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# Benefits and Values of the LG Tax Simplification for Federal Government, Companies and Taxpayers

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**Abstract:** Taxpayers and companies prefer a simple and efficient federal tax system. This paper provides benefits and values by comparing existing federal tax calculation system and its linear and gradual (LG) tax simplification for withholding tax, income tax, tax return, analysis, projection, fiscal note, tax evasion, tax fraud, and tax reform. The federal tax system can be simplified by matching and reducing existing 7 tax brackets to 3 and eliminating existing 21-page Withholding Tables and 224 (7×4×8) formulas. Also existing 12-page Tax Table can be optional. They can be matched and replaced by 2 simple linear formulas and 1 existing formula practically. Most taxpayers with standard deductions and tax credits may do not need to do normal tax returns with the tax simplification, which would help federal tax administration and reduce related costs. The research finds benefits and values of the LG tax simplification, which may help our federal government or other national governments to evaluate and adopt the simplification, to benefit companies, taxpayers, and their government for reducing related costs. The saving values may be billions of dollars.

**Key words:** tax simplification, federal income tax, linear and gradual tax system

**JEL codes:** G18, H21, H25, H71, C02

## 1. Introduction and Literature Review

Our existing federal personal tax system has two different parts. One has tax withholding schedules, withholding tables and withholding formulas on different filing periods for companies to estimate withholding taxes and payrolls. Another part has tax table and tax computations for taxpayers to file tax returns. Existing federal tax system has 7 tax brackets (up to 56 tax brackets during the past one hundred years<sup>1</sup>), 21-page Withholding Tables, 224 (7×4×8) withholding formulas, and 12-page Tax Table. The Withholding Tables with different filing periods (8), 224 related formulas, and Tax Table are very complex.

The current complexity of the tax system has raised attention for taxpayers and companies to request a process to be simplified to pay taxes. However, the tax system continues to grow more complex because lawmakers may view tax simplicity conflicts with the current policy goal to raise public revenues. A simplified tax system could serve the same purpose of changing revenues. Also it can achieve the goals of fairness, efficiency,

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<sup>1</sup> Available online at: <https://taxfoundation.org/historical-income-tax-rates-brackets>.

and feasibility to benefit social policy for governments, companies, and individuals. Tax simplicity could lower taxpayers' costs of complying with the tax system in terms of time, process, and rationality. The simplification could also aim to encourage more effective social goals of college, career, investment, and retirement cost savings.

The complexity of the U.S. tax system has created compliance and equity issues according to the Annual Report to Congress of the National Taxpayer Advocate (TAS Executive Summary 2008). The IRS estimated that individuals and businesses have spent 7.6 billion hours a year to comply with the tax filing requirements. It can convert to \$193 billion monetary terms or 14 percent of individual and corporate income tax receipts to fulfill the tax collection laws in 2008. Brady (2020) from the National Taxpayers Union Foundation has published the complexity of the U.S. tax system that created compliance burdens and equity issues. The analysis of data from the Office of Information and Regulatory Affairs (OIRA) indicated that, altogether, to comply with the tax code in 2019 consumed a total of 7.854 billion hours for recordkeeping, learning about the law, filling out the required forms and schedules, and submitting information to the Internal Revenue Service (IRS). With the opportunity cost of time burden and out-of-pocket cost, the total net tax compliance burdens have reached \$367.3 billion high or 7.8 billion hours spent on tax code compliance in 2019. The U.S. business and individual income tax returns have major net tax compliance burdens. Although, the IRS projections for the 2020 filing season showed that the overall time compliance burden associated with the tax code has fallen for the second straight year after the passage of the historic Tax Cuts and Jobs Act.

Many studies have been devoted to personal taxation simplifications. Diamond and Saez (2011) suggested considering the optimal progressivity of earning taxation and considered whether capital income should be taxed. Freebairn (2012) suggested several personal income taxation reform options and proposed the removal of tax expenditures for some forms of labor remuneration and the increase of more neutral systems of taxation for different forms of capital income. Davis, et al. (2013) indicated that the use of low income tax credits like the Earned Income Tax Credit (EITC) is an important indicator of tax progressivity. In combination with a flat or only nominally graduated rate structure, they pointed out that these tax breaks can sometimes create an unfair result due to the highest income taxpayers paying less of their income taxes than middle-income taxpayers.

Kao and Lee (2013) proposed a linear and gradual tax system to simplify the existing US personal income tax system. The current complex Tax Rate Schedules and Withholding Tables may be simplified and replaced by using a simpler way to calculate the tax rates and taxes. Kao and Lee (2014a) developed the LG tax system to simplify current U.S. federal and state corporate income taxation from up to 10 tax brackets to 2. Kao and Lee (2014b) suggested the tax system to be used to simplify current state individual income systems practically. Kao and Lee (2021) provided the benefits and values to match and simplify state multi tax brackets (up to 12), multi formulas (up to 216) and multi-page withholding tables (up to 80 pages) by 2 or 3 brackets and formulas.

The Tax Filing Simplification Act of 2019 (Warren, et al., 2019) makes several commonsense changes to simplify the tax filing process for millions of American taxpayers and lower their costs. One of the Act would allow eligible taxpayers with simple tax situations to choose a new return-free option, which provides a pre-prepared tax return with income tax liability or refund amount already calculated. It amended the IRS Code of 1986 to establish a free online tax preparation and filing service and programs that allow taxpayers to access third-party provided tax return information. This bill requires the IRS to establish and operate the programs free of charge online tax preparation and filing software and provide technical assistance and disclose federal income tax return information to states that provide or seek to provide state-level tax filing and preparation software. Unfortunately, the Bill was not passed.

In the study of TPC (2020), another benefit of making taxes simpler could improve compliance by reducing inadvertent nonpayment of taxes. In some occasions, people do not pay taxes because of the complexity of tax law. The problem could extent to tax evasion if they consider the unfairness of the tax rules exist. The taxpayers may consider the tax system unfairness benefits could occur in the tax process. For reducing the discrepancies of economic activities and taxpayers' characteristics, the simplified code could reduce both taxpayers' compliance and governmental administrative costs (Kao & Lee, 2017).

This paper provides benefits and values of the LG tax simplification for federal withholding tax, tax return, analysis, projection, fiscal note, evasion, fraud, and tax reform, which can help federal government to evaluate and adopt the tax simplification. Then federal government, taxpayers, and companies can reduce related costs.

## **2. Benefits and Values of the LG Tax Simplification**

### **2.1 The Existing Personal and Corporate Tax Systems and Simplification**

Existing U.S. federal personal tax calculation system has 7 tax brackets (up to 56 during the last 100 years), 21-page Withholding Tables, 224 (7×4×8) formulas, and 12-page Tax Table, which are complex. They are also often changed yearly. Tax reforms involve several factors including tax brackets, tax rates, taxable income ranges, and tax revenue. In 2017, the five federal tax bills with the different tax brackets (3-7) were discussed. The final tax bill is at <https://docs.house.gov/billsthisweek/20171218/CRPT-115HRPT-%20466.pdf> (2018 Tax Cuts and Jobs Act). Federal corporate tax system had 8 tax brackets with 15-35% before reforming to 21% in 2018.

Table 1 shows existing tax calculation system with 7 tax brackets and 5/4 tax statuses (2018). When the linear and gradual (LG) tax simplification is used, the 7 tax brackets are matched and simplified to 3. Withholding Tables (21 pages) and 224 (7×4×8) withholding formulas can be eliminated. Two linear formulas and one existing formula are used simply for 2018, 2019, 2020 or another year, which are explained by our publications at <https://taxsimplecenter.net/publication.html> (Web links). Companies can use the 3 simple formulas to match and replace the 21-page Withholding Tables and 224 (7×4×8) formulas. The simplification can help federal government, companies and taxpayers to simplify our existing tax system and reduce related time and costs.

YTI is yearly taxable income, which is equal to  $TI \times F$ . TI is taxable income and F is filing period (1, 2, 4, 12, 24, 26, 52 or 365 on yearly, semi-yearly, quarterly, monthly, semi-monthly, bi-weekly, weekly or daily basis). We use a simple number for a tax status (S) such as 2 for Married filing jointly or Qualifying widow(er), 1 for Single, 1 for Married filing separately or 1.5 for Head of Household. For withholding taxes, standard deductions and credits are used. When  $F = 1$ ,  $YTI = TI$  for yearly withholding taxes and tax returns.

The top tax rate is 37%, which was reduced from the prior 39.6%. Bottom tax rate is the same at 10%. For 2018, A is 1,204,819 from 100,000 to divide ( $\div$ ) the 1-st tax rate difference (0.183-0.1), C is 2,325,581 from 200,000  $\div$  the 2-nd tax rate difference (0.269-0.183) and D is 30,300 from 300,000 to multiply ( $\times$ ) the 3-rd tax rate difference (0.37-0.269) with the 3 tax rate ranges of 0.01-0.183-0.269-0.37. For 2020, A is 1,162,791 from 100,000  $\div$  (0.181-0.095) or 1,234,568 from 100,000  $\div$  (0.181-0.1), C is 2,352,941 from 200,000  $\div$  (0.266-0.181) and D is 31,200 from 300,000  $\times$  (0.37-0.266). Three tax rate ranges are 10%-18.1%-26.6-37% at TI of 0-\$100,000  $\times$  S-\$300,000  $\times$  S- with 2 linear (slope) and 1 existing formulas. A, C, D, and 0.14 are constants. For 2019, tax rate ranges are 10%-18.17%-26.73%-37%. 10% may be suggested to 9.5% to have neutral tax revenue and help low-end incomers with slightly lower tax rates and taxes according to tax revenue change difference (fiscal note). Neutral or less tax revenue changes are suggested except to increase or decrease tax revenues

purposefully.

**Table 1 Federal Existing Personal Income Tax Schedules and Simplification**

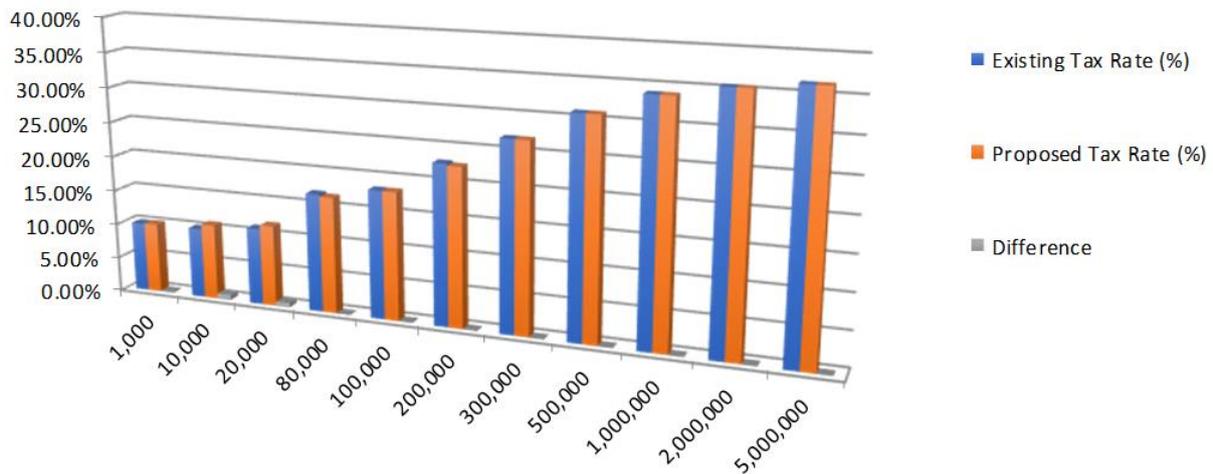
Existing Tax System (2018)		Simplification		
Taxable income (TI)	The tax	Taxable income	The tax rate and tax	Tax rate range
(A) Married Filing Jointly or Qualifying widow(er)		2018		
Not over \$19,050	10% of taxable income (TI)	Not over \$100,000×S	$YTI \div A \div S + 0.1 \times TI$	10%-18.3%
\$19,050 - \$77,400	\$1,905+12% (TI-19,050)	(\$100,000-300,000)×S	$(YTI \div C \div S + 0.14) \times TI$	18.3%-26.9%
\$77,400 - \$165,000	\$8,907+22% (TI-77,400)	Over \$300,000×S	$(0.37 - (D \times S \div YTI)) \times TI$	26.9%-37%
\$165,000-\$315,000	\$28,179+24% (TI-165,000)			
\$315,000-\$400,000	\$64,179+32% (TI-315,000)	2019		
\$400,000-\$600,000	\$91,379+35% (TI-400,000)	Not over \$100,000×S	$(YTI \div A \div S + 0.1) \times TI$	10%-18.17%
Over \$600,000	\$161,379+37% (TI-600,000)	(\$100,000-300,000)×S	$(YTI \div C \div S + 0.1389) \times TI$	18.17%-26.73%
(B) Heads of Household		Over \$300,000×S	$(0.37 - (D \times S \div YTI)) \times TI$	26.73%-37%
Not over \$13,600	10% of taxable income (TI)			
\$13,600 - \$51,800	\$1,360+12% (TI-13,600)	2020		
\$51,800 - \$82,500	\$5,944+22% (TI-51,800)	Not over \$100,000×S	$(YTI \div A \div S + 0.095) \times TI$	9.5%-18.1%
\$82,500 - \$157,500	\$12,698+24% (TI-82,500)	(\$100,000-300,000)×S	$(YTI \div C \div S + 0.1385) \times TI$	18.1%-26.6%
\$157,500-\$200,000	\$30,698+32% (TI-157,500)	Over \$300,000×S	$(0.37 - (D \times S \div YTI)) \times TI$	26.6%-37%
\$200,000-\$500,000	\$44,298+35% (TI-200,000)			
Over \$500,000	\$149,298+37% (TI-500,000)			
(C) Single		(D) Married Filing Separately		
Not over \$9,525	10% of taxable income (TI)	Not over \$9,525	10% of taxable income (TI)	
\$9,525 - \$38,700	\$952.5+12% (TI-9,525)	\$9,525 - \$38,700	\$952.5+12% (TI-9,525)	
\$38,700 - \$82,500	\$4,453.5+22% (TI-38,700)	\$38,700 - \$82,500	\$4,453.5+22% (TI-38,700)	
\$82,500-\$157,500	\$14,089.5+24% (TI-82,500)	\$82,500-\$157,500	\$14,089.5+24% (TI-82,500)	
\$157,500-\$200,000	\$32,089.5+32% (TI-157,500)	\$157,500-\$200,000	\$32,089.5+32% (TI-157,500)	
\$200,000-\$500,000	\$45,689.5+35% (TI-200,000)	\$200,000-\$300,000	\$45,689.5+35% (TI-200,000)	
Over \$500,000	\$150,689.5+37% (TI-500,000)	Over \$300,000	\$80,689.5+37% (TI-300,000)	

A simple tax status number (such as 1, 2 or 1.5) is used. When Married Filing Jointly or Qualifying widow(er) (S = 2) or for Married Filing Separately (S = 1), existing tax formulas are converted into tax rate and tax formulas by the LG tax simplification. Tax rates between existing tax schedules and the LG tax simplification have very minor or no difference, which are shown in Figure 1.

$$\mathbf{2018: 161,379+37\% (YTI-600,000) = 0.37 YTI - 60,621 = (0.37-(D \times 2 \div YTI)) \times YTI \quad (S = 2)}$$

$$80,689.5+37\% (TI-300,000) = 0.37 YTI - 30,310.5 = (0.37-(D \times 1 \div YTI)) \times YTI \quad (S = 1)$$

Federal corporate tax system is simpler than federal personal tax system. Eight tax brackets (15-35%) were used before reforming to a flat tax rate at 21%. A flat tax rate is very simple. But a flat rate can not cover different taxable incomes and small and large companies reasonably. A nice business tax plan is to have a relatively low bottom tax rate, which can encourage more people to start businesses. Small businesses hire many employees to meet social and economic needs for people and economic development. Then mid and large businesses are more stable and pay relatively higher tax rates. Two brackets and two formulas for federal corporate tax calculation system are suggested with two tax rate ranges such as 15%-20%-25% or 15%-21%-28% (Table 2). Taxable income ranges may be adjusted to some easy numbers such as not over and over \$120,000/year.



**Figure 1 Existing and Simplified Tax Rates** (7 brackets are matched and reduced to 3 for MFS)

**Table 2 Federal Corporate Tax Calculation Simplification**

	Option #1 (15%-20%-25%)		Option #2 (15%-21%-28%)	
Taxable income (TI)	The tax rate and tax	Tax rate range	The tax rate and tax	Tax rate range
Not over \$120,000	$(YTI \div 2,400,000 + 0.15) \times TI$	15%-20%	$(YTI \div 2,000,000 + 0.15) \times TI$	15%-21%
Over \$120,000	$(0.25 - 6,000 \div YTI) \times TI$	20%-25%	$(0.28 - 8,400 \div YTI) \times TI$	21%-28%

**2.2 Withholding Table and Tax, Income Tax, Tax Table, Tax Return, Evasion, Fraud, and Simplification**

For Federal personal tax system, there are 21-pages Withholding Tables at [www.irs.gov/pub/irs-pdf/p15t.pdf](http://www.irs.gov/pub/irs-pdf/p15t.pdf) and 224 (7×4×8) withholding formulas, which are complex. For example, a Married Filing Jointly man’s taxable income is \$180,000 (yearly), \$15,000 (monthly) or \$6,923.08 (biweekly) in 2018, his withholding tax calculations involve 4 tax brackets and related formulas or Withholding Tables on different filing periods. There are multi steps to calculate his withholding taxes of \$31,779 (yearly), \$2,648.25 (monthly) and \$1,222.27 (biweekly) from Withholding Tables and related formulas on different filing periods, which take time. When he files tax return for him and his family, his yearly withholding tax (estimation) needs to be corrected.

People are often confused with the difference between marginal tax rates and effective tax rates. Marginal tax rates relate to tax brackets. Effective tax rates are actual tax rates of taxes over taxable incomes. The above cases have the same tax rate at 17.65% from  $31,779 \div 180,000$ ,  $2,648.25 \div 15,000$  or  $1,222.27 \div 6,923.08$ , which are not shown in the existing tax system. There are also other filing periods. When the tax rate and tax formula from LG tax simplification is used, tax rate and tax are calculated directly on such as monthly, biweekly, yearly or another filing period. Then existing 21-page Withholding Tables and 224 (7×4×8) formulas are not needed.

$$(TI \times F \div S \div A + 0.1) \times TI = (180,000 \times 1 \div 2 \div 1,204,819 + 0.1) \times 180,000 = 0.1747 \times 180,000 = \$31,446.00 \quad (\text{yearly})$$

$$(TI \times F \div S \div A + 0.1) \times TI = (15,000 \times 12 \div 2 \div 1,204,819 + 0.1) \times 15,000 = 0.1747 \times 15,000 = \$2,620.50 \quad (\text{monthly})$$

$$(TI \times F \div S \div A + 0.1) \times TI = (6,923.08 \times 26 \div 2 \div 1,204,819 + 0.1) \times 6,923.08 = 0.1747 \times 6,923.08 = \$1,209.46 \quad (\text{biweekly})$$

The all above 3 calculations have the same tax rate 17.47% on monthly, yearly, biweekly or another basis. Then withholding taxes are calculated simply. Existing tax systems with marginal tax rates have more calculation steps, which do not involve effective tax rates and are in tax format. The LG formula involves tax rate and tax at

the same time. Using this proposed formula, different taxable incomes on different filing periods may have the same tax rate, which can be obtained by one simple formula such as  $(TI \times F \div S \div A + 0.1) \times TI$ . There is only one step with the simple formula, which is much simpler than the current Withholding Tables or related formulas. The income tax rates of 17.47% and 17.65% are closed each other with very minor difference 0.01 (0.18%  $\div$  17.65%).

