer	Miller	Baker	Total
1. Sales	\$300	\$700	\$1000	
2. Purchases	\$0	\$300	\$700	
3. Labor	\$0	\$200	\$300	
4. Value added	\$300	\$400	\$300	\$1000
10% tax				
Business Tax	\$30	\$20	\$0	\$50
Individual Tax	\$0	\$20	\$30	\$50
Total Flat Tax	\$30	\$40	\$30	\$100

Flat Tax: Individual Tax Form

Form 1		Individual Wage Tax		2004
Your first name and initial (if joint return, also give spouse's name and initial)		Last name		Your social security number
Present home address (number and street including apartment number or rural route)		Spouse's social security number		
City, town, or post office, state, and ZIP code		Your occupation		
		Spouse's occupation		
1	Wages and salary.....	1		
2	Pension and retirement benefits.....	2		
3	Total compensation (<i>line 1 plus line 2</i>).....	3		
4	Personal allowance			
	(a) <input type="checkbox"/> \$27,000 for married filing jointly.....	4(a)		
	(b) <input type="checkbox"/> \$14,000 for single.....	4(b)		
	(c) <input type="checkbox"/> \$24,000 for single head of household.....	4(c)		
5	Number of dependents, not including spouse.....	5		
6	Personal allowances for dependents (<i>line 5 multiplied by \$7,000</i>).....	6		
7	Total personal allowances (<i>line 4 plus line 6</i>).....	7		
8	Taxable compensation (<i>line 3 less line 7, if positive; otherwise zero</i>).....	8		
9	Tax (<i>19% of line 8</i>).....	9		
10	Tax withheld by employer.....	10		
11	Tax due (<i>line 9 less line 10, if positive</i>).....	11		
12	Refund due (<i>line 10 less line 9, if positive</i>).....	12		

Flat Tax: Business Tax Form

Form 2		Business Tax		2004	
Business name			Employer identification number		
Street address			County		
City, state, and ZIP code			Principal product		
1	Gross revenue from sales.....	1			
2	Allowable costs				
	(a) Purchases of goods, services, and materials.....	2(a)	-----		
	(b) Wages, salaries, and pensions.....	2(b)	-----		
	(c) Purchases of capital equipment, structures, and land.....	2(c)	-----		
3	Total allowable costs (<i>sum of lines 2(a), 2(b), 2(c)</i>).....	3			
4	Taxable income (<i>line 1 less line 3</i>).....	4			
5	Tax (<i>19% of line 4</i>).....	5			
6	Carry-forward from 2003.....	6			
7	Interest on carry-forward (<i>3% of line 6</i>).....	7			
8	Carry-forward into 2004 (<i>line 6 plus line 7</i>).....	8	-----		
9	Tax due (<i>line 5 less line 8, if positive</i>).....	9			
10	Carry-forward to 2005 (<i>line 8 less line 9, if positive</i>).....	10			

Taxing Savings and Investment

- Have established for the individual, business, and gov't:
 - Pre-pay method = Post-pay method for consumption tax
- Under the Flat Tax, which is a “two-tiered” VAT, which systems should we use at the business and individual levels?
Does it matter?

Flat Tax Characteristics

- This tax is really a two-tiered VAT.
 - The “business tax” applies to all forms of business.
 - The “business tax” is used to tax above normal returns.
 - These could just as easily be collected at the individual level - administratively easier to collect at business level.
 - Plus, the optics look better.
- It combines the administrative advantages of a VAT while trying to address regressivity concerns of a consumption tax.
- It is called a “business cash flow tax” and uses the “post-payment” method at the business level.
 - Expensing of investment by firms.
 - The “normal” return is exempt. But, “above normal” returns are taxed at business level. But they are taxed only once.
 - If depreciation was used instead of expensing, we basically have the CBIT system. (That would be an “income” type VAT.)

