

# 공무국외출장 결과보고서

## -라오스-

2023. 12.



국회예산정책처  
National Assembly Budget Office

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# I. 출장 개요

## 1. 출장 목적

- OECD 대한민국정책센터 조세정책본부(KTC)가 주최하는 라오스 조세 역량 강화 세미나 참석
  - OECD KTC는 12월 5일(화)부터 9일까지 라오스 비엔티안에서 개최하는 아시아-태평양 지역 정보공유 세미나의 강사로 국회예산정책처의 세수추계 분야 전문가 초빙 협조를 요청함
    - 국회예산정책처 심혜정 조세분석심의관, 백경엽 세제분석2과장 등 강사로 참여
  - 이에 국회예산정책처의 세입전망 역량과 경험을 라오스 조세당국과 공유하여 우리 처의 위상을 제고하고, 라오스 조세국 및 OECD, AMRO 등 관련 국제기구와의 협력을 강화하고자 함

## 2. 출장자

- 심 혜 정(추계세제분석실 조세분석심의관)
- 백 경 엽(추계세제분석실 세제분석2과 과장)
- 박 정 환(추계세제분석실 세제분석2과 추계세제분석관)

### 3. 출장 일정

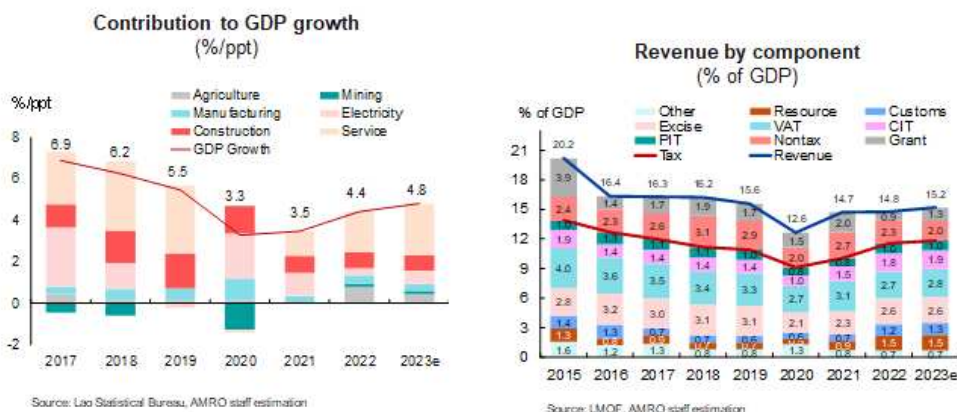
날 짜	주 요 내 용
12.5.(화)	<ul style="list-style-type: none"> <li>○ 출국 (인천 → 비엔티안)</li> </ul>
12.6.(수)	<ul style="list-style-type: none"> <li>○ KTC-OECD-AMRO 라오스 조세역량강화 세미나 1일차               <ul style="list-style-type: none"> <li>- Fiscal Environment Analysis and Policy Recommendation for Lao PDR (발표자: Dr. Sumio Ishikawa, AMRO)</li> <li>- Introductory Session on Revenue Forecasting (발표자: 류덕현, 중앙대)</li> <li>- VAT Increases in Korea Considerations for Increasing VAT Rates (발표자: 장재형, 법무법인 율촌)</li> </ul> </li> </ul>
12.7.(목)	<ul style="list-style-type: none"> <li>○ KTC-OECD-AMRO 라오스 조세역량강화 세미나 2일차               <ul style="list-style-type: none"> <li>- Revenue Forecasting on Indirect Taxes Revenue Forecasting on Direct Taxes (발표자: 류덕현, 중앙대)</li> <li>- Tax Revenue Error and Fiscal Management (발표자: 심혜정, 국회예산정책처)</li> </ul> </li> </ul>
12.13.(금)	<ul style="list-style-type: none"> <li>○ KTC-OECD-AMRO 라오스 조세역량강화 세미나 3일차               <ul style="list-style-type: none"> <li>- Changes in Korea's Tax System and Its Implications (발표자: 심혜정, 국회예산정책처)</li> <li>- Changes in the Economic Environment and Revenue Forecast (발표자: 백경엽, 국회예산정책처)</li> </ul> </li> <li>○ 출국 (비엔티안 → 인천)</li> </ul>

## II. 출장 결과

### 1. 라오스의 재정여건 및 정책제언(발표자: Dr. Sumio Ishikawa, AMRO)

- 라오스 경제는 제조업 등 산업과 서비스업이 전체 경제의 70%를 구성하고 있으며, 코로나19 팬데믹으로 인한 침체 이후 회복되는 추세
  - 2010년대 이후 건설, 제조업 등 산업 부문의 비중이 증가하는 반면, 서비스업과 농업 등의 비중은 감소하는 추세
  - 연간 경제성장률은 코로나19 이전 5.5%를 상회하였으나, 코로나19 팬데믹 시기에 3% 중반으로 하락하였다가 최근 회복되는 추세
- 라오스의 세입 또한 코로나19 팬데믹 시기 감소하였으나 회복되는 추세
  - 경제성장률의 회복과 유가 등 높은 국제 원자재 가격, 라오스 킵(Kip) 통화의 가치절하 등으로 소득세 및 법인세, 자원세(resource tax), 관세, 개별소비세 등이 증가 추세
    - － 단, 2022~2023년간 일시적으로 시행된 부가가치세율 인하(10% → 7%)는 세입 여건을 악화시키는 요인으로 작용

[라오스의 경제성장률 및 세입증가율 추이]



- 라오스의 조세수입은 일반적인 OECD 국가 등 선진국과 달리 소득과세의 비중이 낮고, 소비과세가 세입의 절반을 차지하는 구조
  - 이에 따라 2024년 일시적으로 인하하였던 부가가치세율의 인상 계획은 라오스의 세입 확충에 기여할 것으로 예상
  - 2010년대 이후 법인세율 인하, 광업 등 산업분야에 대한 조세지출 부여 등은 라오스에 외국인 투자를 유치하고 국내투자를 촉진하는 등 경제성장에 기여
    - － 단, 산업의 성장 수준만큼 세입을 확충하지 못했다는 측면도 존재
  - 추가적으로, 2022년 이후 라오스 Kip 통화의 지속적인 가치절하로 인하여 외화로 수납되는 세입의 경우 예측이 어려운 측면이 존재
    - － 현재 외화로 수납되는 세입은 광업 및 수력발전 분야의 법인세 등 세수와 광업권 승인 수수료, 라오스-중국 철도 및 항구의 수익 등
- 라오스의 재정수입 확충을 위해 외화수입 확보, 부가가치세율 인상 등 세입확충, 조세지출에 대한 재평가 등 정책을 제안
  - 현행 라오스 정부가 수납하고 있는 외화수입 외에 추가적인 외화수입 재원을 확충할 것을 제안
    - － 본 세미나에서는 라오스 내 외국인 노동자를 고용한 기업이나 상품 수출 기업, 외국인 관광객을 대상으로 한 관광부문 등을 사례로 제시
  - 부가가치세율을 2020년 이전 수준인 10%로 인상하고, 새로운 세원 발굴과 세무행정의 효율화 등으로 세입여건 개선
    - － 본 세미나에서는 설탕 등에 대한 과세 등의 세원발굴, 세금 징수의 디지털화 등 세무행정 강화, 세무공무원과 세관원의 전문성 강화 등을 제시
  - 조세지출에 대한 평가를 통해 광업, 에너지 등 자원을 활용하는 산업에서의 세입을 증대시킬 필요