Existing complex Withholding Tables and 224 (7 $\times$ 4 $\times$ 8) formulas can be eliminated. The LG simple formulas involve both tax rate and tax calculations with different filing periods (F) and tax statuses (S) at the same time. There are the two linear formulas to cover 0-\$100,000 $\times$ S-\$300,000 $\times$ S. For YTI over \$300,000 $\times$ S, there is no tax change because the same formula is used in tax or tax rate and tax format. When one of the 3 formulas is set with Spreadsheet, Excel or software, tax rate, tax, withholding tax and payroll calculations can be calculated repeatedly for companies to do withholding taxes, payrolls and related reports. The math knowledge is very basic. For withholding taxes, standard deductions, exemptions and tax credits are used. Federal standard deductions are \$24,800, \$12,400 and \$18,600 for different tax statuses, which can be simplified with \$12,400 $\times$ S (S = 2, 1 or 1.5).

Most taxpayers use standard deductions and tax credits. When accurate tax information is provided, withholding taxes and income taxes are close or the same. They may use withholding reports (Table 3/W-2) to simplify tax returns with modifications by employees. Then more simplified tax returns can be processed by Internal Revenue Service (IRS) and state revenue departments. Other taxable incomes in Table 3 (A7) may be from taxable interests, S.S. benefits, pensions, annuities, retirements, and others. Income taxes may be calculated with simple pre-prepared formulas for many people. Federal and state tax returns may be simplified together, which is shown at [https://taxsimplecenter.net/uploads/8/3/3/9/83395216/wfs\\_withhodling\\_report\\_and\\_modification3.pdf](https://taxsimplecenter.net/uploads/8/3/3/9/83395216/wfs_withhodling_report_and_modification3.pdf)

$$\text{Withholding/Income Tax} = (\text{Incomes} \pm \text{Adjustments} - (\text{Deductions} + \text{Exemptions}) \div F) \times \text{Tax rate} - \text{Tax credits} \div F$$

This formula is used to calculate withholding or income tax with tax rate. Existing tax systems are in tax format and not in tax rate format. Adjustable gross income (AGI) is incomes $\pm$ adjustments. Taxable income is AGI-(deductions+exemptions) $\div$ F. Tax is taxable income  $\times$  tax rate - tax credits $\div$ F. Filing period (F) is 1, 2, 4, 12, 24, 26, 52 or 365. The bill of 2018 Tax Cuts and Jobs Act combines standard exemptions into standard deductions.

Federal Tax Table has 12 pages to cover taxable incomes up to \$100,000. The Tax Table or its one formula is used as one option. The 12-page Tax Table may be reduced to 6 pages to cover \$100,000. After the LG tax simplification is used for a period of time and most people prefer to use one formula to replace the 12-page Tax Table, the table may be further simplified or minimized gradually.

Tax evasion and fraud cost billions of dollars to federal government. Existing W-2 forms provide limited information. Employers and employees use different tax system parts for withholding taxes (W-2) and income taxes (tax returns). The two parts have different tax calculation methods. Another reason is related timing problem. When receiving tax returns, federal government has no detail tax information as references to compare and verify these tax returns and send tax refunds within such as 45 days. These reasons give delinquents a chance for possible tax evasion and fraud. When detail reports (similar to Table 3 to replace W-2) are given from employers to individuals and federal and state governments, they can be used as references to verify tax returns, reduce tax evasion and fraud, and help tax compliance.

**Benefits and Values of the LG Tax Simplification for Federal Government, Companies and Taxpayers**

**Table 3 Withholding Report (A, B and D) by Company and Modification by Employee (C and E)**

A	B	C	D	E	
Name :	Peter N. Johnson		Employer ID # :	765432198	1
Social security SS #	Payroll	SS tax	Medicare	Retirement	2
234567891	\$54,547.06	\$4,665.81	\$1,091.20	\$2,600.00	3
	Federal tax data	Modification	State tax data/KS	Modification	4
Wages, salaries, tips .....	\$75,255.00	Same	\$75,255.00	same	5
Incomes to tax return	\$72,655.00	\$72,655.00	\$72,655.00	\$72,655.00	6
Other taxable incomes .....	0	\$2,300.00	0	\$2,300.00	7
Capital gain (or loss)		0		0	8
Adjustments (Additions)	0		0		9
Adjustments (Subtractions)	0	\$2,000.00	0	\$2,000.00	10
Adjusted gross income (AGI)	\$72,655.00	\$72,955.00	\$72,655.00	\$72,955.00	11
Tax status (S) number	1	1	1	1	12
Standard/Itemized deduction	\$12,400	\$12,400	\$3,000	\$3,000	13
Exemptions			\$2,250	\$2,250	14
Taxable income (TI)	\$60,255.00	\$60,555.00	\$67,405.00	\$67,705.00	15
Income tax rate formula	$TI \div 1,234,568 \div S + 0.1$	Same	$0.057 - 457.5 \times S \div TI$	Same	16
Income tax rate	0.14881	0.14905	0.050213	0.050243	17
Within tax rate check range?	0.1-0.181	Yes	0.04785-0.057	Yes	18
Income tax	\$8,966.34	\$9,025.70	\$3,384.59	\$3,401.69	19
Non-refundable tax credits	0	0	0	0	20
Tax balance (if <0, enter 0)	\$8,966.34	\$9,025.70	\$3,384.59	\$3,401.69	21
Standard tax credits	0		0		22
Child tax credit	0		0		23
Refundable tax credits	0		0		24
Other taxes	0		0		25
Capital gain tax		0		0	26
Donations to Government	0		0		27
Tax withheld (W-2/1099)	\$8,966.34		\$3,384.59		28
Tax Payment (You Owe)		\$59.36		\$17.10	29
Tax Refund (-)					30
For Tax Refund: Bank Name	Routing #	Accounting #	Account Name	Bank Phone #	31
					32
Live with you: Child #1 SS#	Child #1 Name	Child #2 SS #	Child #2 Name	Spouse SS #	33
					34
Live with you: Child #3 SS#	Child #3 Name	Child #4 SS #	Child #4 Name	Spouse Name	35
					36
<b>Notes:</b> Item # / Detail	C7 / interests	C10 / IRA			37
					38

**2.3 Tax Rate Change Speed, Checking Tool, Tax Status and Simplification**

Existing tax rate changes are in non-smooth situations, which mean tax rate change speeds are different. For taxable incomes not over  $\$300,000 \times S$  such as Married Individuals Filing Separate or Single, tax rate change speeds are 0 for not over  $\$9,525$ ,  $d2/TI2$  for taxable incomes  $\$9,525 - \$38,700$ , ....., and  $d5/TI2$  for  $\$200,000 - \$300,000$  in 2018. Their tax rate change speeds always change when taxable incomes change from  $\$9,525$  to  $\$300,000$  with 5 tax brackets. Then some people, who should pay more slightly, pay less and other

people, who should pay less slightly, pay more, which are unfair and complex. After the 4 tax brackets are reduced to 1 for not over \$100,000, one linear (slope) tax rate and tax formula  $(YTI \div C \div S + 0.1) \times TI$  is used to replace the existing 128 (4×4×8) formulas with 99% (1-1/128) reduction. Its tax rate change speed is a same constant 1/C. When taxable incomes change between 0-\$100,000 or \$100,000-\$300,000, tax rate change speed is not changed with a constant speed, which is fair and simple. Linear tax rates (for not over a middle taxable income) is the most simple and fair. For over \$300,000×S, tax formula within one tax rate range (26.9%-37%) is the same without change.

Existing tax formulas are in tax format. The LG tax simplification is in both tax rate and tax format, in which tax rates can be checked with some narrow ranges as a checking tool. For example, tax rate ranges of 0.1-0.183-0.269-0.37 for taxable incomes at 0-\$100,000×S-\$300,000×S- in 2018 can be used as a checking tool to check and reduce tax rate (and tax) calculation mistakes. If a calculated tax rate is out of its range, its result is wrong and needs recalculation to within its tax rate range. <https://taxsimplecenter.net/federaltaxsimplification.html>

Federal tax system has 5 tax statuses. We use simple numbers for tax statuses (S) such as 2 for Married filing jointly or Qualifying widow(er), 1 for Single, 1 for Married filing separately or 1.5 for Head of Household. For comparing Married filing jointly and Married filing separately, their taxable income range rates such as \$19,050/9,525, ..... and \$600,000/300,000 are always 2:1. For comparing Head of Household and Married Filing Separately, their taxable income range rates are 1.43 (\$13,600/9,525), 1.34 (\$51,800/38,700), ..... or 1.67 (\$500,000/300,000), which are unstable and favorable for some taxable incomes such as over \$500,000, which shall be \$450,000. A rate for one tax status shall be fair, stable and constant such as 1.5 for Head of Household. Tax status number can be also used for standard deduction (\$12,400×S) and tax rate/tax formula simplifications.

**2.4 Tax Analysis, Tax Revenue Difference (Fiscal Note) and Projection**

When tax brackets are reduced and withholding tables are eliminated, tax analysis, tax revenue change difference (fiscal note), tax reform, and projection can be simplified. When tax schedules and withholding tax formulas are used, their tax revenue formula contains many (28) equations (Table 1), which are very complex.

2018 Formula (1): Total Tax = 0.1SumYTI1j+Sum(M1+0.12(YTI2j-19,050))+Sum(M2+0.22(YTI3j-77,400))+Sum(M3+0.24(YTI4j-165,000))+Sum(M4+0.32(YTI5j-315,000))+Sum(M5+0.35(YTI6j-400,000))+Sum(M6+0.37(YTI7j-600,000))+0.1SumYTI1h+Sum(N1+0.12(YTI2h-13,600))+Sum(N2+0.22(YTI3h-51,800))+Sum(N3+0.24(YTI4h-82,500))+Sum(N4+0.32(YTI5h-157,000))+Sum(N5+0.35(YTI7h-200,000))+Sum(N6+0.37(YTI7h-500,000))+0.1SumYTI1g+Sum(P1+0.12(YTI2g-9,525))+Sum(P2+0.22(YTI3g-38,700))+Sum(P3+0.24(YTI4g-82,500))+Sum(P4+0.32(YTI5g-157,000))+Sum(P5+0.35(YTI7g-200,000))+Sum(P6+0.37(YTI7g-500,000))+0.1SumYTI1m+Sum(Q1+0.12(YTI2m-9,525))+Sum(Q2+0.22(YTI3m-38,700))+Sum(Q3+0.24(YTI4m-82,500))+Sum(Q4+0.32(YTI5m-157,000))+Sum(Q5+0.35(YTI7m-200,000))+Sum(Q6+0.37(YTI7m-300,000))

Above items can be combined and simplified with A, C, D, YTIa, YTIb and YTIc (3 groups: S = 1, 2 or 1.5). Then total tax formula (1) can be simplified to formula (2). Tax revenue change (fiscal note) can be also obtained.

2018 Formula (2): Total tax=Sum((YTIa÷A÷S+0.1)YTIa)+Sum((YTIb÷C÷S+0.14)YTIb)+Sum(0.37 YTIc-D×S)

Tax revenue change = Formula (2) - Formula (1)

When Formula (1) is simplified to Formula (2), tax analysis, tax revenue difference, tax reform and projection can be simplified significantly. A general total tax format can cover the 3 brackets in a simplified form

with different bottom (B0) and top (T) tax rates.

$$\text{Total tax} = \text{Sum}((\text{YTIa} \div A \div S + B0) \text{YTIa}) + \text{Sum}((\text{YTIb} \div C \div S + B1) \text{YTIb}) + \text{Sum}(T \times \text{YTIc} - D \times S)$$

For corporate tax analysis, tax revenue change (fiscal note), and projection, similar formula can be obtained.

$$\text{Total tax} = \text{Sum}((\text{YTIa} \div 2,400,000 + 0.15) \text{YTIa}) + \text{Sum}(0.25 \text{ YTIb} - 6,000) \quad (15\% - 25\%)$$

$$\text{Total tax} = \text{Sum}((\text{YTIa} \div 2,000,000 + 0.15) \text{YTIa}) + \text{Sum}(0.28 \text{ YTIb} - 8,400) \quad (15\% - 28\%)$$

$$\text{Tax revenue change} = \text{Sum}((\text{YTIa} \div 1,200,000) \text{YTIa}) + \text{Sum}(0.03 \text{ YTIb} - 2,400)$$

### 2.5 Tax Reform, Factor and Simplification

Tax reforms need several factors such as tax brackets, tax rates, taxable income ranges, computations, and tax goal. These factors affect each other complicatedly. With existing marginal tax rate systems, more tax brackets mean more smooth tax rates, complex, more cost, and more tax revenue or less tax brackets mean rough tax rate changes, simple, less cost, and less tax revenue relatively. Multi tax brackets increase complexity of tax reforms.

For tax reforms with the LG simplification, lawmakers would need to consider only 3 brackets with 4 tax rates at top, bottom and two middles at \$100,000×S and \$300,000×S. Tax revenue and inflation are two major factors. Bottom tax rates are usually not changed at 10%. Top tax rates can be changed. Two middle tax rates are often changed slightly. When these tax rates are adjusted, tax revenue will be changed. For 2018, the 3 tax rate ranges are 0.1-0.183-0.269-0.37, A is 1,204,819 from 100,000÷(0.183-0.1), C is 2,325,581 from 200,000÷(0.0269-0.183) and D is 30,300 from 300,000×(0.37-0.269). For 2019, the 3 tax rate ranges are 0.1-0.1817-0.2673-0.37, A is 1,223,990 from 100,000÷(0.1817-0.1), C is 2,336,449 from 200,000÷(0.2673-0.1817) and D is 30,810 from 300,000×(0.37-0.2673). Their bottom and top tax rates are the same at 10% and 37%. For different tax status, S is 1, 2 or 1.5.

$$\begin{aligned} \text{2018: Total tax} &= \text{Sum}((\text{YTIa} \div 1,204,819 \div S + 0.1) \text{YTIa}) + \text{Sum}((\text{YTIb} \div 2,325,581 \div S + 0.14) \text{YTIb}) \\ &+ \text{Sum}(0.37 \text{YTIc} - 30,300 \times S) \end{aligned}$$

$$\begin{aligned} \text{2019: Total tax} &= \text{Sum}((\text{YTIa} \div 1,223,990 \div S + 0.1) \text{YTIa}) + \text{Sum}((\text{YTIb} \div 2,336,449 \div S + 0.1389) \text{YTIb}) \\ &+ \text{Sum}(0.37 \text{YTIc} - 30,810 \times S) \end{aligned}$$

$$\text{Tax revenue change (fiscal note)} = \text{Total tax (2019)} - \text{Total tax (2018)}$$

When existing top tax rate is raised to 39.6% and tax rates for taxable incomes not over \$400,000 are kept the same, then its tax calculation simplification with 3 brackets is shown in Table 4. At \$400,000, tax rate is 29.4224% (80,689.50 + 0.37×(400,000-300,000))/400,000 from Table 1. Tax rate ranges are 10%-18.1%-29.4%-39.6%. A is 1,234,568 from 100,000÷(0.181-0.1), C is 2,654,867 from 300,000÷(0.294-0.181) and D is 40,800 from 400,000×(0.396-0.294). A, C, D and 0.14333 are constants. Tax status (S) is 1, 2 or 1.5.

**Table 4 Federal Personal Tax Reform and Simplification (10%-18.1%-29.4%-39.6%)**

If the yearly taxable income is:	The tax rate and tax are:	Tax rate range
Not over \$100,000×S	$(\text{YTI} \div S \div A + 0.1) \times \text{TI}$	10%-18.1%
$(\$100,000 - 400,000) \times S$	$(\text{YTI} \div S \div C + 0.14333) \times \text{TI}$	18.1%-29.4%
Over \$400,000×S	$(0.396 - (D \times S \div \text{YTI})) \times \text{TI}$	29.4%-39.6%

### 2.6 Other Tax Simplification Applications

Besides income tax simplification, there are several other serious tax problems such as Earned Income Tax Credit (EITC), 2020 Stimulus Check calculation, property tax credit, and seniors' tax return simplifications, which can be resolved with one simple linear formula. When 2 rates are set, effective (linear) rates between the 2 rate

points with a straight line are the most fair and simple with a constant rate change speed. Existing flat and curve or step rates with less or more tax brackets are unfair and complex with various change speeds. Some examples are as follows:

Example 1: The Earned Income Tax Credit (EITC) is Federal government’s largest refundable tax credit for workers who earn low or moderate incomes. Both EITC and the Child Tax Credit programs have greatly reduced the poverty for working families. These working family credits have assisted an estimate of 9.4 million people out of poverty, including 5 million of children. The complexity of federal EITC Table contains 9 pages. There are two statuses (ES). Employees usually do EITC for tax returns. Many states often use a partial such as 17% of federal EITC to be deducted as state EITC. Linear formulas may be used to match and simplify federal EITC, which are shown in Table 5.

**Table 5 Earned Income Tax Credit Rate Simplification to Match EITC Table (9 pages)**

Child #	Earned Income (EI) Range	Earned Income(EI)	Earned Income Tax Credit Rate by Linear formula	Rate	Range check	EITC EI*Rate
0	0–(15,000+ES)		0.1 (1 - EI÷(15,000+ES))		0.1-0	
1	0–(40,000+ES)		0.4 (1 - EI÷(40,000+ES))		0.4-0	
2	0–(44,000+ES)		0.45 (1 - EI÷(44,000+ES))		0.45-0	
3/more	0–(48,000+ES)		0.5 (1 - EI÷(48,000+ES))		0.5-0	

ES = 0 for Single, HH or qualifying widow(er) or ES = 5,000 for Married Filing Joint (ES: \_\_\_ and Child #: \_\_\_).

Example 2: For the calculation of 2020 Stimulus Check, the bill lets individuals with AGI at \$75,000-99,000 to reduce from \$1,200 to 0 by \$5 for each \$100 earned over \$75,000 with 240 steps/brackets  $(99,000-75,000)÷100$ . Families with AGI at \$150,000-198,000 reduce from \$2,400 to 0 by \$5 for each \$100 earned over \$150,000 with 480 brackets  $(198,000-150,000)÷100$ . The 240 or 480 brackets (steps) are complex. With the linear tax simplification, the 240/480 brackets can be matched and reduced to 1 (> 99% reduction) with one linear formula of  $1,200×S×(1-(AGI÷S-75,000)÷24,000)$  simply with changes from  $1,200×S$  to 0 ( $S = 1$  or  $2$ ) gradually. Its details are at <https://taxsimplecenter.net/federaltaxsimplification.html> with one formula and bracket.