Flat Tax: The Business Tax "Washes Out"

Tax	20%							
Return	100%	many years in future, assume this is a "normal" return						
Inflation	0%							
				<u>What happens on the business side?</u>				
	Flat Tax (20%)			uses loan to buy a \$100 machine				
	<u>Buyer</u>	<u>Lender</u>		gets \$80 from Lender				
Wages	100	100		gets \$20 from tax savings from deduction				
Flat Tax	20	20		post-payment method for business				
Residual	80	80		makes 100% return				
Consume Now	80	0		yields \$200 income				
Lends	0	80		pays \$40 tax at business level				
Interest	0	80		pays lender \$80 principle and \$80 interest				
Loan Returned	0	160		firm pays \$40 "business tax"				
Tax on Interest	0	0		looks like an income tax from individual side				
Consump Tax	0	0		lender taxed on wages but does not consume				
Consume Later	0	160		this is the "pre-pay" method for individuals				

Flat Tax: The Business Tax "Washes Out" Part 2

Tax	20%								
Return	100%	many years in future, assume this is a "normal" return							
Inflation	0%								
				<u>What happens on the business side?</u>					
	Flat Tax (20%)			uses loan to buy a \$100 machine					
	<u>Buyer</u>	<u>Lender</u>		gets \$100 from Lender					
Wages	100	100		gets no deduction for investment, but no					
Flat Tax	20	0		tax on returns					
Residual	80	100		pre-payment method for business					
Consume Now	80	0		makes 100% return, yields \$200 income					
Lends	0	100		no "explicit" tax at business level					
Interest	0	100		pays lender \$100 principle and \$100 interest					
Loan Returned	0	200		now it looks like a Consumed Income Tax					
Tax on Interest	0	0		lender not taxed on initial savings but taxed					
Cons. Tax	0	40		later when funds pulled out (dissaving)					
Consume Later	0	160		post-payment method on individual side					

Flat Tax: Tax at Business Level Has No Effect

- The outcomes and tax paid are the same
 - In both cases, \$160 is consumed in P2 by individual and business invests \$100
 - Individual pays \$20 (P1) OR \$40 (P2) in tax, PDV is the same
 - Business pays -\$20 (P1) + \$40 (P2) OR \$0 in tax, PDV is the same
- The NPV of the business tax is \$0 in both cases.
 - BUT, if any above-normal returns, then the business tax NPV > 0 and those returns are taxed at their source.
- Also, does not matter what the business tax rate is.

Flat Tax: Business Level Tax Has No Effect

- Lender would consume SAME amount (\$160) regardless of the tax rate on the business: 0%, 25% or 50%.
- For example, assume the business tax rate was 50%, but still 20% on wages.
 - Lender loans \$80 after-tax, but now business could afford to invest more in the project, and purchase a \$160 machine
 - \$80 comes from lender and $(\$160 * 50\%) = \80 of tax savings from immediate deduction of machine
 - This is the crucial “scaling up” assumption
 - Business makes 100% return or \$320 income and pays \$160 tax and \$160 to investor (who already remitted tax)
 - Business just offsets tax through higher investment. Left in the same position, \$160 to the investor (Domar-Musgrave paper)
 - Firm is maximizing the investment possibilities made available
 - Gov't is a “silent partner”. Provides financing through the tax savings from deduction.

Flat Tax: Tax at Business Level Has No Effect

- Under certain assumptions, pre-pay = post-pay method.
 1. Tax rates do not change over time.
 2. Firm takes all tax savings from post-pay method and invests for same rate of return as the underlying investment.
 - The “Cary Brown Theorem” (See Avi-Yonah paper).
 - The scaling-up assumption
- Could be reasonable for things such as marginal investment projects (i.e., a normal return).
 - But, what if the underlying investment is a unique business opportunity with unusually high returns? Can it be reproduced?
 - Then, equivalence of two methods does not hold.
 - It will then matter what system is used and who it is applied to.