# **Fiscal Environment Analysis and Policy Recommendation for Lao PDR**

Dr. Sumio Ishikawa  
Group Head & Lead Economist of AMRO

December 6, 2023

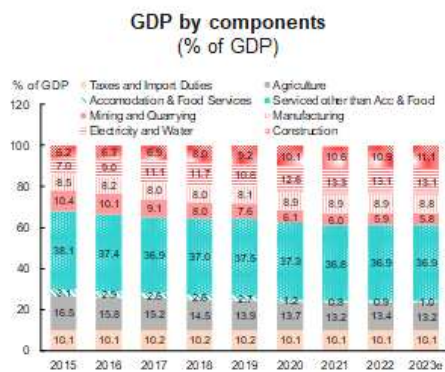


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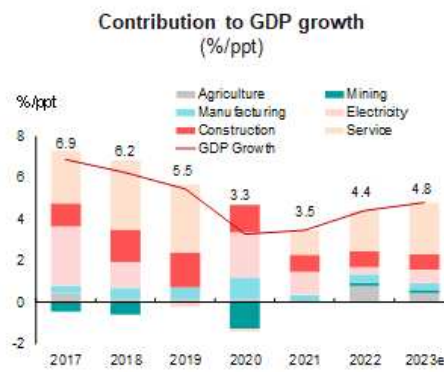
- 1. GDP Components in Lao PDR**
- 2. Revenue Structure in Lao PDR**
- 3. Tax Structure in Lao PDR**
- 4. Tax Incentives and Tax Collection in Lao PDR**
- 5. Policy Recommendations for Improving Revenue Collection**

## 1. GDP Components in Lao PDR

- The industry and services sectors collectively construct over 70 percent of Lao PDR's GDP.
- The GDP share of the services and agriculture sectors is on a downward trend, while that of construction, electricity, and manufacturing is increasing.
- Revenue typically reflects the level of economic activity, and its forecasts can be conditional upon the projections of economic factors such as GDP, imports, or consumption.



Source: Lao Statistical Bureau, AMRO staff estimation

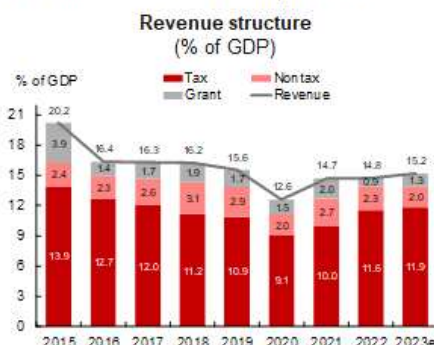


Source: Lao Statistical Bureau, AMRO staff estimation

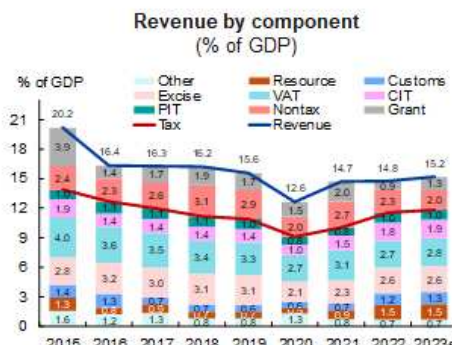
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## 2. Revenue Structure in Lao PDR

- While the revenue remains below the pre-pandemic level, it has increased recently due to revenue-enhancing measures. These measures include expanding the VAT tax base, utilizing the fast-track mining approval scheme and cryptocurrency mining, raising excise tax rates, and modernizing tax administration.
- Firming economic growth and higher global commodity prices, especially oil, and a sharp depreciation of the Kip, also contributed to the increased resource tax, customs duties, excise tax, personal income tax (PIT), and corporate income tax (CIT) in Lao PDR, as certain tax types are collected in foreign currency (FCY).
- However, VAT declined after the government reduced the VAT rate from 10 to 7 percent in 2022-2023, with a plan to restore the VAT rate back to 10 percent in 2024.



Source: LMOF, AMRO staff estimation



Source: LMOF, AMRO staff estimation

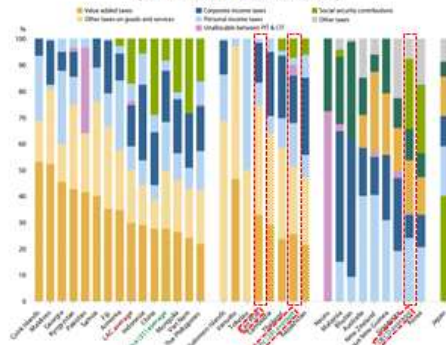
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### 3. Tax Structure in Lao PDR

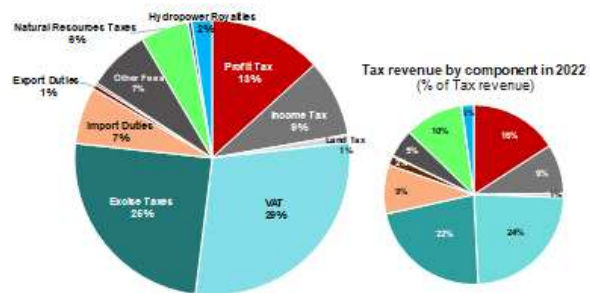
- In developed countries, such as OECD countries, VAT and other taxes on goods and services constitute a small share of tax revenue. Conversely, in the Asia-Pacific region, including Lao PDR, consumption taxes make up more than half of the total tax revenue.
- The Laos government supports restoring the VAT rate to 10 percent in 2024 to maintain Lao PDR's key revenue source, especially when the broader VAT base may provide the government with higher tax revenues.
  - A pilot project on VAT rate cut and the incentive to cut CIT rate for micro and SMEs enterprises that register for the VAT system resulted in an additional 10,000 VAT-registered units in 2022. The authority expects an additional 4,000 VAT-registered units in 2023, putting it on track to meet the National Agenda's target of reaching 14,657 VAT-registered business units by 2022-2023.