Example 3: Most seniors have relatively simple situations with such as social security benefits, retirement plans, interests and capital gains. Seniors’ tax return form may be designed in a half-page tax return form simply for seniors. For complex tax situations, then additional documents are needed. Its detail simplification is at [https://taxsimplecenter.net/uploads/8/3/3/9/83395216/wf\\_1040sr14.pdf](https://taxsimplecenter.net/uploads/8/3/3/9/83395216/wf_1040sr14.pdf) (2 proposals).

**2.7 Value and Cost of the LG Tax Simplification**

Table 6 shows existing federal income tax system and LG simplification comparisons, which show significant reduction such as 98.7% (1-3/224) reduction for their formula numbers and 89.3% reduction (1-3/28) for total tax calculation equations. These benefits have related cost saving values. For example companies use the simplification with the 3 simple formulas to replace the existing 21-page Withholding Tables and 224 (7×4×8) formulas. If the simplification can help to reduce related cost at \$1 for companies and \$0.2 for IRS on each 26 biweekly period per employee, then total cost saving may be \$4,836 million from 1.2x26x155 million. It is reported that federal employee numbers were more than 155 million in December, 2021, which is shown at [www.statista.com/statistics/209123/seasonally-adjusted-monthly-number-of-employees-in-the-us/](http://www.statista.com/statistics/209123/seasonally-adjusted-monthly-number-of-employees-in-the-us/) (159 million in December, 2022). The IRS data at [www.irs.gov/statistics/returns-filed-taxes-collected-and-refunds-issued](http://www.irs.gov/statistics/returns-filed-taxes-collected-and-refunds-issued) show 167 million individual tax returns were filed in 2021. The \$1.2 covers about 8 areas such as such as (1) designing Withholding Tables, (2) publication, (3) tax numbers with certain Allowances, (4) using calculation formulas for

high taxable incomes and Allowances, (5) checking mistakes and recalculations, (6) filings, (7) software, and (8) data analysis.

**Table 6 Existing Income Tax System and LG Simplification Comparisons**

Comparison	Brackets	Withholding Tables	Formula #	Tax Table	Status #	Total Tax Calculation
Existing System	7	21 pages	224 (7×4×8)	12 pages	5/4	28 equations
LG Simplification	3	Eliminated	3	Optional	S (1/2/1.5)	3 equations

Table 7 shows related benefits and value estimations with direct and non-direct values, which may need to be evaluated by the IRS. Total direct value may be about \$10 billion. Benefits mean less time, less hustle, less mistake, less crime, and less cost. To the IRS, saved value may be about \$3 billion. Other countries may have similar situations for their tax systems with related benefits by the LG tax simplification. Their cost saving values depend on tax return and employee numbers and complexity of existing tax systems.

For a tax reform or change, there are related costs involved such as personal tax system is changed from 2018 to 2019. There are related changes such as the tax rate 18.3% at \$100,000 in 2018 is changed to 18.17% in 2019. Here is a state cost data for the tax simplification. When KS existing personal tax brackets are simplified to 2 and 48 (6×8) formulas are reduced to 2, KS Division and Budget estimated \$61,110 (2018 bill HB 2788) at [www.kslegislature.org/li\\_2018/b2017\\_18/measures/documents/fisc\\_note\\_hb2788\\_00\\_0000.pdf](http://www.kslegislature.org/li_2018/b2017_18/measures/documents/fisc_note_hb2788_00_0000.pdf) or \$68,991 (2020 bill HB 2278) at [www.kslegislature.org/li\\_2020/b2019\\_20/measures/documents/fisc\\_note\\_hb2278\\_00\\_0000.pdf](http://www.kslegislature.org/li_2020/b2019_20/measures/documents/fisc_note_hb2278_00_0000.pdf) to implement the tax simplification and to modify the automated tax system. Slight tax revenue (about \$5 million/year) would be gained by keeping the original 3.1%-5.7%. We have no cost data for the federal tax simplification, which can be evaluated by the IRS about its tax revenue and cost changes.

**Table 7 Benefits and Value of the LG Tax Simplification**

Benefits	Value
1. Existing 7 tax brackets are matched and reduced to 3 comparably.	Less time/More simple
2. Lawmakers can do tax reforms and projections with only 4 tax rates.	Less time/hustle
3. Simple formula improvement contributes to Fiscal Notes (by the IRS)	Goal:<\$50 million
4. Tax Status (S) is numbered with 1 for Singles, 1 for Married filing separately, 2 for Married filing jointly or 1.5 for Head of Household. Standard Deductions are combined together and simplified by \$12,200*S (S = 1, 1.5 or 2). If ((1+0.5) × 155 million):	\$233 million
5. Withholding Tables (21 pages) and 224 formulas are eliminated and replaced with 3 simple formulas, filing periods (F) and S. If (1+0.2)/person/period (1.2 × 26 × 155 million):	\$4,836 million
6. Tax Table (12 pages) is optional. 3 formulas can be used. If ((1+0.5) × 155 million):	\$233 million
7. Combining two existing sub tax systems (5/6) together without time delay (13 Months):	Real & quick tax
8. One non-refundable or one refundable tax credit formula. If (2 × 155 million):	\$310 million
9. Many incomers with standard deductions and non-complex tax situations (50%) file simple tax returns or tax withholding report modifications If ((15+5) × 50% × 155 million):	\$1,550 million
10. Postcard (or half page) tax return form can be used (50%). If (10+6) × 50% × 155 million):	\$1,240 million
11. A checking tool of 3 tax rate ranges (10%-18.3%-26.9%-37%) is provided to check and reduce tax rate and tax calculation mistakes. If ((2+1) × 155 million):	\$465 million
12. Tax evasion is inspected and reduced by comparing tax returns and tax withholding reports.	\$1 billion
13. Tax refunds with \$200 or less are delayed to non-busy season or next year.	Less time/cost
14. Department of Revenue will process less tax returns during the busy tax season and have more time to inspect tax returns for possible more tax.	\$0.2 billion
15. The LG tax simplification can be used to simplify tax calculation, payroll, tax analysis, tax reform and projection.	Less time/costs

### 3. Conclusion

In summary, the LG tax simplification could reduce related costs and increase revenues relatively. It can promote the tax goals of fairness, efficiency, and feasibility to benefit social tax policy for federal government, companies and individuals. A reasonable simplification can adequately reduce tax evasion than traditional enforcement measures. The complexity of the U.S. tax system has created compliance burdens and equity issues. The tax reform options can lower compliance burdens and taxation costs. These reductions can also increase the efficiency of the tax system and mitigate a portion of the tax increased burdens and grow revenues.

The proposed benefits in this paper can match and reduce existing 7 tax brackets to 3 (57% reduction from 4÷7) and 224 (7×4×8) formulas to 3 (98.7% reduction from 1-(3÷224)), eliminate 21-page Withholding Tables, and improve tax returns, tax analyses, projections, fiscal notes, and tax reforms by 2 simple linear formulas and 1 existing formula. Existing tax format is converted into tax rate and tax format. Accurate tax withholding results can be obtained when accurate tax information is provided, which overcome existing two tax system parts for employers and employees differently. Most taxpayers with standard deductions and tax credits do not need to do normal tax returns with simple pre-prepared formulas and tax return form. Their cost saving values depend on tax return and employee numbers and complexity of existing tax systems. This paper can help federal or national government to evaluate and adopt this simplification to benefit lawmakers, IRS, companies, and individual taxpayers to reduce related costs, which may be billions of dollars.

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## Target Capital Structure and Financial Risk in Family Firms

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**Abstracts:** Family businesses build up a large proportion of businesses in Poland and also all around the world. Family businesses are considered to be a special type of business entities. They have unique characteristics that may represent one side of their competitive advantage and, secondly, that exhibit a factor harmful to their development. This is mainly due to the role of the owner and his family in the process of business management. Characteristics of family businesses in various stages of development are the strength and the source of their success or weakness and cause failure.

Modelling the target capital structure in family businesses is related to the risk of financing sources. The risk of a source of financing is the probability of a company losing its ability to service its debt as a result of the adverse impact of the environment. This paper describes the identification, measurement and risk management of sources of funding in family businesses. Constant changes in the markets in particular financial force the enterprise to formulate its own risk policy concept and thus develop a logical set of behaviors that take the form of a decision-making process, called the risk management process. The paper presents the author's methodology of risk management in family businesses.

**Key words:** capital structure, debt ratio, financial risk, financing

**JEL codes:** G

### 1. Introduction

Risk identification involves the analysis of multiple levels of business activity and its relationships with the environment. This analysis should consist in gathering information about the company, the scope and purpose of its activities and its possible sources of risk. Focus should be placed on the circumstances that may affect the achievement of company's goals.

We should take into account all direct and indirect causes that could cause damage to the business assets in the future (understood not only as material goods but also as a number of other factors such as employees, customers, brands, contractors, know-how). Risk does not only mean a threat but also an unrealized, lost benefit (Jajuga K., p. 13).

The risk analysis should cover both intra-company processes, as well as external processes, with particular emphasis on factors that have a direct and indirect impact on the entity's operations, i.e., finance, organizational and managerial processes, the IT environment and the areas specific to the particular type of business (Kumpiałowska

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A., p. 48).

An individual area is the type of business. External risk identification should include: economic environment, legal environment, contractors, customers, competition and infrastructure (Kumpiałowska A., p. 54). Research shows that Polish businessmen most frequently use management level discussion and managerial experience as a method of risk identification. Increasingly, risk registries are deployed, and services of specialist advisers are used (Słobosz J., Ziomko R., Przywecki M., pp. 24, 32).

Risk identification should be a systematic, and not a one-off, process. Two phases can be distinguished here. For companies or business areas that identify risk for the first time, we can talk about an initial risk identification. On the other hand, for organizations that have already implemented the risk management process, we can talk about a continuous phase of risk identification, where, in the context of a risk management process, identification focuses on monitoring the occurrence of new risks and verifying accepted assessments of previously identified risks (Kumpiałowska A., p. 53). The risk groups to which Polish entrepreneurs declare good preparation are primarily financial risks.

## **2. Identification of Financial Risk Areas in a Family Business**

A special group of companies in Poland are family businesses. Financial risk depends here on many aspects, e.g., how long has the company been operating, what is its life cycle, what is its line of business, what is its legal form and ownership. The development of a family business is usually multidimensional and covers the size of the enterprise, family and property. Family members may have some common economic goals, while their other goals might be different. Managing the family business financing structure is primarily a matter of balancing the financial target and the non-financial predominant investor family. Family members exert a significant influence on the family business or they manage it directly. They feel responsible for the day-to-day operation and development prospects of a family business. They are characterized by their loyalty and personal commitment and the conviction that they should maintain the family character of the company and the obligation to hand it over to the next generations. Entrepreneurial independence consists in combining owner and manager functions. Personal involvement in the business activities is associated with the acquisition of most risks. Research conducted by M. Lyagoubeo (2003) has shown that family businesses have a higher share of fixed assets and growth dynamics, lower revenue growth rates, are more profitable and benefit from lower leverage. Family businesses are reluctant to acquire external financing for fear of diluting ownership and control. Focused family businesses are more prone to consumption, but at the same time are less likely to take risks and are characterized by higher debt ratios (Schulze W. S. & Lubatkin M. H. L., 2001). The increase in the number of owners in a family business can cause a shift of risk. Group members tend to make more risky decisions. Moving your business to the stage of a scattered family business can mean a reduction in your company's debt level.

The succession of power and ownership (a type of legal form), the professionalism of management, and the ability to overcome the negative impact of family conflicts are immensely important to the business. Companies that operate on the basis of an entry into the business activity register or a two-person personal partnership do not have the opportunity to go through critical moments connected with the departure or illness of their founder. If the process of transferring a family business to the next generation is to take place without disruption for the company and its environment, it is advisable to change the legal form of business to a commercial partnership. For legal reasons, in the event of death or illness of the owner, a company operating on the basis of an entry in tote business

activity register is unable to continue its business activity. Banks, leasing companies and public institutions denounce the contracts and demand immediate repayment of debt or grants. Employees of the company should be paid for the notice period. An important step is a professionally prepared financial plan that takes into account the legal and fiscal situation and its impact on the financial needs of the family and business. The increase in the number of owners in a family business can cause a shift in risk. Group members tend to make more risky decisions. Moving the business to the stage of a scattered family business can mean a reduction in the company's debt level. Representatives of the younger generation have a higher risk and debt tolerance than older generations.

### 3. Target Capital Structure for Family Businesses

Literature defines family businesses as units of any legal form in which the capital is fully or partly owned by the family. One or several family members have a decisive influence on the management, or they might hold a managerial position to maintain the particular part of the company in family's hands (Safin K., 2007, p. 42). Ł. Sułkowski provides a different definition — a family business is an economic entity in which the majority of the ownership structure and management function of that entity remain in the hands of one family (Sułkowski Ł., n.d.).

A family business must operate for a long period of time and maintain successive generations; additionally, a secure and responsible financial economy is required. Each company owns fixed assets and working capital, which is necessary to operate. Expenditures can be financed from two sources—equity or foreign capital. Equity comes from the company itself or from the shareholders. They are the financial surpluses generated from the business or from the shareholders. Foreign capital is extracted from the outside - from the environment in which the company operates.

Owners of family businesses are characterized by a marked reluctance to use external sources of capital. Most family business owners use their own means, i.e., retained earnings, depreciation, shareholder contributions, venture capital or public equity issues. Family businesses prefer the least risky and easiest sources of financing. First they use the retained earnings and equity instruments, and then, debt instruments. Funding by means of high risk funds, including business angels, is in Poland in at the stage of development. Family businesses also benefit from external equity financing. The market offers a wide range of bank loans, credit cards and bills. Working capital loans are used to finance the company's current operations and investment loans finance the implementation of long-term investment projects.

The condition for granting credit is that the company has a creditworthiness, understood as the ability to repay the loan, along with the interest, at contractual terms. The assessment of the creditworthiness of an enterprise does not apply only to its current situation but, above all, to its forecasted results. The role of the relationship with the funding institution in a family business can be analyzed in different stages of the enterprise. While in periods of economic downturn, assuming a stable financial position of the entity and low financial needs, this relationship is of less economic importance, in the circumstances of financial crisis it may have a key impact on the survival of the company. Analysis of the impact of financial relationships on the functioning of a company should take into account not only the objective condition of the economy and the company, but also the implications of the theory of imperfect contracts (financing under uncertainty) (Stradomski M., 2010).

An attractive form of financing are loans designed to create jobs in the business. An increasingly popular source of financing is leasing, which is also used by family businesses. It is particularly attractive for startup companies, as it does not require that they have a sufficiently long service life and collateral that would be required when applying for a bank loan. Another form of financing is franchising. The role of grants and subsidies, particularly

those coming from the European Union, is also growing. Merchants credit is also of no little importance.

The third way to finance the development of family businesses is equity financing. This type of capital can be obtained from investors or from natural or legal persons in exchange for a specific share in the company's ownership, with the result of them becoming an economic partner and gaining the right to control and influence the management of the company and access to information previously treated as confidential. For family businesses with a high degree of ownership concentration, equity financing, which involves the need for new external shareholders, seems to be controversial from the family's point of view, but often the only one that guarantees raising capital for growth and, at the same time, achieving liquidity that allows for a smooth withdrawal from a family venture. Family shareholders are competing with the company for liquidity and capital controls. Having control is related to deciding how to use liquid cash flow. They can be treated as liquid funds for shareholders who may wish to make a portion of their family assets for purposes other than those of a family business, or as capital to be reinvested in a joint venture. In multi-generational corporations, non-affiliated stakeholders can be the majority in the company and therefore have more control over the minority shareholders. The time it takes to declare sales of shares by some family members and the availability of the cash necessary to fund these transactions can be important factors for the company to continue operating. If a company cannot afford to pay cash to buy back shares, the only solution to the claims issue is to sell the company or make it available to outside investors.

From a business family's point of view, equity financing has several important advantages: it does not burden the company's financial performance with the obligation to pay its debts (as opposed to raising funds by taking credits and loans), the interests of family business owners and external investors are convergent. Equity investors are more concerned with the growth and expansion of the business than the financial lending institutions, whose focus is primarily on obtaining adequate collateral. A capital investor is not only the source of financial resources required for making a profit, but also a valuable source of information, fresh ideas, concepts and new contacts beneficial for the company. For family businesses that are most likely to have a strong, fairly closed organizational culture, this may be an additional growth factor. Withdrawal from credit obligations in favor of equity financing increases the company's overall creditworthiness and enables wider access to credit in the future.

Equity financing in the case of family businesses is, however, subject to certain material disadvantages: equity investors are more exposed to risk than credit institutions because, in the event of failure, the lenders claim first and then the owners. In return for higher financial returns, which might mean higher capital financing costs, equity financing for closed-end family businesses is complex. To be on the capital market, a company must meet certain procedural requirements or launch investor search mechanisms, the price for being able to raise funds for development is most often the restriction of the family business's independence to capital donors. The most popular forms of equity financing for family businesses in the developed market economy include: market entry with public offering, private equity trading, speculative capital and strategic partnership (Popczyk W., 2010).

#### **4. Methodology of Risk Management of Sources of Financing Family Businesses**

Risk management is not about avoiding risk; Instead, it means using the best skills to estimate the amount of risk and ensure adequate income (Riehl H., 2001, p. 24). The risk of a source of financing is the likelihood of a company losing its ability to service its debt as a result of the adverse impact of the environment. Constant changes occurring in the markets (especially financial), forcing the company to make their own policy on the concept of risk, and thus the development of a logical set of behaviors, which should take the form of a decision-making process, a

process called risk management. The structure of such a process must be as follows:

- risk identification,
- risk assessment,
- risk management,
- observation and control.

The business financing strategy is one of the important areas of business decision making. It determines the size of current and future financial needs related to economic activity and determines the most advantageous (from the point of view of expenditures and effects) source of funds necessary to meet these needs. When deciding on a financing strategy, decisions concerning the share of the use of own and foreign funds are essential (Ickiewicz J., 1996, p. 13). There are two main methods to take into account the capital cost of risk level. One subjective but practical application, the other objective but theoretical. The subjective risk accounting method (Ostaszewski J., 1999, pp. 30-31) consists in multiplying the cost of capital by the subjective risk index. The subjective risk index is influenced by factors such as: uncertainty about the development of a particular economic sector, uncertainty over the barrier to demand, uncertainty about operating profit and cash flow generated, and the possibility of repayment of outstanding credit obligations. The quantification of subjective risk is very difficult. Assistance may include the introduction of risk classes, such as very small, small, medium, high risk and very high risk. Each class should be given the appropriate weight, e.g.: 1.1, 1.2, 1.3, 1.4 and 1.5. Descriptive risk elements are then assigned specific numbers corresponding to one of the five risk classes. Such quantified features, which affect the level of risk, sum up and divide by the number of elements taken into account. In this way, you can establish a subjective risk index.