Flat Tax: Tax at Business Level Has No Effect

- But all we need to assume is that the firm would offset the higher tax rate to leave themselves in same position (pay out \$160).
 - Need only take advantage of the “free financing” provided up front by gov't by the tax savings from the immediate deduction.
- Assumes Government is a “full partner” in the investment.
 - Gets an $t\%$ cut if profitable, but refunds $t\%$ if a loss.
 - But, recall that we do not give full refunds on tax losses.

Flat Tax and Supra-normal Returns

- Supra-normal returns taxed if use post-payment method for **either** business or individual filers
 - Recall that normal returns not taxed under either pre or post-pay method
- Prefer post-pay for businesses
 - No need to track depreciation
- If both pre-pay (no deduct savings by indiv, not expensing of invest by biz), supra-normal returns not taxed
- If both post-pay (deduct savings by indiv, expense biz invest), supra-normal returns double taxed
 - NOTE: Normal returns still not taxed
- Pre-pay on individual side may allow some above normal returns to escape tax
 - Some returns don't "pass through" a business that must file
 - e.g., Instagram: An tech startup that doesn't generate any revenue, but the idea sells for a big capital gain

Flat Tax: Really Three Separate Taxes

- In theory, consumption taxes are a tax on labor + lump sum tax on existing wealth.
 - All current and future consumption must come from (1) current and future wages or (2) existing wealth/capital.
 - Budget constraint: $(1+t)PVC = PVL + W$ (assume flat rate)
 - PV of consumption plus taxes = present value of resources
- In practice, the Flat Tax is really three separate taxes:
 - A tax on wages at individual level.
 - A tax on “above normal” returns at business level.
 - A one-time “lump sum” tax on all existing wealth.
- Prices embedded in W should all reflect normal expected returns. For example: stocks, bonds, houses.
 - But in practice, many returns $>$ normal (and some below). If expectations are incorrect and some returns $>$ normal, then consumption is higher and some W escapes taxation.

Flat Tax: Miscellaneous Details

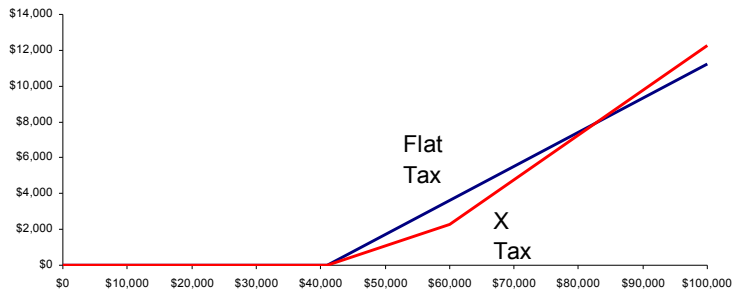
- Financial transactions are generally ignored.
 - Interest is not deductible or includable (includes mortgage interest deduction).
- Businesses DO NOT deduct other fringe benefits paid to employees such as health insurance or the employer's share of Social Security.
 - Taxed at business level, untaxed when received.
- Businesses continue to withhold wage tax.
- Loss firms must carry losses forward (but not back).
 - However, interest is paid on unused balance to maintain real values.
 - But interest at a very low rate.
 - Recall, refunds are a big problem in VAT countries. Much fraud.
 - Now we deduct wages too. Even more firms in a "loss" position.

Tweaking the Flat Tax: The X Tax

- Same as Flat Tax, except:
 - Individuals face a progressive tax on wage compensation.
 - The top marginal rate is equal to the single business rate.
 - This reduces incentives to recharacterize income by the wealthy.
 - No detail on exact rate structure, would be determined by revenue needs and what income tax preferences (EITC, charitable giving) are retained
- Again, the business tax is a cash-flow tax (post-payment, uses expensing) while the individual component uses the pre-payment approach (no deduction for savings but interest and gains ignored)