**Tax structures across countries and regions in 2021**  
(% of Total tax revenue)



Source: OECD and ADB, 2023, "Revenue Statistics in Asia and the Pacific 2023."

**Tax revenue by component in 2017-2022**  
(% of Tax revenue)

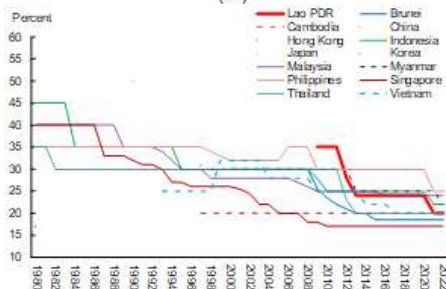


Source: LMOF

### 4. Tax Incentives and Tax Collection in Lao PDR

- Incentivized industries have significantly contributed to economic growth, bringing benefits such as employment and technological transfer to Lao PDR. Nevertheless, tax exemptions and incentives for these industries have widened the gap between economic and tax performances.
- The Laos government provides broad tax incentives to attract foreign investment for national development and promote domestic investment activities. For instance, the statutory CIT rate was reduced from 35 percent in 2009-2011 to 20 percent in 2022, stunting sufficient tax collection from growing industries.
- While the current tax incentives in Lao PDR target specific sectors (industries), activities (R&D), and regions (less developed, SEZ), the government may identify the specific types of investments that Lao PDR seeks to attract in accordance with the national development plan and reduce the revenue cost of incentives.

**Top Corporate Income Tax Rate from 1980-2022**  
(%)



Source: Enache, C. 2022. "Corporate Tax Rates around the World, 2022." Tax Foundation.

**Tax incentive Instruments in ASEAN countries and Strategic Targets of Investment Promotion in Lao PDR**

	Income Tax Exemption	Tax Rate Reduction	Tax Allowance	Tax Credit	Trade Tax Exemption
Brunei	✓				✓
Cambodia	✓		✓		✓
Indonesia	✓	✓	✓		✓
Lao PDR	✓		✓		✓
Malaysia	✓	✓	✓		✓
Myanmar	✓	✓	✓		✓
Philippines	✓	✓	✓	✓	✓
Singapore	✓	✓	✓		✓
Thailand	✓	✓	✓		✓
Vietnam	✓	✓	✓	✓	✓

Targeted Sectors / Activities / Regions	
Lao PDR	<ul style="list-style-type: none"> <li>Sectors eligible for Incentive Certificate                             <ul style="list-style-type: none"> <li>(i) Industry using high and modern technology, R&amp;D, innovation; (ii) Agriculture, agricultural processing, handicraft processing; (iii) Tourism; (iv) Education, sports, human resource development; (v) Healthcare; (vi) Infrastructure; (vii) Policy banks and microfinance; (viii) Domestic production promotion</li> </ul> </li> <li>Regions: Zone 1 (Poor and remote area with unfavorable infrastructure), Zone 2 (Area with favorable infrastructure), Zone 3 (Special Economic Zone)</li> </ul>

Source: Andriansyah, Hong, & Nam, 2021. "Policy Considerations in Using Tax Incentives for Foreign Investment."

## 4. Tax Incentives and Tax Collection in Lao PDR

- Additionally, the collection of certain taxes in FCY poses challenges in forecasting revenue in the LAK term, especially when the LAK continues to depreciate since 2022. Current FCY sources include overflight fees, royalties, concession fees, dividends, CIT from mining and hydropower, as well as FCY revenues from the fast-track mining approval, the Lao-China railway and dry port, and cryptocurrency mining.
- Understanding the relationships between revenue and other elements of the economy is significant for generating revenue forecasts. In general, tax revenue is likely to be more sensitive to the economy than non-tax revenue and grants, since it is often tied to specific activities or services that are affected by economic upturns and downturns.

GDP components	Tax type collection	Examples of tax incentives and challenges in tax collection
Agriculture	CIT, PIT, VAT	<ul style="list-style-type: none"> <li>• CIT incentives for megaprojects</li> <li>• VAT exemption on unprocessed agricultural products</li> <li>• Large informal workforce in the agricultural sector</li> </ul>
Mining	CIT, Royalty, Natural resource tax, Concession and licensing fee	<ul style="list-style-type: none"> <li>• Revenue from the mining sector tends to fluctuate with changes in commodity prices and LAK depreciation <ul style="list-style-type: none"> <li>◦ Before 2021: collected CIT and royalty</li> <li>◦ After 2021: implemented fast-track programs to collect annual lump-sum taxes (including natural resource taxes, CIT, concession fee) and one-time licensing fees</li> </ul> </li> </ul>
Electricity	CIT, Royalty, Natural resource tax, Concession fee	<ul style="list-style-type: none"> <li>• Taxes and fees from the hydropower projects are often minimal or zero due to generous tax incentives and tax holidays in the early stages of operation</li> <li>• Revenues from the electricity sector are affected by weather conditions over the long concession period</li> </ul>
Manufacturing	CIT, PIT, VAT	<ul style="list-style-type: none"> <li>• CIT incentives for megaprojects or those located in Special Economic Zones (SEZs) and specific locations</li> </ul>
Construction	CIT, PIT, VAT	<ul style="list-style-type: none"> <li>• CIT incentives for megaprojects such as dams</li> </ul>
Services	CIT, PIT, VAT	<ul style="list-style-type: none"> <li>• Tax exemptions and small lump-sum taxes for micro-enterprises and SMEs, which are dominant in the service sector.</li> <li>• Large informal businesses and employees in the service sector</li> </ul>

Source: LMOF

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## 5. Policy Recommendations for Improving Revenue Collection

<b>Revenue</b>	<ul style="list-style-type: none"> <li>• Secure FCY revenue.</li> <li>• Proceed with revenue enhancement measures, particularly a reversal of VAT rate to 10% and expedite revenue mobilization.</li> <li>• Reassess tax incentives for the concession agreements to increase revenue.</li> </ul>
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### 1) Secure FCY revenue.