Risk-taking in the company's business and thus in shaping the structure of finances is an estimation of the risk of achieving a certain cash flow from operating, financial and investment activities. The right way to take into account the risks, uncertainty as to future cash flows, is to study their distribution, depending on a variety of factors affecting future cash flows (and therefore the factors implied by financial results).

Investing in a company depends on capital, which the company has and the possibility of obtaining additional capital. The cost of using a source of financing is the discount rate in NPV. In addition to the impact on cost of capital, the method of financing the investment also has an impact on the generated cash flow, which attributable both to owners and to creditors (Figure 1).

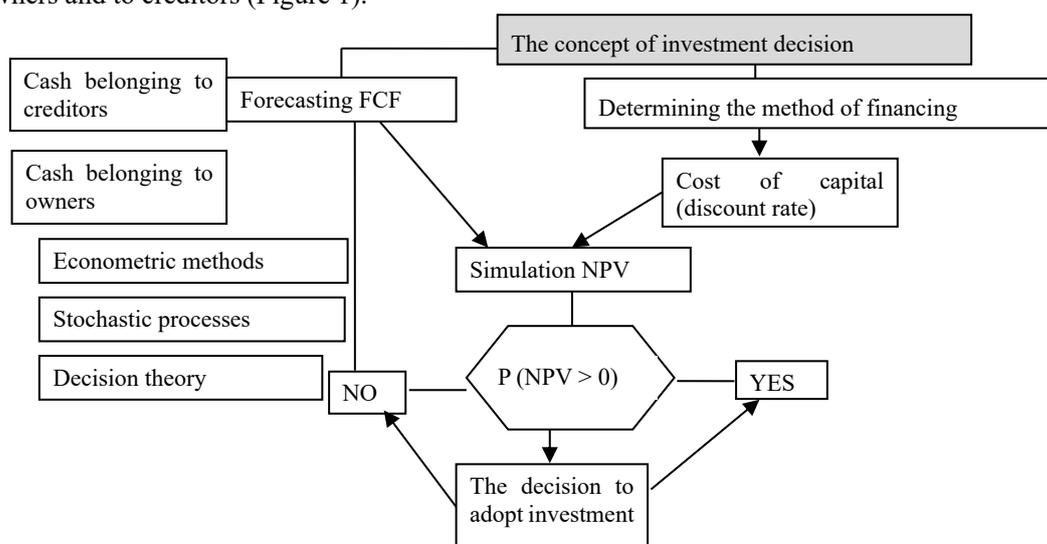


Figure 1 Methodology Dynamically Adapt The Structure of Corporate Finance in the Investment Process

The basis of methods for estimating the profitability of investment projects are developed by them  $CF_t$  cash flows. Forecasting cash flows, we rely on econometric or stochastic methods depending on the occurrence of time-dependent randomness. In NPV method cash flows are discounted and respectively compared with capital expenditures. WACC is assumed as the discount rate. The cost of capital is dependent on the method of financing. Simulation NPV deal with forecasting CF and possible combinations of WACC. Simulation results are the basis for elimination from further consideration of projects with  $NPV < 0$ , unprofitable projects.

## 5. Summary

One of the factors affecting the current financial results of the company and the profitability of its development projects is the financial structure of the company and its associated sources of financing. Financing strategy is a set of rules of behavior of an enterprise in the process of raising capital (Jog V. & Suszyński C., 1990, p. 261). Strategic decisions in this area are about finding the right relationship between equity and the alien. The financial leverage and the risk of default (bankruptcy) are at the heart of optimizing the level of debt. The optimal capital structure is one that allows for a balance between risk and rate of return on equity, and thus optimizes the price of the share capital. At the same time, the optimal financial structure minimizes the weighted average cost of capital and maximizes the value of the business. The increase in the market value of the company and the wealth of its owners as a result of the change in equity to interest-bearing liabilities proves that financial decisions taken in an enterprise should not be limited only to finding the cheapest sources of capital to finance operating activities. The use of family business operations by various types of financial transactions, which alter the company's existing financial structure, can also be an important element in maximizing the value of an enterprise and the benefits that its owners have.

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# Cloud Computing as Key Digital Infrastructure to Achieve Japan's Sustainable Development Goals (SDGs) Challenge: A Potential "Revival" of Competition Analysis

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**Abstract:** Cloud computing services have evolved as key digital infrastructure for a digital economy; furthermore, they could potentially lead to the "revival" of an analytical competition law framework to balance anti-competitive effects and justification. Recently, various competition authorities have been scrutinizing cloud computing service providers ("CSPs") suspected of abusing their superior bargaining position by taking "advantage" of "vendor lock-in". On the other hand, CSPs provide agility, diversity, flexibility, scalability, and cost-efficiency that enable start-ups to develop innovative cloud-based software and solutions and strengthen their competitive advantage. Also, the Japan Fair Trade Commission ("JFTC") has published the draft "Guidelines Concerning the Activities of Enterprises, etc. Toward the Realization of a Green Society under the Antimonopoly Act" (Draft Green Guidelines") and explained that the benefits of SDGs, including the reduction of greenhouse gas emissions, can be considered justification for anti-competitive conduct. Thus, the competition policy's interaction with environmental policy, education/healthcare policy, and governmental digital transformation has become an emerging issue. In this regard, two theoretical issues must be addressed in order not to turn the competition law into a self-satisfying regulation. First, the definition of "relevant markets" must be revisited. Historically and theoretically, conduct was generally assessed by each market, regardless of whether the conduct generates consumer benefits in one market that may overcome the anti-competitive effect in another market. However, in 2021, a new regulatory framework aimed at digital platforms that regulate interactions between multi-sided markets came into effect in Japan (the Act on Improving Transparency and Fairness of Digital Platforms ("TFDPA")), which hints at building an analytical framework that will encompass effects in neighboring fields. Second, there needs to clarification about whether the environmentally friendly effects that cloud computing services trigger in other jurisdictions should be taken into account in Japan; accordingly, it is necessary to examine the geographical scope of the justification of anti-competitive conduct in terms of a common global agenda like SDGs.

**Key words:** cloud, competition, sustainability, digital, software

**JEL code:** F1

## 1. Summary

Cloud computing services have evolved as key digital infrastructure for a digital economy; furthermore, as

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detailed in this article, it could potentially lead to the "revival" of an analytical competition law framework to balance anti-competitive effects and justifications, such as promoting renewable energy and competition, in cloud-based emerging services. Recently, various competition authorities have been scrutinizing cloud computing service providers ("CSPs") suspected of abusing their superior bargaining position by taking "advantage" of "vendor lock-in". On the other hand, CSPs provide agility, diversity, flexibility, scalability, and cost-efficiency that enable startups to develop innovative cloud-based software and solutions and strengthen their competitive advantage. Moreover, in Japan, (i) cloud data centers have emerged as renewable energy and de-carbonization leaders, (ii) CSPs have contributed to online education and healthcare services, and (iii) CSPs have enabled the Japanese government to conform with foreign governments that have adopted digital transformation and digitization of administrative operations. Moreover, the Japan Fair Trade Commission ("JFTC") has published the draft "Guidelines Concerning the Activities of Enterprises, etc. Toward the Realization of a Green Society under the Antimonopoly Act" ("Draft Green Guidelines") and explained that the benefits of SDGs, including the reduction of greenhouse gas emissions, can be considered justification for anti-competitive conduct. Thus, the competition policy's interaction with environmental policy, education/healthcare policy, and governmental digital transformation has become an emerging issue. In this regard, two theoretical issues must be addressed in order not to turn the competition law into a self-satisfying regulation. First, the definition of "relevant markets" must be revisited. Historically and theoretically, conduct was generally assessed by each market, regardless of whether the conduct generates consumer benefits in one market that may overcome the anti-competitive effect in another market. However, in 2021, a new regulatory framework aimed at digital platforms that regulate interactions between multi-sided markets came into effect in Japan (the Act on Improving Transparency and Fairness of Digital Platforms ("TFDPA")), which hints at building an analytical framework that will encompass effects in neighboring fields. Second, there needs to clarification about whether the environmentally-friendly effects that cloud computing services trigger in other jurisdictions should be taken into account in Japan; accordingly, it is necessary to examine the geographical scope of the justification in terms of common global agenda like SDGs.

## **2. Emergence of Cloud Computing Services in Japan**

Recently, Japan has been struggling with the digital transformation of its society, and the Japanese government recognizes that cloud computing services will be a key digital infrastructure for the digital economy in Japan<sup>1</sup>. The following section reviews recent developments in policies regarding cloud computing services in Japan, which seem to have been affected to some degree by the policy proposal in the EU.

The term "cloud computing services" actually includes various types of services such as IaaS<sup>2</sup>, PaaS<sup>3</sup>, and

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<sup>1</sup> Cabinet Office, Data Strategy Task Force, "Comprehensive Data Strategy", June 18, 2022, pp. 43-44.

<sup>2</sup> Infrastructure as a service: customers rent computers, servers, and storage from the CSP, and are able to access these resources via the Internet.

<sup>3</sup> Platform as a service: CSP hosts a customer's application development environment, through which the customer can design, test, and develop new applications.

SaaS<sup>4</sup> in various forms, such as public<sup>5</sup>, private<sup>6</sup>, hybrid<sup>7</sup> and multi-cloud<sup>8</sup>; moreover, they further vary depending on the technology and commercial developments (Minjae Song, December 2021, pp. 7-12). These types of services can be ordered based on the degree to which the customer operates and outsources its IT resource management, and the order should be the traditional IT (on-premises IT), IaaS, PaaS, and SaaS in increasing order of degree (Rolf Harms & Michael Yamartino, December 2021). Common examples of IaaS include Amazon Elastic Compute Cloud (EC2), Google Compute Engine, and Microsoft Azure; common examples of PaaS include AWS Elastic Beanstalk, Google App Engine, and Salesforce's Heroku; and common examples of SaaS include Google Docs, Slack, and Mailchimp.

Among these types of cloud computing services, the customer examines whether and how to adopt cloud computing services by taking into account the advantages offered by the cloud computing services such as the availability, scalability, elasticity, risk reduction, cost savings, security as well as disadvantages such as the loss of ownership over server hardware and latency (Minjae Song, December 2021, pp. 40-43). That said, it should be noted that cloud computing services are still a small part of all IT resources available to customers. In Japan, cloud computing services have gradually penetrated some fields such as manufacturing, education, healthcare and governmental authorities; and the Japanese government has declared that it will promote the adoption of cloud computing services further (cloud by default) (Digital Agency of Japan, December 24, 2021), but these efforts are still in the early stage (Deloitte Touche Tohmatsu Limited, April, 2022). These Japanese governmental authorities' decision to actively promote the adoption of cloud computing services could have been inspired by the GAIA-X project in the EU (Data Strategy Task Force within the Cabinet Office of Japan, June 18, 2022, p. 28) that was established based on German and French initiatives to build up the fundamental basis for combining and sharing data on cloud computing services.

### **3. Recent Development in Competition Law and Policy on Cloud Computing Services**

Against the background described in Part II above, the Japan Fair Trade Commission ("JFTC"), which is the Japanese competition authority, conducted a survey of cloud computing services based on the suspicion, in particular, that CSPs could be engaging in abusive conduct by using the vendor lock-in situation, and other competition authorities also have started looking into competition assessments of cloud computing services. The following summarizes these developments.

#### **3.1 International Developments**

There seem to be some developments in the international discussion about how competition policy applies to cloud computing services, although the discussion has just begun.

##### **(1) The U.S.**

On October 6, 2020, the Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary published a report titled "Investigation of Competition in Digital Markets"<sup>9</sup> that contains a holistic

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<sup>4</sup> Software as a service: customers use a CSP's software, which is hosted in the cloud and accessed through the Internet.

<sup>5</sup> A deployment method in which multiple unaffiliated customers share computing resources in the multi-tenancy model at a remote data center managed by the CSP.

<sup>6</sup> A deployment method in which the cloud environment is used by a single customer, sometimes for specific functions.

<sup>7</sup> An IT strategy in which a customer uses any combination of the core deployment methods described above, including traditional on-premise, public cloud, private cloud, and/or community cloud.

<sup>8</sup> A practice of using multiple CSPs across one or more of the above deployment methods.

<sup>9</sup> Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, "Investigation of Competition

survey of the business model and the anti-competitive concerns raised by the large tech companies in the U.S., as well as proposals to enable the competition authorities to more effectively tackle such anti-competitive concerns, including amendments to the U.S. anti-trust laws such as the Sherman Act, Clayton Act, and FTC Act. The report referred to cloud computing as “the service that enables remote storage and software programs on demand through the Internet”, and recognized that “[c]loud computing is a critical input to many of the digital markets the Subcommittee investigated, providing infrastructure for online commerce, social media and networking, digital advertising, voice assistants, and digital mapping — technologies that benefit from dynamic storage and computational power. In a future with smart homes, autonomous vehicles, and artificial intelligence applications in nearly every sector from agriculture to healthcare, understanding the dynamics of the cloud market becomes critical. These ground-breaking technologies work because they can access and analyze massive amounts of data in real time, companies looking to innovate in these spaces will struggle to rely solely on traditional I.T. and will likely turn to public cloud vendors.”<sup>10</sup> Also, the report said that “[i]ndustry reports suggest that the cloud computing market is consolidating around three providers domestically — AWS, Microsoft Azure, and Google Cloud Platform.”<sup>11</sup>

That said, the report stated that, “[w]hen asked about lock-in, many market participants discussed how in response to the rise of a few dominant platforms in the cloud market, new strategies have emerged to increase portability between vendors and allow customers to use multiple clouds”, and “[a]lthough third-party vendors can sell their service directly to consumers through their own websites, many smaller cloud vendors use the marketplaces of the dominant infrastructure providers to reach customers, which require fees and are subject to competition concerns that are similar to other marketplaces examined by Subcommittee staff during the investigation. Market participants have raised concerns that cloud infrastructure providers can prioritize their own offerings, or offer these products with exceedingly steep discounts, making it difficult for third-party software vendors with fewer products to compete.”<sup>12</sup>

## (2) The EU

On January 20, 2022, the European Commission published the market survey report and the staff working paper based on the sector inquiry with IoT services and referred to the roles and functions of cloud computing services used in IoT services such as voice assistants. In the staff working paper, the cloud computing service was defined as “a digital service that enables access to a scalable and elastic pool of shareable computing resources” pursuant to Art. 4(19) of the NIS Directive ((EU) 2016/1148), and there has not been any description that raised anti-competitive concerns specifically from cloud computing services; rather, the respondents to the survey said that the lack of access to cloud services just constitutes a very small portion (approx. 3%-5%) of the barriers to entry or expansion into the IoT segment, although the staff working paper referring to one of the respondent’s responses explained that the investment cost of developing the cloud computing service would be quite high as background information for examining the possible anti-competitive concerns in the field of voice assistants (European Commission, January 20, 2022, pp. 39-41).

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in Digital Markets”, October 6, 2022.

<sup>10</sup> Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, “Investigation of Competition in Digital Markets”, October 6, 2022, pp. 109-110.

<sup>11</sup> Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, “Investigation of Competition in Digital Markets”, October 6, 2022, p. 114.

<sup>12</sup> Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, “Investigation of Competition in Digital Markets”, October 6, 2022, pp. 119-120.

The discussion about the competition policy in the field of cloud computing services can also be observed in the EU member states' competition authorities. For example, on June 19, 2019, the German competition authority explained during the merger review of the planned acquisition of T-Systems by IBM that what needed to be considered was that any possibility for customers to switch to other data center systems or cloud solutions involves a very high investment.<sup>13</sup> As a more relevant fact, on January 27, 2022, the French competition authority announced the launch of a market survey of cloud computing services; it is expected to publish the findings in early 2023.<sup>14</sup> According to the French competition authority, the survey will especially focus on examining the competitive dynamics of the sector and the presence of players in the various segments of the value chain, as well as their contractual relationships, in an environment in which multiple alliances and partnerships are concluded for the provision of cloud services, and also on defining the relevant markets in the cloud sector, assessing the position and competitive advantages of the various players involved and examining the commercial practices that may be established.

Separately, among academics in the competition law space in the EU, Cloud Infrastructure Services Providers in Europe ("CISPE"), which is a non-profit organization comprising the CSPs who provide services in the EU, published a paper titled "Cloud Infrastructure Services: An analysis of potentially anti-competitive practices". The paper outlines the actual competition situation and the industrial structure in the cloud computing service market, and provides a list of possible anti-competitive conduct based on a holistic understanding of the dynamic nature of the cloud computing service industry. At the outset, the paper pointed out that the definition of the relevant market based on the various service types such as IaaS, PaaS and SaaS would be in line with the EU's court precedents, and the relevant markets should not be defined rigidly, but rather, flexibly in order to reflect emerging new service models such as the BaaS and FaaS.<sup>15</sup> In addition, the paper referred to a number of adjacent services for cloud computing services such as business tools (e.g., Office 365, Google Workplace, Oracle, SAP) and operating systems (e.g., iOS/Android, Windows, MacOS, Linux).<sup>16</sup> Thus, competition surrounding cloud computing services can be observed leveraging the competitive advantages of attractive software (e.g., a large traditional company tends to prioritize continuous use of existing software even after adopting cloud computing services). Therefore, the competition authority should keep in mind during its competition assessment whether the conduct at issue involves the "naked" CSPs who do not necessarily have the competitive advantage of their software, or CSPs who are capable of combining the competitive advantage of not only their cloud computing services but also their software.<sup>17</sup> Based on this understanding, the paper outlines the type of relevant anti-competitive conduct in light of the EU's competition law. First, from the perspective of conduct to excluding a competitor, there could be (i) the tying of low priced cloud computing services and high license fee software that is closed (i.e., not open source software), (ii) prioritizing its software to maximize the functionality of its cloud computing service compared to other software, (iii) raising the rival's cost through frequent and unstable updates and changes in specifications, and (iv) utilizing high entry barriers due to the high cost of researching and developing the software and infrastructure to force customers to enter into long-term agreements. Second, from the perspective of exploitative conduct with respect to

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<sup>13</sup> Bundeskartellamt (June 19, 2019). "Bundeskartellamt examines the effects of a planned acquisition of T-Systems assets by IBM on the market for mainframe infrastructure outsourcing", p. 5.

<sup>14</sup> Autorité de la concurrence, "The Autorité de la concurrence starts proceedings ex officio to analyze competition conditions in the cloud computing sector", January 27, 2022.

<sup>15</sup> Frederic Jenny (October, 2021). "Cloud Infrastructure Services: An analysis of potentially anti-competitive practices", pp. 11-14.

<sup>16</sup> Frederic Jenny (October, 2021). "Cloud Infrastructure Services: An analysis of potentially anti-competitive practices", pp. 17-21.