Comparison by Robert Hall

Tax



Earnings

Summary: Flat Tax and X Tax Pros

- No bias against savings and investment
- No corporate vs. non-corporate distinction
- Debt financing not favored over equity financing
- Provides a uniform treatment of investment
- All investment is expensed and faces same effective tax rate
 - All forms of “income” are taxed once: capital gains, dividends, corporate profits, wages, health benefits
- Low marginal rates (19% revenue neutral according to Hall)
 - Likely reduces evasion and DWL

Summary: Flat Tax X Tax Pros

Real Benefits: Much simplification

- Integration: no corporate income tax.
- Business cash flow tax much simpler, no depreciation, no tracking inventories.
- No capital gains taxes, estate or gift.
- All financial transactions exempt from tax and need not be tracked or reported.
- Taxing business income at the source avoids more than a billion Form 1099s and reduces IRS cost.
 - This is information reporting on things such as capital gains, dividends, interest, independent contractors, miscellaneous payments for services > \$600 by businesses to other businesses
- Simplifies saving choices. Eliminates the myriad tax-preferred savings vehicles.

Summary: Flat Tax X-Tax Cons

- Real distributional concerns:
 - Middle and upper middle class tax burden goes up, very wealthiest down.
 - The elimination of the “double tax” makes system less progressive.
 - Progressive on low end only. Not at very upper end.
- May have WTO problems and other problems
 - It is a direct tax, not an indirect tax like a VAT, cannot be “border adjusted”
- Difficult issues with banks and other financial institutions
 - Hard to tax under consumption tax system.
- Politics: No special preferences
 - No deduction for charity, mortgage interest, state-local, child credits, health benefits.

National Retail Sales Tax

National Retail Sales Tax

- Due to many issues, an NRST is not considered to be a viable replacement tax or even an add-on tax system.
- Credit-invoice VAT approach is clearly superior.
- FairTax.org makes presentation to 2005 Tax Panel.
 - Claims 23% NRST can replace ALL taxes, income, payroll, excise, estate.
 - Then the rebuttal.
 - States: heading towards a VAT-NRST hybrid?

FairTax.org strongly advocates enactment of the FairTax Plan:

- Replaces all federal income, estate, and payroll taxes
- Provides a simple, transparent, progressive national retail sales tax system administered through existing state sales tax operations
- Generates sufficient revenue to replace, dollar for dollar, all federal income, estate and payroll taxes
- “Prebates” every family, ensuring no American pays any federal tax up to (and beyond) the poverty level

FairTax.org strongly advocates enactment of the FairTax Plan:

- Taxes all new goods and services once, with no exceptions, at **\$0.23** out of every dollar spent - a revenue neutral rate
- Eliminates repeated embedded taxes at research, production, distribution, and retail levels
- Prohibits federal dual taxation systems by repealing the 16th Amendment
- Uses a thorough research basis to provide this non-partisan, apolitical replacement

Collection of the FairTax: Impact on retailers (FairTax.org claims)

- Collect such taxes now in 46 jurisdictions.
- Enjoy an overnight termination of income/payroll related costs; compliance costs drop.
- Domestic suppliers experience similar reductions.
- Gives American consumers full paychecks, free from federal withholding, immediately.
- Strong economic growth and high employment lead to higher investment and higher consumption.
- Receive $\frac{1}{4}$ of one percent (25 bps) for collection.

States benefit from the FairTax (FairTax.org claims):

- Enjoy the huge benefits of higher nationwide economic growth estimated at about 10%.
- Get a national template addressing the goals of the Streamlined Sales Tax Project (internet sales, nexus issues).
- Should they conform to the FairTax base:
 - Significantly reduce current sales tax rates, and more
 - Enjoy higher compliance at lower costs
 - End revenue growth that lags their economies due to taxing only products
 - Access to prebate system
- Receive 25 bps.