- As a temporary measure, the government may consider raising FCY revenues from alternative sources, such as targeting a broader range of sectors that generate revenue in foreign currencies.
- More specifically, alternative sources could include companies with foreign workers employed in Lao PDR, the tourism sector providing services to international visitors, companies that export goods, as well as vehicle dealers.

### Preliminary Estimate of Potential Additional FCY Revenue in million USD

	2023	2024	2025	2026	2027
Exporters	77	87	99	112	127
Workers with wages in FCY	11	10	10	11	11
Hotels and travel agencies	21	36	45	53	62
Vehicle dealers	47	48	48	48	47
<b>Estimating new FCY revenue amount</b>	<b>156</b>	<b>179</b>	<b>200</b>	<b>223</b>	<b>246</b>

Note: As policy implementation may take time, we expect that the impact would kick in from 2024 at the earliest. The projected amount could be partially materialized at the beginning, and we expect it to be fully materialized from 2027 onward.  
Source: AMRO staff estimation

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## 5. Policy Recommendations for Improving Revenue Collection

Revenue	• Secure FCY revenue.
	• Proceed with revenue enhancement measures, particularly a reversal of VAT rate to 10% and expedite revenue mobilization.
	• Reassess tax incentives for the concession agreements to increase revenue.

### 2) Reverse VAT rate to 10 percent

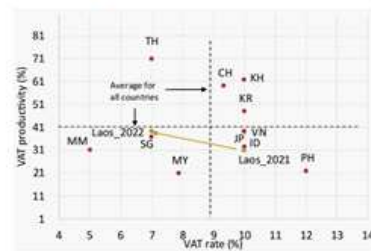
- The Laos government proposed to the National Assembly to restore VAT back to 10 percent from 2024 onwards.
- AMRO agrees with the Laos government that the VAT cut should be a temporary measure to maintain Lao PDR's key revenue source, especially when the broader VAT base and improved VAT productivity, due to government efforts to step up digitalization to reduce compliance costs, are likely to provide the government with higher tax revenues. A 10 percent VAT rate will be also in line with the regional trend.

VAT, SST, and GST rate and change in ASEAN+3 economies

	Current VAT Rate	VAT Rate Changes
Lao PDR	7%	Temporary cut from 10% in 2022-2023
Cambodia	10%	
Vietnam	8%	Temporary cut from 10% to 8% in 2022 and in July-December 2023
Myanmar	5% (Commercial tax)	
Philippines	12%	
Indonesia	11%	Increase to 12% in January 2025
Malaysia	6%, 10% (SST)	
Thailand	7%	Reduce from 10% to 7% until 30 September 2024
Singapore	8% (GST)	Increase to 9% in January 2024
Japan	10% (Consumption tax)	
Korea	10%	
China	13%, 9%, 6%	

Source: Lao PDR ACR 2023

VAT Productivity and Rates in ASEAN economies



Note: VAT productivity = VAT revenue / (statutory VAT rate x nominal GDP) in 2021.  
Source: Lao PDR ACR 2023

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## 5. Policy Recommendations for Improving Revenue Collection

Revenue	• Secure FCY revenue.
	• Proceed with revenue enhancement measures, particularly a reversal of VAT rate to 10% and expedite revenue mobilization.
	• Reassess tax incentives for the concession agreements to increase revenue.

### 3) Expedite revenue mobilization

- Implementing tax systems that are simple, broad-based, and fair.

Lao PDR's tax measure initiatives	AMRO's recommendations
(1) Several tax measures are expected to launch between 2023-2024, such as revising the land tax calculation and introducing an environmental tax.	<ul style="list-style-type: none"> <li>• The government could further consider the possibility of imposing new taxes, such as the tax on sugar or property tax.</li> <li>• Tax administration should be strengthened by further digitalizing tax collection and training tax officers.</li> </ul>
(2) Continued cryptocurrency lump-sum tax collection.	<ul style="list-style-type: none"> <li>• The license of the non-compliant cryptocurrency company should be revoked to free the capacity of the EDL.</li> </ul>
(3) Installed and operated ASYCUDA in Lao PDR's International border checkpoints.	<ul style="list-style-type: none"> <li>• Reduced customs evasion by expanding the ASYCUDA system to all border checkpoints while improving capacity of customs officers.</li> </ul>

Note: ASYCUDA refers to Automated System for Customs Data which is a computerized customs management system that covers most foreign trade procedures. In addition to handling customs declarations, accounting procedures and transit procedures, it also generates trade data that can be used for statistical economic analysis.  
Source: Lao PDR ACR 2023

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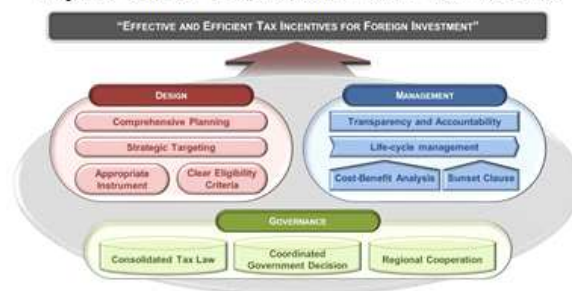
## 5. Policy Recommendations for Improving Revenue Collection

<b>Revenue</b>	<ul style="list-style-type: none"> <li>Secure FCY revenue.</li> <li>Proceed with revenue enhancement measures, particularly a reversal of VAT rate to 10% and expedite revenue mobilization.</li> <li>Reassess tax incentives for the concession agreements to increase revenue.</li> </ul>
----------------	---

### 4) Reassess tax incentives for the concession agreements to increase revenue.

- Favourable tax treatments for investment in sectors that utilize the Laotian unique national resources, including mining and energy, should be reconsidered. Lao PDR could learn from its neighbouring countries' best practices and streamline the concession agreement approval process.
- Concession agreements should be reviewed regularly to minimize the fiscal cost from their tax incentives.

#### Key Elements for Effective and Efficient Tax Incentives



Source: Andriansyah, Hong, & Niam. 2021. "Policy Considerations in Using Tax Incentives for Foreign Investment."