<sup>17</sup> Frederic Jenny (October, 2021). "Cloud Infrastructure Services: An analysis of potentially anti-competitive practices", p. 21.

customers who are locked into the use of a certain cloud computing service, there could be frequent amendments to licensing terms, including an increase to an excessively high price, and forcing customers to repeatedly purchase “new” services for the unexpected long-term. Third, from the perspective of ensuring a sound competitive environment through competition policy, conduct that forces customers to provide commercially sensitive information for the purpose of unfairly soliciting those customers to switch from other CSPs.<sup>18</sup>

### **3.2 JFTC’s Market Survey**

The JFTC published a market survey report on the procurement and adoption of cloud computing services in the public sector on February 8, 2022;<sup>19</sup> on April 14, 2022, it announced<sup>20</sup> the launch of a market survey of the procurement and adoption of cloud computing services in the private sector, and it is expected to publish the results of the survey in the future.

#### **(1) Public Sector**

Based on the Japanese government’s policy called government cloud or cloud by default principle to promote the adoption of cloud computing services, the JFTC’s report generally encourages IT service providers, including CSPs, as well as governmental authorities to adopt open specifications and open source software, thereby avoiding the vendor lock-in situation, which means that the IT service providers are able to impose unfair terms and conditions on governmental authorities by using the situation whereby governmental authorities would not easily be able to terminate an existing relationship with an IT service provider and switch to another IT service provider due to heavy reliance on the existing on-premises IT functions as well as the lack of portability, interoperability, skills and budget.<sup>21</sup> That is, the JFTC’s focus seems to be directed first at moving away from the existing, traditional and complex on-premises IT service environment that has been broadly adopted within governmental authorities to cloud computing services by exemplifying the possible anti-competitive behavior of the existing IT service vendors; therefore, the issues relating to being locked into major CSPs and switching between such large CSPs that have been discussed in other jurisdictions, such as the U.S. and the EU, could be addressed as the “second step” for the Japanese IT situation.

Interestingly, in the JFTC report, while traditionally it would be normal for the JFTC to merely list conduct that may have an anti-competitive effect and not provide any hints about the circumstances in which the business operator can engage in such listed conduct, it explained in what situations CSPs’ sales activities would not be considered undue interference with competitors’ transactions.<sup>22</sup> For example, it is recommended that CSPs (i) explicitly identify that the proposed service is the CSP’s unique service or a form of commodity, (ii) refrain from engaging in deceptive communications with customers during their preparation of the service specifications and determining the bidding system, (iii) avoid introducing requirements that cause customer’s to misunderstand that only the involved CSP is capable of fulfilling the requirements, and (iv) provide reasonable evidence where the CSP seeks to explain that the required specification can be met only by that CSP and cannot be substitutable for another CSP.<sup>23</sup> This description is meaningful in terms of determining the definitive factors used to distinguish conduct that

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<sup>18</sup> Frederic Jenny (October, 2021). “Cloud Infrastructure Services: An analysis of potentially anti-competitive practices”, pp. 32-47.

<sup>19</sup> JFTC (February 8, 2022). “Market survey on IT system procurement in the public sector”.

<sup>20</sup> JFTC (April, 14, 2022). “Minutes of regular press conference of secretary general”.

<sup>21</sup> JFTC (February 8, 2022). “Market survey on IT system procurement in the public sector”, pp. 4-5, 8-9, 14-15, 19-20, 26, 50-51, 53-54.

<sup>22</sup> JFTC (February 8, 2022). “Market survey on IT system procurement in the public sector”, p. 48.

<sup>23</sup> In November 2021, the JFTC reportedly raided two IT systems development companies on suspicion of undue interference with competitors’ transactions, which is one of the unfair trade practices prohibited under the Anti-Monopoly Act of Japan. Although the

falls within "sound competition" on its merits from that which falls outside sound competition, which should be clarified in order to avoid an unnecessary chilling effect on innovative services.

Separately, the JFTC has requested that the Digital Agency, which is the governmental authority leading the digital transformation of Japanese governmental authorities, including local governments, provide support in relation to the budget and skills that are necessary to adopt cloud computing services, and to establish appropriate guidelines or standards in relation to the procurement of cloud computing services.<sup>24</sup> Although the specific interaction between the JFTC and the Digital Agency has not been described, this may imply that the conduct pursuant to the guidelines or standards prepared by the Digital Agency could generally be considered to be sound sales activities for cloud computing services.

#### (2) Private Sector

In addition to the market survey of the public sector, the JFTC launched a market survey of cloud computing services in the private sector, and the survey is ongoing. During the market survey, the JFTC held a meeting with experts who are specialized in IT services on March 30, 2022. In the meeting, based on the survey thus far, the JFTC expressed a recognition of the current competitive situation surrounding cloud computing services whereby (i) the price of IaaS has gradually decreased in Japan, but (ii) the small number of CSPs have a high market share and have exploited the economy of scale, the scope of the economy, indirect network effects, and a wide range of other complementary services, and (iii) there is a switch from cloud computing services that are currently used to other IT services, including on-premises IT services and CSPs.<sup>25</sup> In addition, the JFTC further referred to possible anti-competitive concerns in relation to cloud computing services such as the strategy for foreclosing existing customers within its ecosystem (e.g., high data transmission fees), self-preferencing the licensing terms for its own software to be used on its IaaS compared to usage on other IaaS, and access to the non-public information of the CSP's customers who use the CSP's cloud computing service and compete in other IT services.<sup>26</sup>

### **4. Issues to Be Addressed**

While cloud computing services have definitely been assuming a key role in facilitating the digital transformation of Japanese society through various means, as shown in Part II, the JFTC as well as other competition authorities have been seeking to identify possible anti-competitive conduct before concerns become a reality as observed in Part III. However, when it comes to the situation in Japan, as revealed in the JFTC's report on the market survey for the procurement of cloud computing services in the public sector, it is still in the early stages of adopting cloud computing services, and of detaching from the traditional on-premises IT environment; the same would apply to the private sector. In addition, in Japan, promoting the adoption of "green" technology, including cloud computing services based on data centers using renewable electricity, has also just started; and no concrete conclusion has been reached on how the environmental benefits provided by cloud computing services can be taken into account when assessing possible anti-competitive conduct. Considering this situation in Japan, there have been calls to clarify the balanced analytical framework for assessing competition, in particular, (i) how can dynamic competition in the

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connection between this case and the market survey is not clear, the JFTC reportedly focused on the conduct of the system development companies that forced customers to include a requirement prohibiting the use of open source software in their specifications, through which the companies sought to exclude their competitors.

<sup>24</sup> JFTC (February 8, 2022). "Market survey on IT system procurement in the public sector", pp. 15, 20, 26, 39-40, 45, 51, 58.

<sup>25</sup> JFTC (March 30, 2022). Secretariat Material at the Opinion Exchange Meeting regarding Cloud Service, p. 11.

<sup>26</sup> JFTC (March 30, 2022). Secretariat Material at the Opinion Exchange Meeting regarding Cloud Service, p. 15.

market related to various types of cloud computing services and various related products be captured, and (ii) what can be the definitive factors to distinguish conduct that falls within sound competition on its merits, or is outside sound competition activity, in order to avoid causing an unnecessary chilling effect on , in particular, the adoption of cloud computing services in Japan to facilitate environmental benefits appropriately.<sup>27</sup>

#### **4.1 Dynamic Competition in the "Market" and Cloud Computing Services**

The first issue is how do we provide a basis for assessing the competitive effect through the market definition in a way that effectively and comprehensively covers dynamic competition in relation to cloud computing services.

##### **(1) Relevant Market Definition Methodology in the Context of a Digital Economy**

At the outset, we may learn something from the experiences in the EU and U.S. The EU is seeking to amend the Notice regarding the market definition (97/C 372/03), thereby clarifying the possibility that the geographic scope of the relevant market concerning digital services could be defined as the global market, and also taking into account the effect realized across multiple relevant markets for assessing the impact on the ecosystem.<sup>28</sup> Also, in the U.S., the Supreme Court's judgement in the Amex case provides certain guidance on how the two-sided market is considered to be defined as the relevant market; and if there were close interactions between the different sides of customers ("pronounced indirect network effects and interconnected pricing and demand"), both sides would constitute a single relevant market. Thus, the competition authority is required to prove the anti-competitive effect in the relevant market as a whole by considering the possible pro-competitive effect that may arise in one of the markets,<sup>29</sup> although there have been extensive discussions about to what extent the ruling can apply to other cases.

##### **(2) Relevant Market Definition in Japan**

As with the EU and the US, the fundamental work of defining the relevant market, which provides the basis for conducting a competition assessment, can be carried out by analyzing the demand-side substitutability as well as the supply-side substitutability as a complementary factor. The details are explained in the merger control guidelines.<sup>30</sup> as well as the unfair trade practices<sup>31</sup>, and it is generally understood that this can apply to any other types of regulation under the competition law, such as the regulation against unilateral conduct.<sup>32</sup> However, although the merger control guidelines have been updated by reflecting the guide provided by the U.S. Supreme Court in the Amex case, as well as by clarifying that the traditional framework can still apply to services provided via the Internet, the methodology of defining the market has not been "deepened" to specifically address the features of the digital economy, such as cloud computing services.

More specifically, when it comes to the relevant market definition for cloud computing services, as shown in Part II, there have been various types and ranges of service provisions, and they are still developing dynamically. Therefore, as a starting point, it is important that the relevant market be defined in such a way that enables the

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<sup>27</sup> OECD (November 18, 2021). "Environmental Considerations in Competition Enforcement - Background Paper by the Secretariat", pp. 17-19.

<sup>28</sup> European Commission (July 7, 2021). "Commission Staff Working Document Evaluation of the Commission Notice on the definition of relevant market for the purposes of Community competition law of 9 December 1997".

<sup>29</sup> *Ohio v. Am. Express Co.*, 138 S. Ct. 2274, 2290 (2018).

<sup>30</sup> JFTC (May 31, 2014). "Guidelines to Application of the Antimonopoly Act Concerning Review of Business Combination", (as amended).

<sup>31</sup> JFTC (July 11, 1991). "Guidelines Concerning Distribution Systems and Business Practices," (as amended).

<sup>32</sup> In this regard, the legal text of the regulations against unfair trade practices under the Anti-Monopoly Act, which can be triggered by a lower threshold compared to the regulations against private monopolization (i.e., regulations against the abuse of a dominant position), would not necessarily require a definition of the relevant market; however, in practice, the relevant market has been defined for purposes of assessing the effect on competition, such as the applicability of the safe harbor.

competition authorities to conduct a holistic review, as well as for business operators to conduct appropriate self-assessment of the possible effect on conduct by considering the dynamism of competition surrounding cloud computing services. Then, traditionally and generally, in principle the relevant market should be defined by the type of service offered; thus, given that an anti-competitive effect arising in a market is not overcome by a pro-competitive effect arising in the same market, even if the conduct at issue provides a pro-competitive effect in another but related market, its anti-competitive effect still constitutes a violation of the Anti-Monopoly Act.

However, the competition that cloud computing services causes or facilitates would be more dynamic. More specifically, two different types of competition regarding cloud computing services can be observed: (i) competition on cloud computing services (competition among services created on cloud computing services); and (ii) competition among cloud computing services. Then, regarding competition on cloud computing services, there would be an argument that such competition can be restrained for the purpose of promoting competition among cloud computing services. On the other hand, regarding competition among cloud computing services, there also is an argument that such competition can also be restrained for the purpose of facilitating the investment and improvement of competition on cloud computing services. For example, even if the CSP ties its cloud computing services to its proprietary software and thereby restricts competition in the affected cloud computing service or software market, the CSP may argue that such restriction could be justified because of the pro-competitive effect in the software market where the CSP enables customers to develop new software using the resources of cloud computing services, and to facilitate their innovations.<sup>33</sup> However, if the promotion of competition in the secondary market means promotion based on the development of new software only by CSP itself, this pro-competitive effect argument would be challenged by the counterargument that such effect is based on an abusive utilization of the network effect between customers in the cloud computing service and the software market or based on unfair self-preferencing. In fact, the Competition Policy in Digital Market Study Group established at the JFTC published a report and referred to the interactions between cloud computing services and the AI platform that enables CSP in itself to further develop and strengthen the software using the AI platform in order to obtain the competitive advantages.<sup>34</sup> These possible arguments reflecting the dynamic state of the cloud computing services should be appropriately addressed in the competitive analytical framework.

In this connection, the JFTC may adjust the enforcement practice by deprioritizing such a case in which the conduct at issue may have a pro-competitive effect in the economy to a certain extent; and if that approach is workable in practice, the business operator would not necessarily suffer from an unpredictable or opaque enforcement of the Anti-Monopoly Act. However, there would still be legal uncertainty, and such uncertainty would lead to a significant chilling effect on companies who tend to take a conservative or risk-averse approach. This type of chilling effect would become larger for local companies since those companies would more frequently gauge the local regulator's feelings compared to foreign companies. Therefore, the traditional market definition framework should be revisited in order to examine how the work of defining the relevant market would function theoretically.<sup>35</sup> On this point, recently, Japan enacted the TFDPA, which became effective from February 1, 2022. The TFDPA is

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<sup>33</sup> An argument also could be made that there is no "tying," in that multiple IT services technically are combined and thereby constitute a single service.

<sup>34</sup> Competition Policy in Digital Market Study Group, "Algorithm/AI and Competition Policy Report," March 31, 2021, pp. 53-56.

<sup>35</sup> Although the answer depends on the CSP's policy regarding handling and protecting the data collected, the competitive advantage arising from data accumulation also should be assessed in order to precisely determine the "position" of the CSP in the relevant market (Randal C. Picker, "Competition and Privacy Web 2.0 and Cloud," 2008, pp. 3-4), regardless of whether the data at issue is collected within the relevant market to which the consideration of the anti-competitive effect applies.

specifically set out for the purpose of regulating the indirect and direct network effect arising from multi-sided markets, and thereby contemplating the purpose of the Anti-Monopoly Act that is preventing any anti-competitive effect. In fact, the TFDPA contains provisions that exempt specified digital platform operators from liability to disclose information and to provide a prior notice such as a prior notice for account termination when fulfillment of that liability would impede the consumer's benefit. In other words, in certain situations, the TFDPA allows specified digital platform operators to prioritize the consumer's benefit compared to the business user's benefit. Therefore, one mode of thinking could be that, in particular, after the TFDPA became effective, it would be clarified that a holistic assessment of the interaction between different segments of consumers is possible under the Anti-Monopoly Act even if the separate relevant market could be defined for the different consumer segments.<sup>36</sup> In fact, even before the TFDPA was implemented, it was hinted at that the Anti-Monopoly Act is capable of providing such assessment methodology regarding the tying regulation because the JFTC explained that, whether there is an anti-competitive effect in the secondary market should be examined based on the effect both in the primary market and the secondary market collectively.<sup>37</sup>

#### **4.2 SDGs as a Justifiable Ground**

However, a further issue remains. The Anti-Monopoly Act needs to clarify how the JFTC is able to balance and prioritize the harm and benefit experienced by different segments of consumers. Generally speaking, it can be observed that competition among the platforms tends to be prioritized compared with competition on the platforms. Thus, even if consumers who have been active on a platform have suffered due to exploitative abuse of the platform, the platform might not be considered to be violating the Anti-Monopoly Act in light of the possible promotion of competition among the platforms; furthermore, this understanding may be affected by an analogy to the traditional comparison between inter- and intra- brand competition. That said, this analogy still would not have a rigid theoretical basis, and the JFTC has clarified its position that inter- and intra-brand competition have the same value in its guidelines.<sup>38</sup> In the context of the adoption of the cloud computing services, as it would be expected that cloud computing services would be a key infrastructure component of the digital transformation of society, as well as the promotion of a green society.<sup>39</sup>

##### **(1) Compatibility Between Competition Policy and Environmental Policy in the EU**

As further illustrated below, in the EU's competition law practices, it has been recognized that the benefit to the environment can be considered to be a pro-competitive effect that may override an anti-competitive effect under certain conditions, but it would be necessary for the benefit to the environment to be realized within the jurisdiction of the EU. This mechanism may be affected by the EU's legislative system concerning the protection of the environment that enables the competent authorities to compel business operators to comply with certain legal requirements pursuant to environment-related laws and regulations, such as the Packaging Waste Directive (94/62/EC), Batteries Directive (2006/66/EC) and Waste Electrical and Electronic Equipment Directive (2002/96/EC).

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<sup>36</sup> The same idea can be observed in the EU's proposed Digital Markets Act (COM/2020/842). Art. 6, para. 1 of the Digital Markets Act encompasses tying practices whereby a gatekeeper in operating systems only allows access to third party software through its cloud computing system, but this does not mean that the gatekeeper cannot take measures to protect "the integrity of the hardware or operating system of the gatekeeper" (Nicolass Petit, "The Proposed Digital Markets Act (DMA) - A Legal and Policy Review", 2021, p. 14).

<sup>37</sup> JFTC (June 16, 2017). Result of Public Comments on the draft Revised Guidelines Concerning Distribution Systems and Business Practices, No. 114.

<sup>38</sup> JFTC (July 11, 1991). "Guidelines Concerning Distribution Systems and Business Practices," (as amended).

<sup>39</sup> Deloitte Touche Tohmatsu Limited (April, 2022). "Growing on the cloud", p. 28.

The European Commission further published the policy paper titled "European Green Deal" on December 11, 2019<sup>40</sup>, and subsequently there has been active policy making concerning environmental, social, and governance ("ESG") investments and SDGs from the perspective of competition policy. For example, the European Commission decided to impose fines on collusive conduct restricting competition in emission controls for new diesel passenger cars on July 8, 2021<sup>41</sup>, and also the European Commission further published papers addressing the contribution of competition policy to environmental policy<sup>42</sup>.

In the "European Green Deal", the European Commission set forth policy objectives such as climate neutrality with no net emissions of greenhouse gases in 2050, decoupling economic growth and resource use, and transforming its economy and society to be more sustainable. These policy objectives are based on the Paris Agreement which became effective in November 2016 and which aims to prevent increases in global temperatures, and to achieve this ambitious policy goal, the European Commission enacted the European Climate Law (Regulation (EU) 2021/1119) stating that the EU will decrease 55% of greenhouse gas emissions substantially by 2030. Under the "European Green Deal", the European Commission has formulated policy packages in seven fields, such as supplying clean, affordable and secure energy, mobilising industry for a clean and circular economy, building and renovating in an energy and resource efficient way, accelerating the shift to sustainable and smart mobility, preserving and restoring ecosystems and biodiversity, establishing "From 'Farm to Fork'" (designing a fair, healthy and environmentally-friendly food system), and preserving and restoring ecosystems and biodiversity. These policies have been implemented by not solely relying on environmental policies, but by also combining industrial policies as well as energy policies. In addition, the European Commission implemented the Taxonomy Regulation ((EU) 2019/2088) to define what kind of economic activities can fall under sustainable investment in order to examine whether the investment at issue in the private sector should be promoted or not, and announced its intention to add natural gas and nuclear power related activities as sustainable investments, although, in response to the Ukraine situation there seem to be the differences among EU member states in their positions on this matter.