“Why the Fair Tax Won’t Work”: Bruce Bartlett

(former DAS Tax Policy, now guest blogger at various sites such as *Fiscal Times* and *Capital Gains and Games*)

1. Collection by states doesn’t work

- Five states don’t levy sales tax
- States basically forced to adopt federal tax base or administration becomes very complicated
- State officials strongly opposed. View it as an intrusion.
- Would states really piggyback on federal base? Only a handful currently use federal definition of AGI.
- If federal gov’t gives up taxation of incomes, state officials express view that they would view income as a revenue source to tax more fully. Would they simply give up sales taxes and switch to income tax?

“Why the Fair Tax Wont Work”: Bruce Bartlett

2. True rate likely **much** higher than 23% due to noncompliance.

- FairTax assumes very little non-compliance.
- Some state studies: California (4%), Idaho (19.5%), Minnesota (10.6%)
- Who will audit? States do not have the resources. Already significant fraud at low state rates.

“Why the Fair Tax Wont Work”: Bruce Bartlett

3. Significant tax cascading. Some studies suggest that 20%-40% of local sales taxes are “paid” by businesses. Hence, certain goods have higher taxes embedded.
- Extremely difficult to redesign an RST system to exempt all business inputs without creating significant potential for tax evasion. Businesses may claim they will resell in order to get exemption. Claims must be monitored.
 - This possibility is eliminated by VAT since taxes paid by other businesses are recoverable.
 - Under RST, tax administrator must identify erroneous exemption claims. Under VAT, there is the self-enforcing mechanism.

“Why the Fair Tax Wont Work” (continued)

4. Much “pressure” at final stage when sold to consumers. It only takes a non-compliant retailer to lose all tax.
 - By comparison, would only lose part of the tax under a VAT.

“Why the Fair Tax Wont Work”: Bruce Bartlett

5. The 23% rate is misleading. It is a “tax inclusive” rate, not tax exclusive.
 - When we think of sales taxes, we think of “tax-exclusive” rates applied to purchase.
 - For example, you purchase \$100 good and tax is 30% you pay \$30. Tax is not embedded in price.
 - The FairTax 23% computation is really $\$30 / \130 , or a tax-inclusive rate. Tax is embedded.
 - That is the way we think about income taxes.
 - You make \$50,000 and tax rate is 10%, so tax is \$5,000 and is embedded in the base.
 - If we want to think of this like we normally think about sales taxes, the required tax rate increases to 30%.
 - Both ways can be technically correct, but it is not the way sales taxes are conceptualized.
 - Bartlett: only done to increase support for tax by lower rate.

“Why the Fair Tax Wont Work”: Bruce Bartlett

6. The 23% rate assumes that tax would apply to all federal, state and local gov't purchases.
 - All national level consumption tax such as VATs, countries generally exempt gov't purchases.
 - If they are not exempted, it simply drives up outlays.
 - But the outlay effects are ignored in the analysis.
 - State budgets take significant hit.

More Fair Tax rebuttal

- Other analysis suggests much higher rate.
 - Bill Gale (Brookings Institute, 2005) estimates a 31% tax-inclusive rate (improper, but makes comparable to FairTax computation) or a 44% tax-exclusive rate with no evasion or avoidance. This takes into account the increased spending by govts that will need to be recouped. With evasion and removal of state and local govt consumption, rate goes up to 39% and 65%
 - JCT (2000) estimates 36% tax inclusive rate (57% tax exclusive).
 - Treasury estimates 25% (34% tax exclusive) to replace only individual and corporate income taxes, leaving payroll, estate and gift taxes. (see Tax Panel Report 2005)

The Modified RST: A Hybrid VAT?

- Credit Invoice VAT superiority over an NRST is accepted.
 - Self-reinforcing: incentive for purchasing firm to ensure that selling firm pays its taxes. Basically a withholding system.
 - Creates paper trail that facilitates audit.
 - Invoice credit ensures that VAT not applied to business inputs.
 - Pressure in system is distributed. Not on final retailer.
 - Easy to levy on all goods and services.
 - Might bring small service providers into system, especially if an intermediary.
 - If small sellers operate illegally outside the system, at least tax is collected on their inputs.
 - Less political pressure for exemptions since firm loses ability to pass forward tax credits.
 - Easily removed from exports.