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## Appendix

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## AMRO: Revenue Projection

$$\text{Tax Revenue Forecast}_t = \text{Tax Revenue}_{t-1} * (1 + (\epsilon * \text{nominal GDP growth}))$$

- Revenue in 2022 is 24,404 LAK billion, what is the revenue projection in 2023?
- Tax revenue forecast = Tax revenue in 2022 \* (1 + (Elasticity \* Nominal GDP growth in 2023))
- Tax revenue growth in 2023 = Tax elasticity in 2023 \* Nominal GDP growth in 2023

Input: Fiscal (LAK billion)	2020	2021	2022e	2023p	2024p	2025p	2026p	2027p
Revenue	21,846	27,177	31,817	36,500	41,226	45,636	50,529	55,962
Tax	15,765	18,534	24,404	28,819	32,706	36,390	40,489	45,050
Nontax	3,451	4,966	4,991	4,131	4,774	5,312	5,910	6,576
Grant	2,630	3,678	2,422	3,550	3,746	3,934	4,130	4,337
Input: Fiscal (Change, %)	2020	2021	2022e	2023p	2024p	2025p	2026p	2027p
Revenue	-13.8	24.4	17.1	14.7	12.9	10.7	10.7	10.8
Tax	-11.1	17.6	31.7	18.1	13.5	11.3	11.3	11.3
Nontax	-27.6	43.9	0.5	-17.2	15.6	11.3	11.3	11.3
Grant	-7.0	39.8	-34.1	46.6	5.5	5.0	5.0	5.0
Tax elasticity	-1.8	2.5	2.0	1.1	1.3	1.1	1.1	1.1
Nontax elasticity	-4.5	6.1	0.0	-1.0	1.5	1.1	1.1	1.1
Input: Macro (Change, %)	2020	2021	2022e	2023p	2024p	2025p	2026p	2027p
Nominal GDP growth	6.12	7.17	15.75	17.23	10.37	10.24	10.24	10.24
Real GDP growth	3.28	3.48	4.02	3.89	5.00	6.00	6.00	6.00
GDP deflator inflation	2.75	3.56	11.28	12.84	5.12	4.00	4.00	4.00
Exchange rate depreciation (average)	4.23	7.28	45.01	22.25	5.53	5.00	5.00	5.00
Exchange rate depreciation (end of period)	4.66	19.05	51.24	6.10	5.00	5.00	5.00	5.00

Source: AMRO staff calculation

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## AMRO: Revenue Projection

$$\text{Nontax Revenue Forecast}_t = \text{Nontax Revenue}_{t-1} * (1 + (\epsilon * \text{nominal GDP growth}))$$

- Nontax revenue in 2025 is 5,312 LAK billion, what is the nontax revenue projection in 2026?
- Nontax revenue forecast = Tax revenue in 2025 \* (1 + (Nontax revenue growth in 2026))
- Nontax revenue growth in 2026 = Tax elasticity in 2026 \* Nominal GDP growth in 2026

Input: Fiscal (LAK billion)	2020	2021	2022e	2023p	2024p	2025p	2026p	2027p
Revenue	21,846	27,177	31,817	36,500	41,226	45,636	50,529	55,962
Tax	15,765	18,534	24,404	28,819	32,706	36,390	40,489	45,050
Nontax	3,451	4,966	4,991	4,131	4,774	5,312	5,910	6,576
Grant	2,630	3,678	2,422	3,550	3,746	3,934	4,130	4,337
Input: Fiscal (Change, %)	2020	2021	2022e	2023p	2024p	2025p	2026p	2027p
Revenue	-13.8	24.4	17.1	14.7	12.9	10.7	10.7	10.8
Tax	-11.1	17.6	31.7	18.1	13.5	11.3	11.3	11.3
Nontax	-27.6	43.9	0.5	-17.2	15.6	11.3	11.3	11.3
Grant	-7.0	39.8	-34.1	46.6	5.5	5.0	5.0	5.0
Tax elasticity	-1.8	2.5	2.0	1.1	1.3	1.1	1.1	1.1
Nontax elasticity	-4.5	6.1	0.0	-1.0	1.5	1.1	1.1	1.1
Input: Macro (Change, %)	2020	2021	2022e	2023p	2024p	2025p	2026p	2027p
Nominal GDP growth	6.12	7.17	15.75	17.23	10.37	10.24	10.24	10.24
Real GDP growth	3.28	3.48	4.02	3.89	5.00	6.00	6.00	6.00
GDP deflator inflation	2.75	3.56	11.28	12.84	5.12	4.00	4.00	4.00
Exchange rate depreciation (average)	4.23	7.28	45.01	22.25	5.53	5.00	5.00	5.00
Exchange rate depreciation (end of period)	4.66	19.05	51.24	6.10	5.00	5.00	5.00	5.00

Source: AMRO staff calculation

Nontax revenue is likely to be less sensitive to the economy than tax revenue because nontax revenue is often tied to specific activities or services that are less affected by economic downturns.

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## 2. 세입전망 방법론(발표자: 류덕현 교수, 중앙대학교)