While ESG/SDG related policy making in the EU is largely developed, business operators have not been able to respond to these rapid and material changes in the social structure through their own efforts, which may be resulting in delays in achieving environmental policy goals, and therefore, cooperative actions may be called for which could conflict with prohibitions against horizontal or vertical agreements under the EU's competition law (Art. 101, paras. 1 & 2 of the Treaty of Functioning of European Union ("TFEU")). In this context, historically, there have been some efforts to strike a balance between competition policy and environmental policy. More specifically, even if agreements fall within the scope of prohibitions under Art. 101, para. 1 of the TFEU, such agreements would not be considered to be in violation of competition law provided that all the requirements under Art. 101, para. 3 of the TFEU are fulfilled. The requirements under Art. 101, para. 3 of the TFEU would be generally examined by balancing the anti-competitive effects and the pro-competitive effects. In this regard, past guidelines for assessing the requirements under Art. 101, para. 3 of the TFEU explained that, "[g]oals pursued by other Treaty

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<sup>40</sup> European Commission (December 11, 2019). "Communication from the commission to the European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions - The European Green Deal".

<sup>41</sup> European Commission (July 8, 2021). "Antitrust: Commission fines car manufacturers €875 million for restricting competition in emission cleaning for new diesel passenger cars".

<sup>42</sup> European Commission (November 2021). "Competition Policy Brief 1/2021 - Policy in Support of Europe's Green Ambition" on September 2021, European Commission, "COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS - A competition policy fit for new challenges".

provisions can be taken into account to the extent that they can be subsumed under the four conditions of Article [101] (3)".<sup>43</sup> In addition, other guidelines for horizontal agreements explicitly refer to a framework concerning how environmental agreements should be assessed<sup>44</sup>. To be specific, the guidelines define environmental agreements as agreements for the purpose of achieving pollution abatement, and then specified three types of environmental agreements that (i) do not fall (e.g., agreements with no precise individual obligation, or a loose commitment to contribute to the attainment of an environmental target, agreements with no appreciable effect on the product and production diversity or user choice, agreements designed to genuinely create markets), (ii) almost always come (e.g., cooperation does not truly concern environmental objectives, but serves as a tool to engage in a disguised cartel (recently, a so-called "green wash")), and (iii) may fall (e.g., agreements that appreciably restrict the parties' ability to devise characteristics for their products or the way in which they produce them, thereby granting them influence over each other's production or sales) under Art. 101, para. 1 of the TFEU. Thereafter, given that there must be net benefits in terms of reduced environmental pressure resulting from the agreement, as compared to a baseline where no action is taken, such agreement could be justified pursuant to Art. 101, para. 3 of the TFEU. Having said that, in the revised guidelines, while environmental agreements have not been elaborated on in the independent section, environmental agreements have been referred to in some research and development agreements and standardization agreements, and the guidelines still explain that these kinds of agreements can be justified pursuant to Art. 101, para. 3 of the TFEU because of environmental benefits that increase economic efficiency.<sup>45</sup> These guidelines surely confirm that social welfare, such as environmental benefits, can be taken into account when conducting a competition assessment, and could also be considered to be a factor that has the potential to overcome anti-competitive effects to a certain extent.

This observation seems to be in line with past precedents of the EU's competition law. For example, cases involving recycling, such as the DSD case<sup>46</sup>, Eco-Emballage case<sup>47</sup> and ARA et al. case<sup>48</sup> evaluate the contribution to the protection of the environment realized through collective conduct to achieve recycling among the competitors as one of the factors that proves the legitimacy of the agreement. Also, in the CECED I case, which involved an agreement to ban imports of high energy consumption washing machines by the home appliance manufacturers' association<sup>49</sup>, the agreement was found to be legal since the agreement provides for collective environmental benefits to consumers even though the total market share of the participants in the agreement was approx. 90%<sup>50</sup>, and further, in the CECED II case, which involved a ban on imports of high energy consumption dishwashers and water heaters,<sup>51</sup> the agreement was found to be legal by considering the fact that an agreement on the use of low energy consumption machines indirectly contributes to the EU achieving its environmental policy goals. Recently, the same views have been expressed in a conference hosted by European Commission where, "Some respondents considered that in order to take due account of sustainability benefits, changes need to be introduced in the

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<sup>43</sup> European Commission, "Guidelines on the application of Article 81(3) of the Treaty (2004/C 101/08)", para. 42.

<sup>44</sup> European Commission, "Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements (2001/C 3/02)", paras. 179-197.

<sup>45</sup> European Commission, "Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements (2011/C 11/01)", footnote 1, paras. 145 and 329.

<sup>46</sup> DSD, [2001] OJL319/1.

<sup>47</sup> Eco Emballages, [2001] OJL233/37.

<sup>48</sup> ARA, ARGEV and ARO, [2004] OJL75/59.

<sup>49</sup> OJ [2000] L 187/47.

<sup>50</sup> OJ [2000] L 187/47, para. 56-57.

<sup>51</sup> European Commission (November 26, 2021). "Commission approves agreements to reduce energy consumption of dishwashers and water heaters" (IP/01/1659).

assessment under Article 101 (3) TFEU. In this regard, it was argued that the scope of relevant benefits needs to be extended to non-economic benefits as well as to benefits that occur outside the relevant, investigated markets. Some suggest that the notion of 'consumers' needs to be expanded to encompass not only users of the products but also citizens and society as a whole. Others expressed a preference for a flexible interpretation of the notion of 'fair share' to allow benefits from an agreement to be credited even if they do not fully compensate for the harm suffered by consumers in the market. Some even questioned the soundness of a consumer welfare standard as an underlying principle of competition law and policy".<sup>52</sup> Furthermore, at the EU member state level, there have been a number of policy developments addressing the issue of ensuring compatibility between competition policy and environmental policy. For example, on September 2020, the Greek competition authority published a discussion paper that includes a proposal for establishing a sandbox framework on the assessment of conduct relating to sustainability<sup>53</sup>. In the Netherlands, in January 2021, draft guidelines were published which explain that agreements regarding sustainability would be considered for the purpose of sharing benefits with the entire society, and were thereby justified pursuant to Art. 101, para. 3 of the TFEU given that the agreement meets certain conditions,<sup>54</sup> and in January 2022, the German competition authority also published a statement regarding competition assessments for agreements concerning sustainability in the fields of food retailing, meat, and milk<sup>55</sup>.

However, the white paper that was prepared by the European Commission in the course of the modernization of the relevant guidelines originally contained concerns that, "if more systematic use were made under Article 85(1) of an analysis of the pro and anti-competitive aspects of a restrictive agreement, Article 85(3) would be cast aside, whereas any such change could be made only through revision of the Treaty... Lastly, this option would run the risk of diverting Article 85(3) from its purpose, which is to provide a legal framework for the economic assessment of restrictive practices and not to allow application of the competition rules to be set aside because of political considerations",<sup>56</sup> and similar approach can be observed in judicial precedent.<sup>57</sup> If this approach were taken, the environmental benefit can be considered to be a factor which counters the anti-competitive effect to the extent that the environmental benefit contributes to promoting competition.

In addition, one more important issue: whether or not the environmental benefit can be attributed to customers located outside of the EU, such environmental benefit can still be considered under the EU's competition law. In this regard, there have been views that state that the collective environmental benefit to be considered in the context of competition assessment under the EU's competition law means the "collective" benefit for not only customers in the EU, but also customers outside of the EU, and Art. 101, para. 3 of the TFEU does not contain any legal text that restricts the scope of the consumers benefit to be taken into account during the competition assessment.<sup>58</sup> In addition, under the horizontal guidelines, it is still permissible to consider the consumer benefit which may realized at a later time to a certain extent<sup>59</sup>, and in light of this principle, even if the environmental benefit is achieved in a

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<sup>52</sup> European Commission (September 2021). "Competition Policy in Support of Europe's Green Ambition," p. 2.

<sup>53</sup> Hellenic Competition Commission, "Draft Staff Discussion Paper on Sustainability Issue and Competition Law".

<sup>54</sup> Authority for Consumers and Markets, "Guidelines on sustainability agreements are ready for further European coordination".

<sup>55</sup> Bundeskartellamt, "Achieving sustainability in a competitive environment — Bundeskartellamt concludes examination of sector initiatives" and "Surcharges without improved sustainability in the milk sector: Bundeskartellamt points out limits of competition law."

<sup>56</sup> European Commission (April 28, 1999). "White Paper on Modernization of the Rule Implementing Articles 85 and 86 of the EC Treaty", pp. 23-24.

<sup>57</sup> Case T-86/95, *Compagnie generate maritime v. Commission*, February 28, 2002.

<sup>58</sup> Nicolas de Sadeleer, "EU Environmental Law and the Internal Market", Oxford (2014), pp.411-413, Suzanne Kingston, "Greening EU Competition Law and Policy," Cambridge (2012), pp. 277-278.

<sup>59</sup> European Commission, "Guidelines on the application of Article 81(3) of the Treaty (2004/C 101/08)", para. 87.

country outside of the EU, such environmental benefit can still be considered in the context of the EU competition law assessment provided that the environmental benefit raised outside of the EU could be proven to contribute to an environmental benefit worldwide, including the EU.

## (2) Compatibility Between Competition Policy and Environmental Policy in Japan

The Japanese government has said that Japan will aim to reduce carbon emissions substantially by 2050, and to promote the further digital transformation of Japanese society.<sup>60</sup> Also, in response to an increasing awareness of the need to collaborate to promote SDGs and environmentally-friendly business activities, in March 2022, the Ministry of the Energy, Trade and Industry ("METI") launched a study group with the aim of proposing a somewhat new framework for balancing competition policy and environmental policy, and thereby promoting a drastic transformation of Japanese society to one that embraces de-carbonization.<sup>61</sup>

Thus far, as in the EU, when business operators seek to engage in concerted or cooperative activities in relation to the ESG/SDG, regulations on unfair trade restraints (e.g., cartels) as well as private monopolizations (e.g., abuse of a dominant position) under the Japanese Anti-Monopoly Act could be triggered (Art. 2, paras. 5 and 6, Art. 3 of the Anti-Monopoly Act). In addition, even if business operators do not have a dominant position in any of the relevant markets, the regulation against unfair trade practices under the Anti-Monopoly Act can apply to a case in which the business operator has an influential position in the relevant market, or a superior bargaining position against the counter party to the transaction in a way that is not necessarily connected to the level of market share (Art. 2, para. 9, Art. 19 of the Anti Monopoly Act). Further, the Anti-Monopoly Act uniquely regulates business associations as entities which are capable of being accused of violating the Anti-Monopoly Act (Art. 8 of the Anti-Monopoly Act).

In contrast, the general interpretation of the Anti-Monopoly Act that the public interest, such as the protection of the environment, can be taken into account during a competition assessment has been historically confirmed.<sup>62</sup> On the other hand, thus far, the JFTC has not explicitly stated that evaluations of sustainability and/or SDG under the Anti-Monopoly Act are made, but the JFTC has confirmed that, "the framework of horizontal agreements in the environmental context should be arranged without impeding competition in the market while the JFTC considers the necessity of concluding such agreements on a case by case basis".<sup>63</sup> More specifically, the JFTC has published a number of cases involving an environmental benefit where the JFTC was voluntarily consulted by the business operator to ask whether the proposed conduct/scheme would conflict with the Anti-Monopoly Act, and the JFTC has provided brief explanations which confirmed that cooperative conduct (e.g., setting industrial standards to inhibit emissions of toxic substances, ceasing to manufacture and sell products with high environmental loading, preparing guidelines for the pricing of plastic bags) for the purpose of promoting an environmental benefit, such as recycling, would not be in violation of the Anti-Monopoly Act by highlighting the fact that the conduct does not compel participants to comply with certain requirements, and is simply implemented on a voluntary basis, and that the measures are taken to an extent reasonably necessary to achieve a social benefit.<sup>64</sup> The JFTC has already demonstrated that the Anti-Monopoly Act is capable of considering other kinds of the social benefit, such as disaster

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<sup>60</sup> SDGs Promotion Headquarters at the Cabinet Office, "SDGs Action Plan 2022".

<sup>61</sup> METI (March 17, 2022). Press Release titled "Study Group regarding Competition Policy toward realizing the Green Society".

<sup>62</sup> Supreme Court Judgement, September 17, 1984, Keishu Vol. 38, No. 4, p. 1287, JFTC, "Guidelines Concerning the Activities of Trade Associations under the Antimonopoly Act," October 30, 1995, JFTC, "Guidelines Concerning Joint Activities for Recycling under the Antimonopoly Act," January 26, 2001.

<sup>63</sup> OECD (November 24, 2011). "Horizontal Agreements in the Environmental Context 2010", p. 68.

<sup>64</sup> JFTC (March 2002). "Major Consultation Cases regarding the Trade Association's Activities," Cases 14, 25, 27, 31, 32, 46.

relief, human rights, public health, work safety, secure employment, and compliance with other legal requirements.<sup>65</sup> Having said that, unlike the EU, Japan has a limited amount of legislation that compels a broad range of stakeholders to take measures to protect the environment like the pick-up obligations of retailers under the Act on Recycling of Specified Kinds of Home Appliances, and thus, it would be hard to achieve high standards of environmental protection only through voluntary cooperation, and it would also be difficult to ensure an equal-footing among domestic business operators who generally tend to respect voluntary requests and foreign business operators who do not necessarily have to comply with voluntary requests. Therefore, a clearer analytical framework would be necessary to assess when the Anti-Monopoly Act may accept environment-friendly conduct, regardless of whether the conduct is implemented on a voluntary basis or compulsory basis, and it might be necessary to set out broader safeguards for allowing environment-friendly activities by giving priority to environmental policy compared to competition policy. This could in turn mean that even if the alleged environmental benefit would not necessarily be closely linked to the promotion of competition in itself, such environmental benefit could still be considered to be a justification provided that the environmental benefit in fact contributes to the social welfare. Although environmental compatibility could already be a competition parameter for consumers located in Japan even at this stage, there is also room for environmental benefits where it is not necessarily clear how the benefit promotes competition in itself could still be taken into account to justify possible anti-competitive conduct. When it comes to the adoption of cloud computing services using renewable green energy, by taking this approach, the benefit to the environment in Japan could be generally considered to be one justification in an assessment under the Anti-Monopoly Act provided that the use of the renewable green energy is a key competition parameter for selecting the cloud computing services, and even if the use of the renewable green energy is not necessarily the decisive factor for customers to choose cloud computing services, the benefit would still be considered to be a justification as a part of achieving environmental policy goals. This would also contribute to facilitating a digital transformation in the public and private sectors in Japan, which would be another justification, and would be in line with the international approach suggested by the OECD.<sup>66</sup>

In regard to the territorial scope of the justification, the JFTC has not published cases or an assessment methodology for how the Anti-Monopoly Act could address environmental benefits raised outside of Japan. In this connection, given that the Anti-Monopoly Act applies to conduct that may have an effect on competition when supplying customers located in Japan, environmental benefits that can be taken into account could be limited to only benefits provided to consumers in Japan. However, although the description is directly related to competitive pressures through imports and not related to the overall framework for assessing competition, and also not related to environmental benefits, the merger control guidelines imply that an effect on competition which would be realized within 2 years can be practically evaluated in the course of assessing competition.<sup>67</sup> Also, in fact, if it were true that Japan has weaker mechanisms to ensure the protection of the environment compared to other jurisdictions such as

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<sup>65</sup> Supreme Court Judgement, December 14, 1988, Minshu Vol. 43, No. 12, p. 2078, Osaka High Court Judgement, October 14, 1994, Shinketsushu Vol. 41, p. 490, Yamaguchi District Court Shimonoseki Branch Judgement, Shinketsushu vol. 52, p. 918, January 16, 2006, JFTC, "Consultation Cases in 2019," Case 6, JFTC, "Consultation Cases in 2007", Case 11, JFTC, "Q&A concerning the Great East Japan Earthquake", No. 3. Competition authorities in New Zealand and Australia also take the position that competition law can consider the positive effects derived from environmental initiatives on society if they outweigh any detriment resulting from a loss of competition (OECD, "Sustainability and Competition - Note by Australia and New Zealand," 2020).

<sup>66</sup> OECD (November 18, 2021). "Environmental Considerations in Competition Enforcement - Background Paper by the Secretariat", p. 19.

<sup>67</sup> JFTC (May 31, 2014). "Guidelines to Application of the Antimonopoly Act Concerning Review of Business Combination", (as amended).

the EU, there would be an imbalance whereby conduct involving foreign business operators who comply with stricter environmental requirements in other jurisdictions could not be justified due to the mere fact that they participate in a compulsory framework in Japan, or they do not cooperate with voluntary and unique requests in Japan.<sup>68</sup> This could be a more serious situation when adopting cloud computing services which operate globally. Measuring the environmental benefit realized outside of good or territorial scopes of a relevant market would be challenging, as a practical endeavor<sup>69</sup>, but this could be a matter of proving facts and does not exclude the theoretical possibility of such an interpretation.

## 5. Conclusion

The paper dealt with two issues: first, the definition of "relevant markets" in the context of the cloud computing services and second, the environmentally friendly effects that cloud computing services can trigger in other jurisdictions. These issues are not essentially new in themselves, but the active adoption of cloud computing services has revived them and provided the impetus for deeper consideration. As for the first point, the Japanese Anti-Monopoly Act has the potential to allow for a holistic review of the dynamic competition surrounding cloud computing services by covering interactions between the effects on different consumer segments which are related to each other, but there would still be the issue of balancing and prioritizing the different consumer segments. As for the second point, the Japanese Anti-Monopoly Act may be capable of taking environmental benefits into consideration even though the benefits could be raised in another relevant market as well as outside of Japan, but this is still developing and being discussed. To advance the discussion further, the Anti-Monopoly Act should continue to explore and learn from the experience of other fields, such as privacy and international trade disputes. For example, in the context of the international trade disputes, there was a case in which import bans were placed on shrimp and related products by the U.S. to protect sea turtles, and this was justified under the General Agreement on Tariffs and Trade ("GATT") because, even if sea turtles migrate outside of the U.S. in some cases, there was a sufficient link between the import ban and the protection of natural resources by considering the fact that the sea turtles would circle back to the U.S. jurisdiction.<sup>70</sup> Also, there is a view that stricter regulations imposed on the import of goods because the country does not have control over disease and insect pest inspections carried out outside of that country could be justified under the GATT.<sup>71</sup> This may metaphorically imply that where data free flow with trust (DFFT initiative in G20 in 2019) performs like an ocean current, the pro-competitive effect and/or environmental benefit offered by cloud computing services could be relevant to all economies that participate in that flow.

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<sup>68</sup> Similarly, cybersecurity and economic security issues have been calling for cooperative responses, and are not matters that individual countries can tackle effectively alone. Therefore, it is important to ensure consistent operation and harmonization between countries in regard to the cloud computing services which tend to have the impact at the global wide .

