Digitalization and Taxation

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This Paper

- How can digitalization help improve existing tax systems?
- Main focus on optimal tax theory

Theory (1/3): First-Best Benchmark

- Ideal world: perfect information on all economic outcomes and taxpayer characteristics and behaviors
- All outcomes perfectly verifiable: perfect tax enforcement
- All tax payer characteristics and behavior verifiable: allocation and distribution can be separated using non-distortionary individualized lump-sum taxes (second theorem welfare economics)

Theory (2/3): Information Constraint on Economic Outcomes of Taxpayers

- Information constraint: taxpayers' *true economic outcomes not fully verifiable* as they misrepresent them to evade taxes (Allingham and Sandmo, 1972)
- Actual tax systems employ enforcement technologies to overcome this information asymmetry to collect taxes
- Costly state verification: monitoring, penalties, etc.
- Non-verifiability of economic outcomes leads to costs of tax collection, enforcement, and compliance

Theory (3/3): Information Constraint on Characteristics and Behaviors of Taxpayers

- Information constraint: taxpayer *characteristics and behaviors are private information*, e.g., earning ability or work effort (Mirrlees, 1971)
- Due to inability to observe taxpayer characteristics and behavior, individualized lump-sum taxes not available
- Actual tax systems are based on economic outcomes (income, consumption, saving, assets)
- Non-verifiability of characteristics and behaviors causes the equity-efficiency trade-off (breakdown of the second welfare theorem)

Idea 1: Reduce Tax Evasion

- Idea 1: Digitalization can improve the tax enforcement technology by *linking existing information* or *collecting more information* on income, consumption or wealth of tax payers
- With a better tax enforcement technology, the government can reduce the costs of tax collection, enforcement, and compliance

Idea 2: Alleviate Equity-Efficiency Trade-off

- Idea 2: Digitalization allows for more sophisticated tax systems by *employing more information* on income, consumption or wealth of tax payers in designing tax systems
- By using more information in tax design, the government can alleviate the equity-efficiency trade-off
- Digitalization can never negate the efficiency-equity trade off
- Digitalization makes more complex tax systems desirable, although cost of tax enforcement and compliance might be larger
    - Improved equity-efficiency trade-off for *given* costs of tax complexity
    - *Lower* costs of tax complexity if enforcement technology improves as well

How Digitalization Can Improve Tax Policy

- 13 ideas to improve tax systems using digitalization
  - Use more information to improve tax enforcement (5)
  - Use more information in tax design (8)

Tax Enforcement: Linking Data on Consumption (1/5)

- Digitalization can help governments verify individual consumption
- Consumption + Accrual Assets = Capital Income + Labor Income
- Evasion/avoidance more easy if information on consumption is missing
- Link consumption to income and wealth data

Tax Enforcement: Linking Data on Wealth and Capital Income (2/5)

- Digitalization may allow the government to set up advanced registers on wealth and capital income (savings, publicly-traded assets, closely-held assets, homeownership, pensions, bequests/estates)

Tax Enforcement: Cross-border Linking of Data on Wealth and Capital Income (3/5)

- Digitalization can help to build and link international registers for wealth and capital incomes (Zucman, 2015)
- Tax capital income on a residence basis

Tax Enforcement: Financial Institutions as Third-party Reporters on Wealth and Capital Income (4/5)

- Financial institutions (banks, insurance companies, investment funds, pension funds) can act as third-party reporters on wealth and capital incomes

Tax Enforcement: Consumers as Third-party Reporters on Sales (5/5)

- Digitalization can transform consumers into third-party reporters on sales of firms for the VAT or sales tax
  - Example: using electronic payment information (e.g., debit and credit card payments)

Tax Design: CIT as a Withholding Tax (1/8)

- If digitalization leads to verification of individual capital incomes, governments can tax shareholders directly, rather than indirectly via the CIT
- Tax capital income on residence basis rather than source basis
- Remove distortions caused by CIT: corporate investment, leverage, location, organizational form, and profit-shifting
- CIT can remain in place as a withholding tax

Tax Design: Dual Income Tax (2/8)

- Digitalization makes it possible to implement a dual tax system, where all sources of capital income and wealth can be linked and taxed symmetrically ('synthetic capital income tax').
- Arbitrage due to differing tax rates on the various sources of capital incomes, wealth and bequests
- Optimal tax systems should both tax labor income and capital income
- Dual income tax reduces avoidance/evasion, arbitrage and reaches distributional goals at lower efficiency cost

Tax Design: Progressive Consumption Taxes (3/8)

- Digitalization may allow for progressive rather than proportional consumption taxes
- Especially relevant for developing economies
- Biometric identification technology and electronic transaction systems help to 'de-anonymize' taxes

Tax Design: Non-linear Consumption Taxes (4/8)

- Non-linear consumption taxes can usefully complement the income tax system if individuals or households differ in dimensions other than their income or wealth (e.g. preferences)
- Digitalization may allow for non-linear consumption pricing of goods that are nondurable, nonstorable, and nontransportable
  - Examples: many services, healthcare, education, electricity, gas
- Important: non-linear consumption taxes cannot be levied on commodities that are durable, storable, and transportable, and are therefore easily tradable on secondary markets

Tax Design: Taxation of Labor Income Over Time (5/8)

- Individuals with more variable labor incomes pay more tax under a progressive tax system even if lifetime incomes are the same
- Earning ability not constant over time: annual income is worse indicator of average earning ability than entire earnings history
- Digitalization makes it possible to implement Vickrey's (1939, 1947) proposal for an average tax on cumulative income
- Digitalization may allow for marginal tax rates dependent on entire earnings histories

Tax Design: Joint Taxation of Individuals and Household Income (6/8)

- Digitalization can allow for joint tax schedules based on individual and household income
- Tax systems based on individual income generally more efficient and less redistributive - for given average tax rates
- Tax systems based on household income generally more equitable and less efficient - for given average tax rates

Tax Design: Joint Taxation of Different Tax Bases (7/8)

- Digitalization can allow for joint taxation of labor income and capital income
- Marginal tax rates on labor income (capital income) can depend on capital income (labor income) or asset holdings
    - Example: income-support programs often means-tested based on wealth

Tax Design: Tax Schedules Based on Different Characteristics (8/8)

- Digitalization can allow for separate tax schedules based on individual or household characteristics: 'tagging' (Akerlof, 1978)
  - Examples: disability status, health status, or children

Is More Information Always Better?

- Digitalization can allow the government to access and employ greater information
- Digitalization can thus potentially improve
  - Tax enforcement: more information on economic outcomes
  - Tax design: alleviate equity-efficiency trade-off
- Digitalization may exacerbate political distortions: bad governments have more powerful tools to pursue bad policies
- Digitalization raises important issues on the quality of government institutions and protecting the privacy of its citizens

Thank you!

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