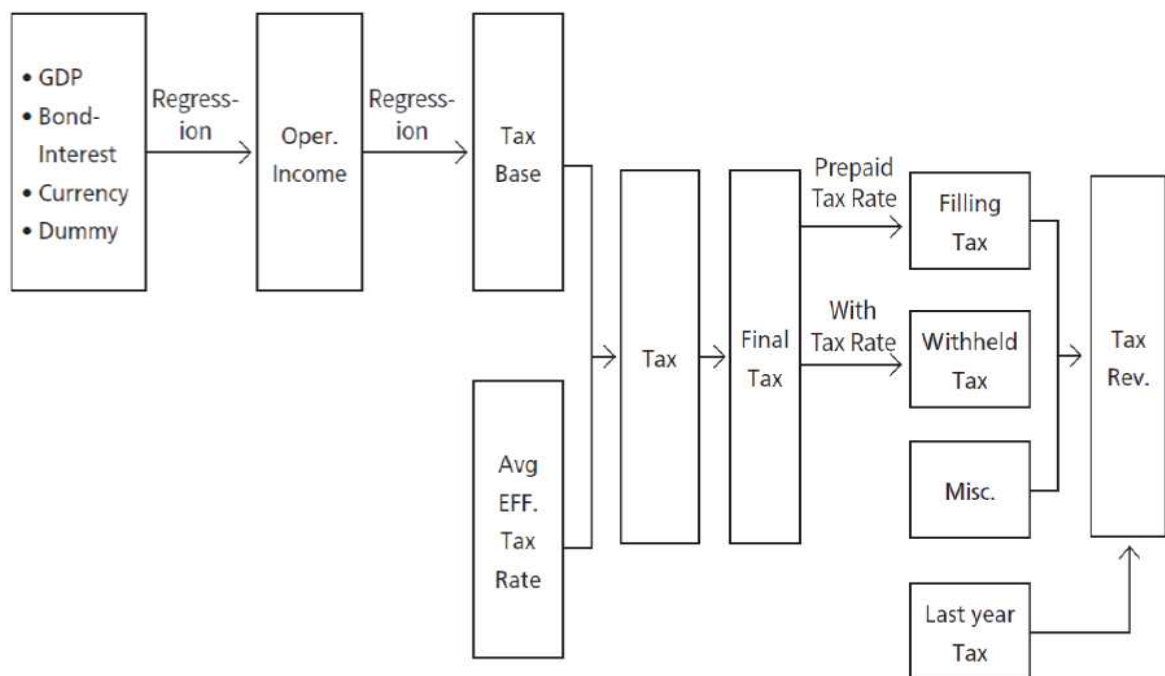
### 가. 세입전망 모형의 개요

- 국세수입의 전망은 예산편성 규모를 결정하는 등의 목적을 가지고 있으며, 한국에서는 현재 기획재정부와 국회예산정책처에서 이를 수행
  - 세입은 국세수입과 국세외수입으로 구성되며, 이 중 국세수입의 비중이 대부분을 차지하기 때문에 세입전망은 예산을 편성하는데 중요한 역할
  - 한국은 기획재정부가 8월말까지 내년도 세입 및 세출에 대한 예산안을 제출하면, 이에 대해 국회에서 심의하여 예산안을 확정하는데, 국회예산정책처의 전망은 예산안을 평가하는데 활용
- 한국의 국세수입의 주요 세목은 소득세, 법인세, 부가가치세 등
  - 2021년 기준 3개 세목의 비중은 국세수입의 74.3% 수준
    - － 소득세는 근로소득세, 양도소득세, 종합소득세가, 법인세는 법인세 신고분이 주요 세부세목
- 국세수입의 전망은 대체로 다음의 과정을 통해 수행
  - 1단계: 세입여건을 구성하는 경제변수의 전망
  - 2단계: 각 세목별 전망모형을 통한 세목별 기준선 전망
    - － 국세수입의 전망은 각 세목별로 과세자료와 경제성장률, 물가상승률 등 거시지표의 전망치를 활용
    - － 대체로 시계열 전망모형을 사용하되, 근로소득세나 종합소득세 등에서는 미시 시뮬레이션 모형을 활용하기도 함
  - 3단계: 기존 자료에 반영되지 않는 제도변화로 인한 세수효과를 반영
  - 4단계: 모형에 반영하기 어려운 요인을 고려한 전망결과 조정

## 나. 직접세 및 간접세의 세입전망

- 세금은 크게 납세의무자가 조세의 직접부담자인지 여부에 따라 직접세와 간접세로 구분
  - 직접세는 납세의무자가 조세의 직접부담자인 경우로, 소득세, 법인세, 상속세 및 증여세, 종합부동산세 등의 세목을 포함
  - 간접세는 납세의무자가 납세를 대납한 후 조세부담자에게 전가하는 형태의 조세로 부가가치세, 개별소비세, 주세, 증권거래세, 인지세, 교통·에너지·환경세, 교육세, 농어촌특별세 등이 포함
- 본 세미나에서는 직접세는 법인세와 근로소득세, 간접세는 부가가치세를 사례로 들어 전망과정 및 모형을 설명
  - 법인세는 GDP, 회사채 금리 등 경제변수를 바탕으로 추정한 법인 영업이익에 회귀모형을 통해 과세표준을 산출한 후, 실효세율을 적용하여 세액 산출

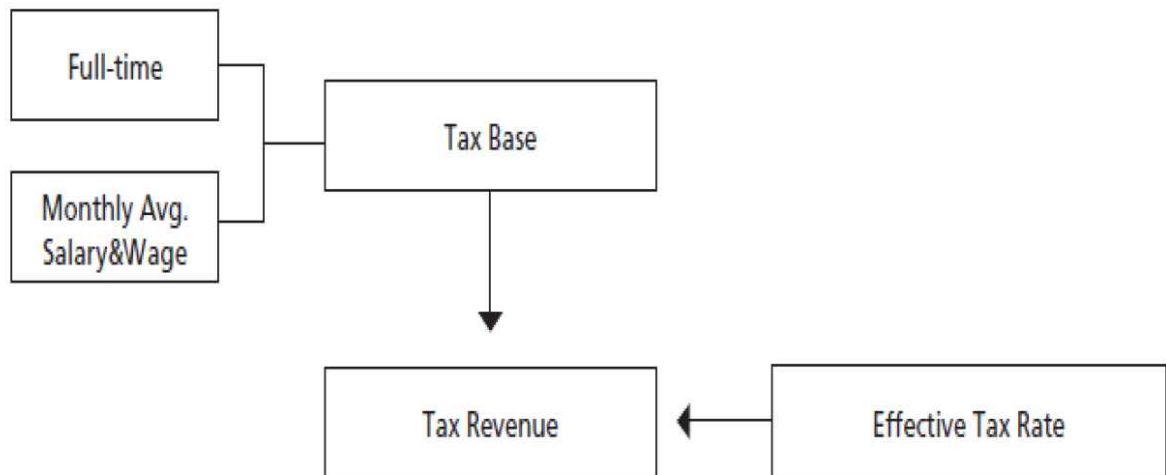
[법인세 산출과정]





- 한편, 근로소득세는 월별 평균임금과 상용근로자 수를 바탕으로 회귀모형을 통해 과세표준을 도출한 후, 실효세율을 적용하여 산출

[근로소득세 산출과정]



- 부가가치세의 경우, 징수시점을 감안하여 부가가치세의 시차를 조정한 후, 민간소비, 수출입, 설비투자 등을 바탕으로 회귀모형을 통해 세액을 추정
  - 부가가치세의 기반이 되는 매출의 발생과 징수에는 1분기의 시차가 존재

[부가가치세 전망 회귀모형 결과]