<sup>69</sup> Nadine Watson (November 19, 2021). "Measuring environmental benefits in competition cases", pp. 12, 20-21.

<sup>70</sup> WT/DS58/AB/R.

<sup>71</sup> Mitsuo Matshutita & Kazumochi Kometani (2015). *International Trade Law*, p. 305.

## Pax Minoica-As a New Paradigm for Human Development

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**Abstract:** The paper — “PAX MINOICA — as a New Paradigm for Human Development” — deals with the problem of potential catastrophic war on earth and the ways to have positive peace. It was always suggested, that humanity was always violent in general and there were always military campaigns of one nation, ethnic group or race against “the other”. “Human beings are violent and power-hungry” — this motto was almost unchallenged through the centuries. This paper is about to question this assumption and find out other examples.

Is it possible to change our mind-set through looking at the history and creative development? We looked through the research of an amazing Georgian Psychologist Dimitri Uznadze and also a great research on a peaceful Minoan civilization conducted by Dr. Rismag Gordzeiani, who found that dynamic creativity is a productive substitute for violent behavior.

**Key words:** Pax Minoica, Dimitri Uznadze, Rismag Gordeziani, mindset, perceptions, peace, John Burton, Johan Galtung, zones of peace, Christopher Mitchell

**JEL code:** N930

### 1. Introduction: Contemporary Crisis and Theoretical Implications

Most contemporary events in Ukraine and blatant Russian Military aggression are most obviously accompanied with significant signs of the global catastrophe. This last conflict on European continent has shown us that the *Cold War Order Détente* is not working anymore. The world has become more multi-lateral and at the same time, new global powers have emerged. One of the main identifiers of the new developments after the dissolution of the Soviet Empire has shown us that the basic human need for Identity and Freedom, as John Burton and Johan Galtung have identified them has proved that large numbers of people are ready to revolt and risk their livelihoods for the idea of INDEPENDENCE. These ontological basic human needs are also coupled with the need for security that big powers also possess and their anxiety that their enemies are going to attack them if they do not preemptively act has led us to number of invasions, most notably extremely flagrant Russian aggression against an independent state of Ukraine. Misperceptions on Security are leading big powers to attack — even in some cases unprovoked their real or imagined adversaries. When Christopher Mitchell talks about the Structure of International Conflict he describes the role of misperception very well and how it happens that based on wrong fears and insecurities leads to the large-scale invasions and occupations of whole countries. This factor became even more important after the end of so called Cold War Détente — where the traditional “Spheres of Influence” doctrine was crushed by new independence movements. The large movements of decolonization spread through the world after Mohandas Karamchand Gandhi

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has shown a very good example of Nonviolent Struggle for Independence. This became a greatest example to follow in the last 75 years of human history, where many nations have identified with Gandhian notion and waged successful liberation struggles from different empires of the world. Dennis Sandole already in 1993 has identified the need for a major Paradigm Shift in the structure of international relations, since right after the breakup of the Soviet Empire it was became obvious that the old order of detente was not working since the start of Nagorno Karabakh, Abkhazia, Pre-Dniester, South Ossetia conflicts. Ukraine was not on the radar during the 1990s, but it was already easy to see that the new emerging countries as well as established empires were not going to stop fighting for the territorial expansion. Hannah Arendt describes this process very well in her basic work on Origins of Totalitarianism, where she connects the conflicts in Europe between two world wars in 20th century with the rise of nationalism. Through last 30+years entire world community is observing that the traditional notions of Nationalism and Imperialism — both have proved extremely dangerous for the fate of humanity. Now we are facing the realistic threat of the World War 3 — if there is no New Paradigm for Peaceful Development — where small nations and big ones can coexist on this small planet not just Tolerating Each Other But Building Positive Peace as Galtung has suggested some time ago. Many sceptics have asked if and where and when there is an example of peaceful development in contemporary world. Of course, we have some small or bigger examples of this. We need to mention the example of Costa Rica — Democratic Country with Non-Militaristic Development policies. President Oscar Arias was able to prove that the State Can Absolutely Exist Without Depending on Military. However, of course, the question remains if there are some larger international actors who are willing to enact these policies. Here we are again dealing with the question of perceptions around the basic ontological human needs on security, identity and freedom. President Zviad K. Gamsakhurdia in his well-known lecture in 1990 has implied that there were many examples of NONVIOLENT CIVILIZATIONS in Pre-Hellenic times around the world. They were present in India, South East Asia, Oceania, South and Central America, Africa and of course, the well-known Minoan Civilization around the island of Crete that has lasted for about 500 years and it was eventually destroyed not by the war, but by the natural disaster.

## 2. Possible Roots and Problem-Solving Solutions

Here, we are shortly going to discuss what are the main points of achieving the New Paradigm for Peaceful Development:

- 1) Perceptions on the threat to Ontological Basic Human need of Security. As we have seen that Russian President Vladimir Putin has consistently appealed to the threat from enlarging North Atlantic Treaty Organization as a direct threat to the existence of Russian State let alone the Empire. Many experts consider this perception of the threat being blown out of proportion and obviously misrepresenting reality. NATO Chair has emphasized consistently that it is not true that NATO has plans to attack Russia. But the counter argument of authoritarian regime is that North Atlantic Treaty Organization is created to counter then Soviet and now Russian expansion – but on the contrary through last 30 years we have seen the expansion of NATO to the very borders of Russia. On empirical level, it is hard to deny that this has happened. NATO has expanded and now is bordering with the territory of Russian Federation in multiple locations.
- 2) On the other hand the newly independent countries that consider themselves the victims of Russian Imperialism through last 200-300 years make a point that they have no defense against superior military

capabilities of Russia and they are looking for some sort of a shield to protect their needs for freedom, identity and security. President Volodimir Zelenski of Ukraine has implied that his country needs to have capacity to defend itself against imperialist aggression. This point also proves to be a “self-fulfilling prophecy” in today’s situation. It is now very difficult to deny that Ukrainian President did not have a valid point, since he is facing a very real threat and invasion from Russian occupying forces. Ukraine is now suffering one of the most bloody invasions through last 75 years since the end of the second world war.

- 3) International Community and the United Nations Organization is still paralyzed to act to defend small and lesser powerful countries against the invasions by bigger powers. The Basic Perception That the Strong Will Always Dominate The Weak Is Still Obviously The Paradigm. However, this paradigm has failed significantly in the last 30 years and many international organizations acknowledge that “détente order” is not working anymore. As a result, the probability of armed confrontation between NATO and Russia Increases Every Minute. If the humanity is not going to rethink the path of its Military Industrial Development and Zero-Sum Thinking This Will Eventually — Sooner or Later — Lead to A Devastating World War That Would Leave No Winners or Losers. Whole humanity will suffer as a result of a big misperception if there is no way to find new solution to the age old problem that feeds imperialism and nationalism — how to deal with the misperception of insecurity?

### 3. Misperception or Change of Mindset?

Burtonian analysis of perceptions by the conflicting parties leads us to a good place, but is not holistic enough to deal with the contemporary problems at the world stage. Perception is just a small part of human mind-set that is integrating intellectual and emotional aspects of our nature. In his work on “Mind-Set Theory” well-known Georgian Psychologist Dimitri Uznadze talks about different aspects of this phenomenon. In his works on this subject, he believes that the Change of Holistic Mindset Is Possible and It Was Proven on Many Experimental Levels. Uznadze also mentions the phenomenon of short-term as well as perseverant will that participates in the long-term formation of MIND-SET. It is extremely important to consider this point before, during and after military confrontations, where adversaries often rely the Traditional Power Politics Approach As Part of Their Mindset. Now we as a humanity face a global threat of nuclear, biological, chemical war and our annihilation.

As the need for Paradigm Shift in International Relations And Global Security Architecture Is Apparent — we need to consider holistic approach to changing a Mind-Set of track 1 representatives. As Dimitri Uznadze said Shock Might Be A Best Factor to Changing A Mind-Set. Threat of global nuclear conflict is very obvious in the military confrontation between the West and Russia in Ukraine.

In their book on “Zones of Peace” Landon E. Hancock and Christopher Mitchell suggest some particular examples of these zones. There are more or less successful examples of creating Zones of Peace. UN enforced Peace Zones and Sanctuaries were more or less effective in Bosnia after the Balkan war. Jennifer Langdon and Mery Rodrigues talk about the Peruvian experience of *rondas campesinas*. Johan Galtung was personally involved in the establishment of Zones of Peace between Peru and Ecuador. Catalina Rojas talks about the *Peace Communities in Columbia*. Krista Rigalo and Nancy Morrison discuss the experience of *Operation Lifeline Sudan*. There are already different examples of creating nonviolent sanctuaries. Now we are dealing with bigger challenge — this is a bigger territory and bigger stakes for different participants. The entire international community needs to figure out the way to avoid nuclear catastrophe by changing our MIND-SET. From military industrial frame of mind, we need to switch

to the paradigm of NONVIOLENT ECONOMY. Shri Rajagopal PV has suggested this kind of structure of building integrating and global world order.

In contemporary conditions, there is an urgent need to abandon force-oriented and coercion-oriented approaches through Gandhian lenses. There is totally unacceptable to solve international relations problems today by means of force not only in moral sense, but also in pragmatic sense. It is perfectly well known what kind of consequences humanity is facing with this kind of approach. So Switching Our Intellectual and Emotional Mind-Set From Traditional Power Politics to Gandhian Nonviolence Has Become A New Categorical Imperative for Entire Humanity. This is the most pragmatic choice in today's world.

#### **4. PAX MINOICA as a Future Paradigm for the Region?**

Dr. Rismag Gordeziani talks about an existing peaceful order of civilization — PAX MINOICA — that was recently rediscovered and confirmed as a historical fact. This civilization around the Greek Island of Crete has existed for approximately 500 years – 2000 to 1500 B.C. Main element of this civilization according to Dr. Gordeziani was dynamic creativity as an alternative to organized violence. According to last historical research, this part of Mediterranean Sea was quite a big zone of nonviolence and peace during this turbulent period of history in the middle of Bronze Age. This discovery and work done by historians proves the point that it was and it still is possible to have Zones of Peace even in the most difficult regions of the world.

In this work and different, other works on Minoan Civilization, we can see that the myth of Inevitable Violent Nature of Mankind is seriously challenged and we can observe relatively long period of history within certain civilization without big campaigns of violence. This could be considered an example for positive peace within the area that saw different militaristic cultures around the world. Dr. Rismag Gordeziani based upon the research of Niko Marr, L. H. Jeffery, J. Latatz, J. Boardman, M. L. West and others is very well describing the main character of the peaceful and creative civilization on the Greek Island of Crete at approx. 2000-1500 BC.

It is absolutely possible and doable to implement this vision for Nonviolent Lands and Peace Zones — Contemporary model of PAX MINOICA. However, this should be by multi-national community — not just by one big country pushing other smaller countries to demilitarize. Russia and NATO both need to talk together with smaller recently de-colonized countries to jointly create this kind of Zones of Peace. Forced and coercive solutions do not work. According to Galtungian term there should be no RANK-DISIQUILIBRIUM in this new arrangement by the United Nations Organization. This is the time when the new global organizations will take a joint responsibility for peace and security guarantees to the weak countries of the world. This is the very purpose of the UN and now is the time to implement it jointly. The whole country of Ukraine and the whole region of South Caucasus are latest victims of military-industrial mindset among the political elites.

#### **5. Conclusion**

Humanity is facing unprecedented crisis of time. Our Perseverant Will Needs to Change the Paradigm of Our Thinking to Nonviolent Ahimsa — Because We Have Witnessed A Total Failure Of Military Industrial Way Of Life. We Are Coming to the Conclusion That Peaceful Civilization Has Existed and therefore humanity is capable of being nonviolent. What we need to learn is how to change the mindset of our present civilization to switch to contemporary and adopted variant of PAX MINOICA. This is very much possible.

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## Vietnam and the Middle-Income Trap in Development

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**Abstract:** This article covers the general issues of the Middle-income trap, thereby identifying the risk of falling into Vietnam's middle-income trap, the reasons and proposing some solutions for Vietnam to overcome the middle-income trap and enter the league of high-income countries in 2045. The comments and analysis are based on the World Bank's criteria for classifying groups of countries, updated to July 2022.

**Key words:** middle-income trap, growth rate, development, MIT, MICs

**JEL code:** O110

### 1. Introduction

In 2009, Vietnam officially became a low-middle income country. The next goal is Vietnam will become a high-income country by 2045. Can it be achieved when in fact, Vietnam's growth trend is gradually decreasing, many new barriers appear, such as vulnerability due to the pandemic, difficulties in adapting to the industrial revolution 4.0, etc.? Is Vietnam at risk of falling into the middle-income trap (MIT)?

### 2. Literature Review and Previous Research Studies

As soon as Vietnam officially exits the group of low-income countries, economists also warned of the risk of a middle-income trap (MIT) waiting for Vietnam. Looking at the experience of neighboring countries such as Thailand, and Malaysia - countries that are said to have spent many years unable to escape beyond the Middle-income group, and join the high-income countries, Vietnam's leaders have been very serious, trying to run the

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economy with the aim that, Vietnam does not fall into the middle-income trap.

There are quite a lot of research, international as well as domestic conferences, which have been conducted around the topic of the middle-income trap. Some notable studies include:

ADB, 2017, “Middle-income trap: review of the conceptual framework”<sup>1</sup>. The aim of this study is to develop a conceptual framework for the Middle-income trap. Accordingly, the research presented an extensive literature review of what the Middle-income trap concept is, why economies become “stuck” in the Middle-income trap, and how the idea is criticized. At the same time, the research put together a list of countries stuck in the Middle-income trap according to different definitions. It also proposed a framework for assessing exposure to the Middle-income trap based on the following factors: i) unfavorable demographics, ii) low level of economic diversification, iii) inefficient financial market, iv) insufficiently advanced infrastructure, v) low level of innovation, vi) weak institutions, vii) inefficient labor market.

Kenichi Ohno, “Avoiding the Middle Income Trap: Renovating Industrial Policy Formulation in Vietnam” — Vietnam Development Forum (VDF), Hanoi national Graduate Institute for Policy Studies, Tokyo, Feb 26<sup>th</sup>, 2010 (Kenichi Ohno, 2010). The research confirmed that Vietnam’s growth in the last one-and-a-half decades was very remarkable. And now, in order to make processes of systemic transition and global integration deeper, Vietnam needs to create internal value to continue to grow and avoid the “*Middle-income trap*”. Vietnam has reached the point where growth towards higher income cannot be secured unless policy-making is renovated significantly to activate the country’s full potential. This research also recommended Vietnam should create industrial strategies, and concrete action plans and strengthen the strategic alliances with international partners, which are considered keys points for the renovation of Vietnam’s industrial policy formulation.

Paus, Eve - ADB, March 2017, “Escaping the Middle-Income Trap: Innovate or Perish”, had analyzed the reasons for the middle-income trap in Latin America, where countries have been at the Middle-income level for decades, and drew out lessons for Asia. This research supposed insufficient development of domestic innovation capabilities is at the heart of the middle-income trap. Especially, globalization brings many challenges for middle-income countries to narrow the capabilities gap, because there are more and more barriers for them in the context of technological innovation changing faster. This research proposed a comprehensive innovation-focused strategy with strategic active policies, making an innovation ecosystem are the only way to escape the middle-income trap.

Son D. K. (2021), *Renovation of Economic Growth Model* — the National Political Publishing House. This monograph commended the Middle-income trap is also an issue, demonstrating the need to renew the economic growth model in Vietnam in the coming time.

In addition, there have been quite a lot of seminars conducted in the country since 2009, all around the issue of the Middle-income trap and recommendations for Vietnam to avoid it.

All these researches are putting Vietnam in a normal development context, with the operation of the economy, as well as the world economy being stable in the new development trend. However, the Covid-19 pandemic that occurred and spread globally since the end of 2019, the war between Russia and Ukraine in early 2022 has turned upside down and really become a major barrier in the growth process of many countries including Vietnam. In April 2022, the World Bank lowered the growth forecast of most countries, with Vietnam being one of the most adjusted countries<sup>2</sup>.

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<sup>1</sup> Available online at: <https://www.adb.org/sites/default/files/publication/329201/abdi-wp760.pdf>.

<sup>2</sup> Available online at: <https://moit.gov.vn/tin-tuc/hoat-dong/wb-ha-du-bao-tang-truong-kinh-te-toan-cau-nam-2022.html>.

This once again warns of the risk of being trapped in Vietnam’s Middle-income trap.

### 3. Research Results:

#### 3.1 Middle-Income Trap and Classification of the World’s Nations

The term “Middle-income trap” was indirectly introduced by Garret (2004), who observed that the growth rates of Middle-income countries had been in stagnation since the 1980s. This term was defined for the first time by Indermit Gill and Homi Kharas (2007) – two economists working at the World Bank. Accordingly, the “Middle-income trap” refers to the status of a country that, despite being lifted out of poverty and joining the group of Middle-income countries took decades to become a high-income country<sup>3</sup>.

It is necessary to explore how to classify the world’s nations before making clearer about Middle-income trap

The World Bank, an international organization dedicated to helping countries overcome poverty, has historically classified every economy as low, middle, or high income<sup>4</sup>. It now further sorts each of the world’s nations into one of four categories: high-income, upper-middle-income, lower-middle-income, and low-income. Upper-middle-income countries and lower-middle-income countries are known collectively as Middle-income countries (MICs). In response to shifts in the global economy, the World Bank adjusts the boundary lines between the categories each July. This organization uses GNI per capita, in current US dollars converted by the Atlas method of a three-year moving average of exchange rates, as the basis for this classification. It views GNI as a broad measure and the single best indicator of economic capacity and progress.

**Table 1 Classification of the World’s Nations Based on Income**

Categories	GNI/capita (Unit: USD)	
	2020-2021	2021-2022
Low-income countries	<= 1.035	<= 1.045
Lower-middle income countries	1.036-4.045	1.046-4.095
Upper-middle income countries	4.046-12.535	4.096-12.695
High-income countries	>= 12.536	>= 12.696

Source: World Bank<sup>5</sup>.

According to this classification, for the 2022 financial year, the World Bank placed 80 countries in the high-income category. Many of these countries, such as the United States, Canada ... have consistently ranked in this category since the 1980s<sup>6</sup>. Besides, there are a number of countries, such as Russia, Venezuela and the latest are Mauritius, Panama, and Romania which are countries that slipped to middle income, and have yet to regain the high-income classification.

In terms of Middle income, there are more than half of the world’s countries (109 countries in 2020-2021 and 110 ones in 2021-2022) are Middle-income countries. Many MICs face similar challenges, which often include population growth that outpaces the development of infrastructure, a lack of investment capital and skilled workers,

<sup>3</sup> Available online at: <https://www.adb.org/sites/default/files/publication/329201/adbi-wp760.pdf>.