The Modified RST: A Hybrid VAT?

But NRST proponents claim a number of advantages:

- Many more transactions subject to VAT than NRST. More opportunity for fraud.
- Large proportion of retail sales made by large, compliant firms. Like VAT, problem is with small retailers.
- VAT really not self-reinforcing: firms can create false invoices. Could even be used to create refunds.
- US is familiar with RST. States have mechanism to collect.

The Modified RST: A Hybrid VAT?

States begin to adopt VAT attributes:

1. Divide all business inputs into two categories: single vs. dual use.
 - Single use are those that can only be used as business inputs, exempt.
 - For dual use (personal use), tax is collected and firms must file for rebate.
 - Fraudulent refunds must be made directly to tax authority. Previously declare only to the selling firm who has little incentive to enforce.
 - But, invites fraudulent claims.
2. Introduce system of withholding at the manufacturer and wholesaler level.
 - Retailers would receive a credit for tax already withheld.
 - Does not extend to providers of intermediate inputs.
 - Spreads out collection of RST. Not just the retail sector, which is the weak link, since many are small.
 - Economies of scale by collecting upstream at one large manufacturer or wholesaler.
 - No need for paperwork at intermediate stage.

Michigan Adopts Some VAT Practices

- Michigan converts single stage retail sales tax to a multi-stage tax by requiring the entire commercial chain to remit a portion of tax.
- Equal to Sales Tax Rate * Average Price Wholesale Gas * Gallons Sold.
 - So, a fixed amount depending on gallons purchased.
- Example. Assume 10 gallons sold by refiner, to distributor, to wholesaler, to retailer to a final consumer. Price = \$4.00
 - Each party in chain collects $0.06 * \$4 * 10 = \2.40 from next person in chain and remits.
 - Only refiner and retailers returns are filed with any net tax collected.
 - When retailer sells, then the tax is levied against the actual price. Retailer then compares tax actually collected to the taxes they paid to wholesaler and now claim as a credit.
 - Re-compute the average price of wholesale price every six months.

Illinois Uses a Pre-payment System Similar to VAT Concept

- Assume same supply chain as Michigan and same prices.
- The distributor pre-collects sales tax from retailer and remits: $10 * .06 = 60$ cents on monthly basis. Provides a return to Revenue Department and retailer.
- Retailer will collect $10 * \$4 * .0625 = \2.50 from consumer and claim a 60 cent credit for tax already paid.
- Attorney General: Fraud still “pervasive.” Tax not self-reinforcing.
 - Pre-payment amount is too small to deter fraud. Amounts to only 20% of final tax: 6 cents vs. $.0625 * \$4 = 25$ cents. Can still make 20 cents per gallon by cheating.
 - Depends on accuracy and honesty of distributor reporting. They also sell tax-exempt gasoline. Can still over-purchase those supplies and split proceeds with supplier (wholesaler).
- Typical profit margins for gas retailers are 2-6 cents per gallon. Incentive to understate sales could potentially increase profits by ten times.

Transition Issues in Switch to Consumption Tax

Transition Issues in Switch to Consumption Tax

- This is really a question of incidence: Who will be the winners and losers from the switch?
 1. Taxing “old capital” versus “new capital”
 2. Importance of price level changes
 3. Impact on interest rates
 4. Impact on asset prices
- Big incentive problems if the change is anticipated
- Additional technical questions with regard to stocks of assets at transition
 - Unrealized capital gains, undistributed corporate earnings, pension claims, unused tax credits, corporate loss carry-forwards, tax exempt bonds, etc

Transition to a Consumption Tax: Issues for a VAT or RST

- A significant concern regarding a switch from the current (direct) income tax to an indirect tax like a VAT or RST are **price changes**.
- Typically prices, and especially wages, are thought to be “sticky,” at least in a downward direction.
- Thus to cover the expense of the tax it is expected that price levels will increase by approximately the amount of the tax.
 - But note that this assumes that the Fed will “accommodate” the policy by increasing the money supply.
 - The tax is fully pushed forward to consumers.
 - But wages are not expected to decline.
 - Higher prices but no income taxes assume a wash.