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variables: ln (time-adjusted VAT tax revenue)	ln (real private consumption)	2.252*** (0.065)	1.787*** (0.440)	1.854*** (0.512)	1.519*** (0.382)	1.523*** (0.450)	1.902*** (0.257)	2.073*** (0.287)	1.736*** (0.236)	1.873*** (0.272)
	ln (CPI)		0.504 (0.472)	0.510 (0.487)	1.424** (0.517)	1.424** (0.536)	0.381 (0.276)	0.391 (0.271)	0.911** (0.329)	0.878** (0.330)
	ln (real plant and equipment investment)			-0.050 (0.178)		-0.003 (0.151)		-0.126 (0.100)		-0.091 (0.090)
	ln (export)				-0.201** (0.073)	-0.201** (0.076)			-0.112** (0.047)	-0.103* (0.048)
	Year 2008 dummy						-0.146*** (0.026)	-0.151*** (0.026)	-0.125*** (0.024)	-0.130*** (0.025)
	Constant	-17.233*** (0.874)	-13.221*** (3.853)	-13.564*** (4.152)	-9.761** (3.468)	-9.781** (3.782)	-14.206*** (2.251)	-15.095*** (2.317)	-12.137*** (2.153)	-12.941*** (2.293)
	Observation	19	19	19	19	19	19	19	19	19
R <sup>2</sup>		0.986	0.987	0.987	0.991	0.991	0.996	0.996	0.997	0.997
Estimated results of Residual's AR(1) model	First lag of residual	-0.072 (0.249)	-0.100 (0.249)	-0.066 (0.251)	-0.224 (0.244)	-0.223 (0.244)	0.270 (0.236)	0.370 (0.234)	0.290 (0.237)	0.293 (0.240)
	Constant	0.000 (0.010)	0.001 (0.010)	0.000 (0.010)	0.000 (0.008)	-0.000 (0.008)	0.001 (0.005)	0.000 (0.005)	0.001 (0.005)	-0.000 (0.004)
	Observation	18	18	18	18	18	18	18	18	18
	R <sup>2</sup>	0.005	0.010	0.004	0.050	0.050	0.075	0.136	0.086	0.085
Unit root test of residual	DFuller Z-statistic	-4.299	-4.412	-4.249	-5.015	-5.013	-3.088	-2.694	-3.000	-2.952
	DFuller P-value	0.000446	0.000283	0.000543	2.07e-05	2.09e-05	0.0274	0.0752	0.0349	0.0396



**Lecture 1**

**Tax Revenue Forecasting Model  
- Introduction -**

**Deockhyun Ryu (Chung-Ang University)**

December 6, 2023

**< Contents >**

- I. Background and Objectives of Tax Revenue Forecasting
- II. Introduction to Korea's Tax Revenue Forecasting Model
- III. Overview of the method for Tax Revenue Forecasting

## I. Background and Objectives of Tax Revenue Forecasting

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### Background and Objective of Tax revenue forecasting

- Countries forecast tax revenue for roughly two purposes.
- (1) One main purpose is government budgeting.
  - Governmental expenditures are closely related to tax revenue forecasting.
  - Tax revenue in most leading economies take up a large share of financing sources. Cf. Japan (only 60%)
  - The best method of tax revenue forecasting should have a small gap from collected tax revenue.
  - The conservative forecasting is recommended to minimize a deficit. If the tax revenue forecast is higher than actual tax revenue, the difference can lead to the budget being in the red. The tax forecasting error will be discussed on the other lectures.
  - Forecasting figures smaller than collected tax revenue is recommended.
- (2) The government often uses tax revenue forecasting as a complementary tool.
  - The government also encourages tax collection administration(National Tax Service in Korea) by considering tax revenue forecasts as targets.

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## II. Introduction to Korea's Tax Revenue Forecasting Model

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### 1. Tax Revenue Forecasting by Organization

- In Korea, the Ministry of Economy and Finance (MOEF) and the National Assembly Budget Office (NABO) conducting tax revenue forecasting.
- By late August, MOEF submits a proposed budget for the following year with tax revenues and expenditures, and NABO reviews and puts the proposal up for voting.
- Forecasting tax revenue is an essential process in the process of the suggestion and approval of the MOEF-drafted budget.
- The accuracy and validity of the forecasts and methodologies must first be verified to acquire legislative approval.

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## 2. Methodologies for Tax Revenue Forecasting by Type

- The Tax Revenue Forecasting Model of MOEF is based on microdata for each item.
- The bottom-up method used calculates the elasticity of Taxable Income (TI) in relation to GDP and interest and currency rates to set the Tax Base (TB), with which the tax payable is calculated, rather than basing the tax revenue forecast on corporate tax payable and macroeconomic variables (e.g., GDP or CPI)

### < Tax Types in Korea >

Direct Tax	Indirect tax
• Income Tax	• Value Added Tax
• Global Income Tax	• Selective Excise Tax
• Capital Gains Tax	• Liquor Tax
• Employment Income Tax	• Securities Transaction Tax
• Corporation Tax	• Stamp Tax
• Inheritance Tax	• Transportation · Energy · Environment Tax
• Gift Tax	• Education Tax
• Comprehensive Real Estate Holding Tax	• Special Tax for Rural Development

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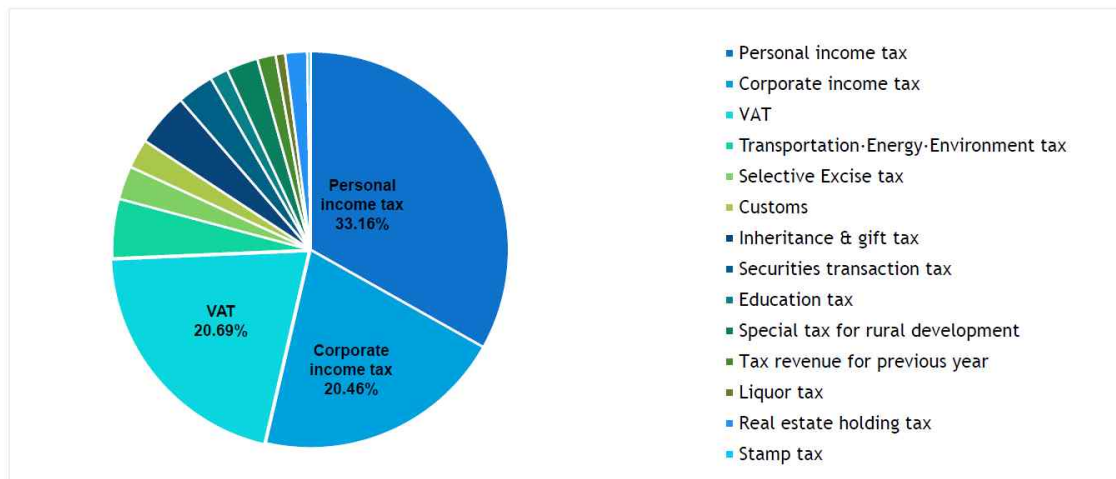
## III. Overview of the method for Tax Revenue Forecasting

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## 1. Composition of national tax revenue

- Personal income tax, corporate income tax, and VAT took up the largest share in 2021 national tax revenue.