<sup>4</sup> Available online at: <https://www.worldbank.org/en/country/mic/overview#1>.

<sup>5</sup> Available online at: <https://www.worldbank.org/en/country/mic/overview#1>.

<sup>6</sup> Available online at: <https://worldpopulationreview.com/country-rankings/high-income-countries>.

and government corruption and/or instability<sup>78</sup>.

Come back with the term “Middle-income trap”. In fact, many Low-income countries have successfully made the transition to Middle-income status, thanks to rapid economic growth. However, they had stayed in this group for a long time, and still have not achieved the High-income status which is GNI per capita of above US \$12,696 (according to the newest classification), like some countries in Latin America as well as Thailand, Malaysia... in Asia. It is said that, those countries have got stuck in a Middle-income trap. Today, the term is constantly gaining popularity. More and more countries are identified as potential victims of the Middle-income trap. It is becoming an important as well as worrying issue for many countries in the world.

### 3.2 Identification of Risk of Falling Into Vietnam’s Middle-income Trap and Reasons

Vietnam has been ranked among Lower-middle income economies since 2009 when its GNI per capita reached the US \$1,010. Since then, Vietnam’s GNI/capita has increased annually, of which GNI in 2020 is US \$2,660 per person (according to the WB), equivalent to a GDP per capita is the US \$ 2,779 per person.

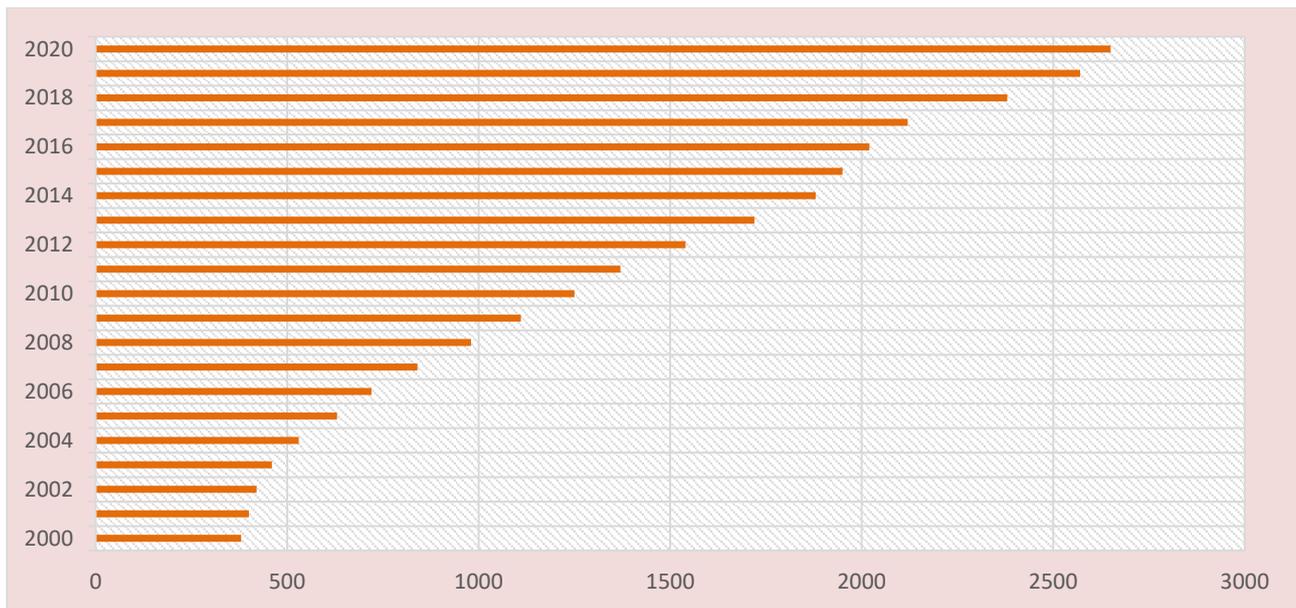


Figure 1 GNI per Capita (USD) in VN

Source: data.worldbank.org

Thus, Vietnam’s GNI/capita has more than tripled after 13 years of escaping from the group of Low-income countries<sup>9</sup>. It is a really impressive result, and it is also the basis for Vietnam to aim to become a High-income country by 2045. This goal is completely grounded because according to a study by the Asian Development Bank (ADB) — in 2018, the average time a country needs to go from a Lower-income to a High-income status is from 30 to 40 years. This is the “golden period”, because if it finishes without increase income, it will be officially seen as falling into the Middle-income trap. Vietnam has run nearly a half of way. And there are a lot of things Vietnam has to do to get the ambitious goal of becoming a high-income country by 2045.

<sup>7</sup> Available online at: <https://www.investopedia.com/terms/m/middle-income-countries.asp#:~:text=There%20are%2053%20lower%2Dmiddle,of%20them%20are%20quite%20different>

<sup>8</sup> Available online at: <https://worldpopulationreview.com/country-rankings/middle-income-countries>.

<sup>9</sup> Available online at: <https://www.worldbank.org/vi/country/vietnam/overview#1>.

To get this target, VN has set the plan for socio-economic development for the next stage with a growth rate in 2021-2025 is from 6.5% to 7.0% to become an Upper-middle income nation with GDP/capita reach from the US \$4,700 to the US \$5,000. And then, it will try to remains a growth rate annually at 7% or higher in the next following 20 years (2026-2045) to get opportunity to enter the league of high-income countries in 2045<sup>10</sup>.

However, the growth of Vietnam’s economy is tending to slow down when the growth rate in 2021 is only 2.58% (compared to the target of 6.5%) [14]. Thus, high growth pressure (remains at 7.5%) will be concentrated in the period of 2022-2025 and 2026-2045. It is really difficult when the most optimistic forecast for 2022 is only 6.6%<sup>11</sup>.

The above analysis shows that Vietnam has not been stuck in the Middle-income trap, however, the risk is clear. There are many reasons given, however, the author wants to highlight the 3 key reasons:

Firstly, the damage caused by the Covid-19 pandemic is too great. The Covid-19 pandemic has had a profound and comprehensive impact on all sectors of the economy. Although Vietnam still achieves positive economic growth rates in 2020 and 2021 at 2.9% and 2.58% respectively — this is the lowest growth rate in the past 30 years. Production and business activities in Vietnam in these years were only at the level of maintaining operations. And perhaps Vietnam will need more time to recover its economy, then break through strong growth.

Secondly, Vietnam’s growth still depends too much on the increase in capital rather than on the efficiency of using human resources and the application of technological advances.

Figure 2 shows that the contribution of TFP has increased over the years however, the contribution of capital in growth is almost constant and always remains at over 50%. This means that Vietnam’s economic growth depends greatly on capital. However, the efficiency of capital use is not high when the ICOR coefficient is always maintained at 6.

Unit: %

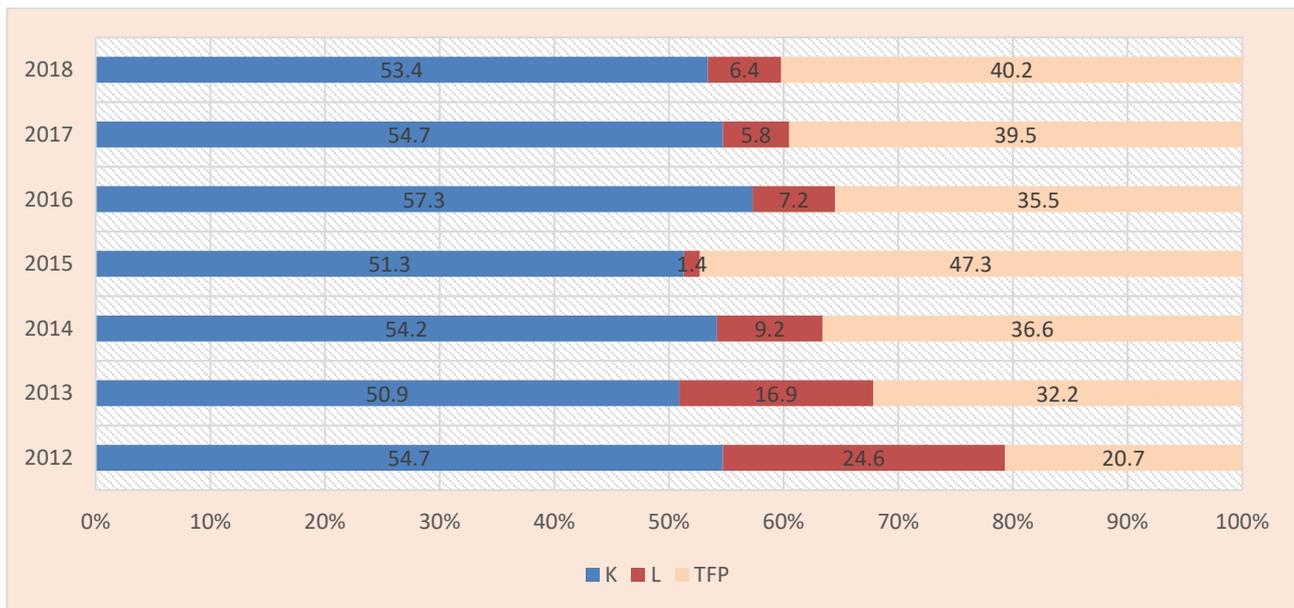
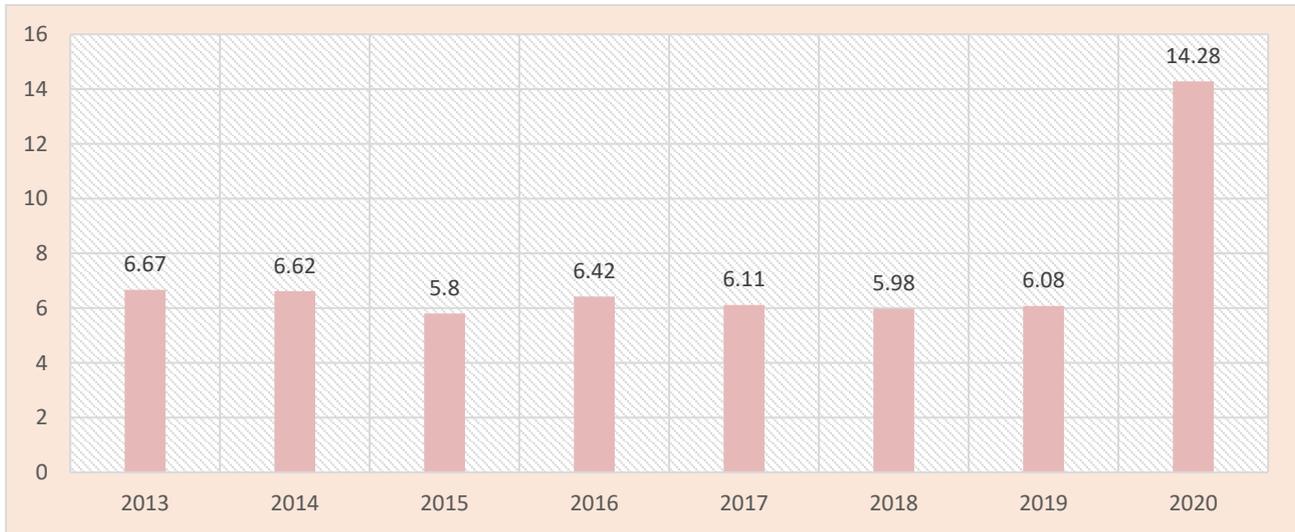


Figure 2 Contribution of TFP Factor in Vietnam’s Economic Growth

Source: Son D. K. (2021)

<sup>10</sup> Available online at: <https://daihoi13.dangcongsan.vn/tin-moi/thu-tuong-phan-dau-muc-tieu-som-tro-thanh-nuoc-thu-nhap-trung-binh-cao-5283>

<sup>11</sup> Available online at: <https://vietnamnet.vn/nguy-co-loay-hoay-trong-bay-thu-nhap-trung-binh-2011060.html>.

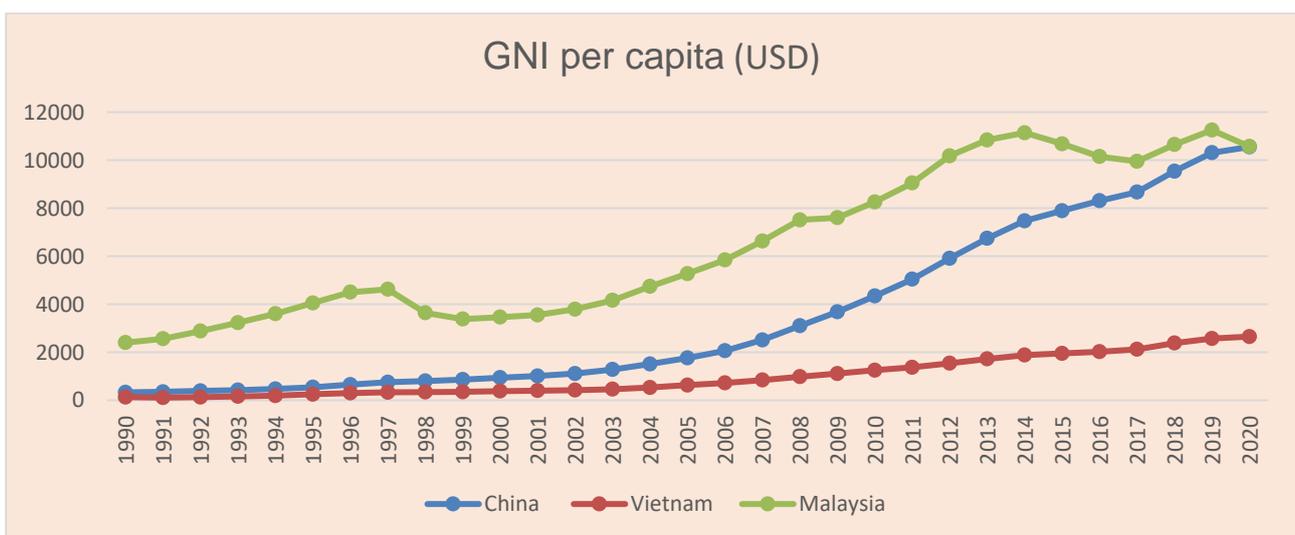


**Figure 3 The ICOR Index in Vietnam**

Source: <https://www.gso.gov.vn>.

Thirdly, the quality of human resources and scientific and technological capacity is still limited, not meeting the requirements of economic development. These two factors have a bonding relationship and motivate each other. Also, the low quality of human resources hindered the economy’s ability to apply technological research results as well as absorb innovative technologies. It is worth mentioning that these are factors associated with the 4.0 Industrial Revolution to promote and create opportunities for Vietnam to shorten the development gap with previous countries.

All of these increase Vietnam’s risk of getting stuck in the middle-income trap. The Figure 5 shows that in 1990, when both China and Vietnam were still Low-income countries, Malaysia was already in the group of Middle-income countries. However, by 2020 (means after 30 years), Malaysia is still stuck in the Middle income group. Meanwhile, China has made a dramatic change with its GNI/capita growing vertically. As a result, in 2020, China has caught up with Malaysia. If China maintains its the current growth rate of GNI per capita, China will officially join the group of high-income countries in 2023 or 2024.



**Figure 5 Comparison GNI Per Capita of Vietnam, China and Malaysia**

Source: [data.worldbank.org](https://data.worldbank.org).

Looking back at Vietnam and comparing the growth trend, it can be seen that Vietnam must put a lot of effort in the next 20 years to achieve its goal of becoming a high-income country by 2045.

### 3.3 Solutions

The first, transforming the growth model associated with scientific and technological progress and high-quality human resources. The economic growth model that Vietnam has been applying is clearly no longer suitable, even a factor hindering growth. Transforming the growth model will bring a better quality of growth, more efficiency in using resources of the economy as well as the ability to adapt to new development requirements and conditions. Only in this way, Vietnam can improve productivity in manufacturing industries, increase competitiveness, create higher and higher value as well as create breakthroughs in growth. Because it is increased productivity that is the key to escaping the middle-income trap. Transforming the growth model is also very meaningful when many of the drivers that propelled the country's growth in the past will diminish over the next decade, like a large number of workers, abundant resources...; At the same time, it is also an effective way to protect the environment, towards the goal of net-zero emissions as committed by Prime Minister Pham Minh Chinh at COP26.

Second, Vietnam should and needs to take advantage of the opportunities brought by the Industrial Revolution 4.0 to break through in growth. Because if Vietnam can not catch up or fails to adapt, it might face the risk of falling behind and getting stuck in the Middle-income trap. Therefore, Vietnam needs to be flexible and adaptive to make the best use of opportunities in the technology age, and that is also a way to limit the risk of falling behind. Accordingly, Vietnam needs to strongly promote digital transformation in sectors ranging from manufacturing to service activities, strengthening the application of AI technology in operation, processing, and organization.

Third, it is necessary for Vietnam to improve investment efficiency. As mentioned above, the contribution of capital to growth in Vietnam accounts for a high proportion of low-efficiency use. Therefore, the construction of an effective financial system is essential, thereby helping to allocate investment capital to the right places as well as areas to invest in, like investing into the infrastructure sector, for example. At the same time, Vietnam needs to remove barriers away private investment sector, and strongly promote the role of the private sector in promoting dynamic economic development. Green investment is also a common and effective trend, because it pays off in the long run as it spurs innovation, promotes efficient solutions, and helps Vietnam complete its middle-income transitions.

Fourth, Vietnam needs to develop its labor force in the direction of enhancing skills and applicability to new conditions in the digital era. Sharing Malaysia's experience in workforce development, Mr. Yogevaran — Former Ministry of Crop Industry and Commodities Malaysia emphasized focusing more on vocational training. Human capital, expressed in the abundant workforce in quantity, high quality, and skilled, will be a factor promoting the efficiency of using other sources of the economy. Moreover, in the context of integration and globalization, high-quality human resources can provide outsourcing services, thereby, bringing a source of high income for themselves and for the country. To do so, Vietnam needs to invest in transforming its education system, and in particular needs a major reform pushes to build inclusive and competitive vocational training systems. This gives workers many job opportunities as well as the opportunity to become global citizens.

And the last, Vietnam needs to establish an effective government by improving the Government index and the Global governance index under specific activities such as: implementing accountability, information transparency, strengthening digital government, improving the quality of public services... This is necessary to create an effective functioning institution, reduce bureaucracy and corruption, increase credibility as well as make the most of the

support in many aspects of countries around the world in the development process. At the same time, building an effective government will not only form a dynamic, creative, and modern management apparatus but also help with the formulation and implementation of policies to promote knowledge and innovation.

#### 4. Conclusion

Although it has not been confirmed that Vietnam is in the Middle-income trap, the risk is there and clear. With practical data, the article has shown the current state of Vietnam's economy showing the risk of falling into the Middle-income trap, explaining the causes and proposing some solutions. Vietnam needs to act thoroughly and synchronously with a range of solutions in order to have the opportunity to make a breakthrough in growth and not be caught in the Middle-income trap.

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