Transition Example: VAT and Inventory for a Retail Store

- One day before the new system is announced, the owners purchase goods for \$10,000 from another business
- But they sell the goods after the 20% VAT is in place
 - Assume there is no price change for now
- While the full amount of receipts are taxed, there is no deduction for the \$10,000 in inventory since it occurred under the old system (old capital or old wealth)
- Thus there is a full \$2,000 tax on the asset, and not just a 20% tax on the difference between the sale and purchase, such as the goods they will compete against
- This is the one-time, unavoidable (lump sum) tax at the time of transition

Transition to a Consumption Tax:

Price changes from a VAT or RST: Inventory for a Retail Store

- In the case of the retail store, it is easy to see the impact of the price increase.
- They sell the goods after the 20% VAT is in place for \$12,500
- This price reflects a 25% price increase (the “tax exclusive” rate, 20% of \$12,500 is \$2,500)
- The VAT tax bill is \$2,500
- So there is now no tax on the inventory because the price of the goods go up by the full amount of tax
- But who did the tax move to?

Transition to a Consumption Tax:

Price changes from a VAT or RST: Inventory for a Retail Store (2)

- Assume that the inventory was bought with borrowed funds (but assume a zero interest rate for simplicity)
- Without price changes:
 - The store owner bears the tax and the lender bears no burden
- With price accommodation:
 - The store owner still has \$10,000 after the sale and paying tax to pay off the lender. Store owner bears no burden.
 - The lender receives the expected \$10,000 but the real value of those funds has been eroded (due to higher prices) so he bears the burden of the transition

Transition to a Consumption Tax: Summary

- Overall, the transition to a consumption tax causes a “tax” on wealth/assets held at the time of the change.
 - Do not get to claim remaining deductions, such as depreciation.
 - For example, pensions for elderly, savings accounts, purchasing power immediately declines if tax is passed forward in prices.
- If there is no price level change then the tax falls on the holder of the assets (inventories, buildings, equipment)
 - The stock market would fall
 - Could bankrupt highly leveraged firms (interest not deductible)
- If prices increase to accommodate the tax, then the burden is shared by debt (borrowers) and equity (lenders) and savers
 - The stock market doesn't fall in nominal terms but the real value falls due to inflation
 - Lenders are paid back with funds that are worth less due to price increase
 - Real value of savings fall, able to purchase less

Simulating Fundamental Tax Reform in the U.S. by Altig et al (1999)

- This is the seminal paper on this topic
- Looks at 5 alternatives
 1. Proportional income tax (single rate to all labor and capital income, no exemptions or deductions)
 2. Proportional consumption tax (i.e., same but allow expensing, e.g., VAT)
 3. Flat tax (now pass through wages to households and allow a standard deduction)
 4. Flat tax with transition relief
 5. X tax (multiple rates)
- Uses an overlapping generations model that also has cohorts within generations

Simulating Fundamental Tax Reform in the U.S. by Altig et al (2)

Conclusions

- Proportional consumption tax can increase economic output (GDP) significantly (9%) in the long run (> ten years).
 - Despite this growth the old and poor are still worse off
 - But see Gale (required readings) for why this might not occur.
- Flat tax helps the poor but the growth potential is cut in half
 - If we provide transition relief to help the old, growth is cut to 1.9%
- The X tax does better than the flat tax but the old are still hurt
- There are potential gains from tax reform but it will create true losers and *compensating losers significantly hinders the growth potential.* **THIS is the trade-off.**