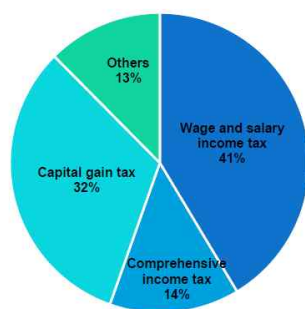


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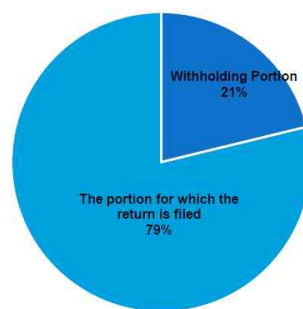
## 1. Composition of national tax revenue

- If we look at the personal and the corporate income tax revenue in 2021 more in detail:
  - Salary and wage income tax took up 41% - the largest - of the total personal income tax revenue.
  - The portion of the corporate income taxes for which the return is filed took up 79% of the total.

Composition of personal income tax revenue



Composition of corporate income tax revenue



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### 3. Overview of the method to forecast national tax revenue

#### Overall forecasting procedure

##### ❖ Step 1: Forecast economic environment variables

- ✓ Set up the variables by referencing predictions from the government and other relevant research institutes. (See the next slides.)

##### ❖ Step 2: Forecast the tax revenue base on a model

##### ❖ Step 3: Add the effect of tax law revision which is not reflected on the past data

##### ❖ Step 4: Adjust the forecasting results to consider factors which are not reflected by the model

- ✓ Tax revenues related to corporate income, capital gains, or asset are more volatile than others such as personal income or consumption; therefore, their forecasting errors of the model are relatively large.
- ✓ Also conduct some sensitivity tests to different economic environments

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### 2. Key variables required to forecast national tax revenue

- (Step1) To forecast national tax revenue, economic prediction, which determines tax base, needs to be undertaken first.

- Key variables are determined by referencing predictions of relevant key organizations

Category	Required variables	Relevant tax	Category	Required variables	Relevant tax
Macroeconomics (MOEF, Bank of Korea, KDI, etc.)	<ul style="list-style-type: none"> <li>Nominal GDP</li> <li>Real GDP</li> <li>Private consumption</li> <li>Private investment                             <ul style="list-style-type: none"> <li>Plant and equipment investment</li> <li>Construction investment</li> </ul> </li> <li>Export/Import (customs)</li> <li>Price                             <ul style="list-style-type: none"> <li>GDP deflator</li> <li>CPI</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Personal income tax                             <ul style="list-style-type: none"> <li>Wage and salary income tax</li> <li>Comprehensive income tax</li> <li>Capital gains tax</li> </ul> </li> <li>Corporate income tax</li> <li>VAT</li> <li>Customs</li> </ul>	Capital market (KIF, KC MI)	<ul style="list-style-type: none"> <li>Korea-US exchange rate</li> <li>Interest rate                             <ul style="list-style-type: none"> <li>Treasury bond (3 years)</li> <li>Corporate bond (3 years, AA-)</li> </ul> </li> <li>Size of individual and corporate financial assets</li> <li>Stock markets, including KOSPI and KOSDAQ                             <ul style="list-style-type: none"> <li>Price index of stocks</li> <li>Stock transaction payment</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Personal income tax                             <ul style="list-style-type: none"> <li>Interest income tax</li> <li>Dividend income tax</li> <li>Capital gains tax</li> </ul> </li> <li>Inheritance tax</li> <li>Gift tax</li> <li>Securities transaction tax</li> <li>Stamp tax</li> <li>Customs</li> </ul>
Labormarket (MOEF, Bank of Korea, KDI, Korea Labor Institute)	<ul style="list-style-type: none"> <li>Number of employed people                             <ul style="list-style-type: none"> <li>Permanent workers</li> <li>Non-permanent workers</li> <li>Self-employed</li> </ul> </li> <li>Employment rate</li> <li>Unemployment rate</li> </ul>	<ul style="list-style-type: none"> <li>Personal income tax                             <ul style="list-style-type: none"> <li>Wage and salary income tax</li> <li>Comprehensive income tax</li> </ul> </li> </ul>	Real estate market (KRIHS)	<ul style="list-style-type: none"> <li>Land market                             <ul style="list-style-type: none"> <li>fluctuation rate of land price</li> <li>Land transaction volume</li> </ul> </li> <li>Real estate market                             <ul style="list-style-type: none"> <li>Housing price index</li> <li>Housing transaction volume</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Personal income tax                             <ul style="list-style-type: none"> <li>Capital gains tax</li> </ul> </li> <li>Inheritance tax</li> <li>Gift tax</li> <li>Stamp tax</li> <li>Real estate holding tax</li> </ul>
Industry forecast (KIET)	<ul style="list-style-type: none"> <li>Forecast for different industries</li> <li>Business performance of listed companies with marketable securities</li> </ul>	<ul style="list-style-type: none"> <li>Corporate income tax</li> <li>Selective excise tax                             <ul style="list-style-type: none"> <li>Taxes for automobile, etc.</li> </ul> </li> </ul>	Energy demand (KEEI)	<ul style="list-style-type: none"> <li>Demand for oil                             <ul style="list-style-type: none"> <li>Gasoline</li> <li>Diesel</li> <li>Kerosene, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Selective excise tax                             <ul style="list-style-type: none"> <li>Taxes for oil</li> </ul> </li> <li>Transportation energy environment tax</li> </ul>

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### 3. Overview of the method to forecast national tax revenue

- (Step2) To forecast tax revenue, we need to build a national tax revenue forecast model based on variables needed to forecast tax base.
  - Different taxes, such as personal income tax, corporate income tax, VAT, are separately forecasted, and then are added together for the total national tax revenue.
- ❖ Personal income taxation: **Wage and salary income tax**, Comprehensive income tax, Interest income tax, Dividend income tax, etc.
- ❖ Corporate income taxation: **Portion for which return is filed**, Withheld portion
- ❖ Consumption taxation: **VAT**, transportation·energy·environment tax, Selective excise tax (portion of taxes for oil, other portion), Liquor tax
- ❖ Property taxation: Inheritance tax, Gift tax, Securities transaction tax, Stamp tax, Real estate holding tax, Capital gains tax
- ❖ Others: Customs, Education tax, Special tax for rural development, Tax revenue for the previous year

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### 3. Overview of the method to forecast national tax revenue

- Most taxes are forecasted by regression analysis based on macroeconomic times series.
- A micro-simulation model is also used to forecast wage and salary income tax and comprehensive income tax.
- This presentation will discuss in the following order, in order to start with the simplest to the complex tax forecasting method.
  - ❖ VAT
  - ❖ Corporate income tax
  - ❖ Wage and salary income tax

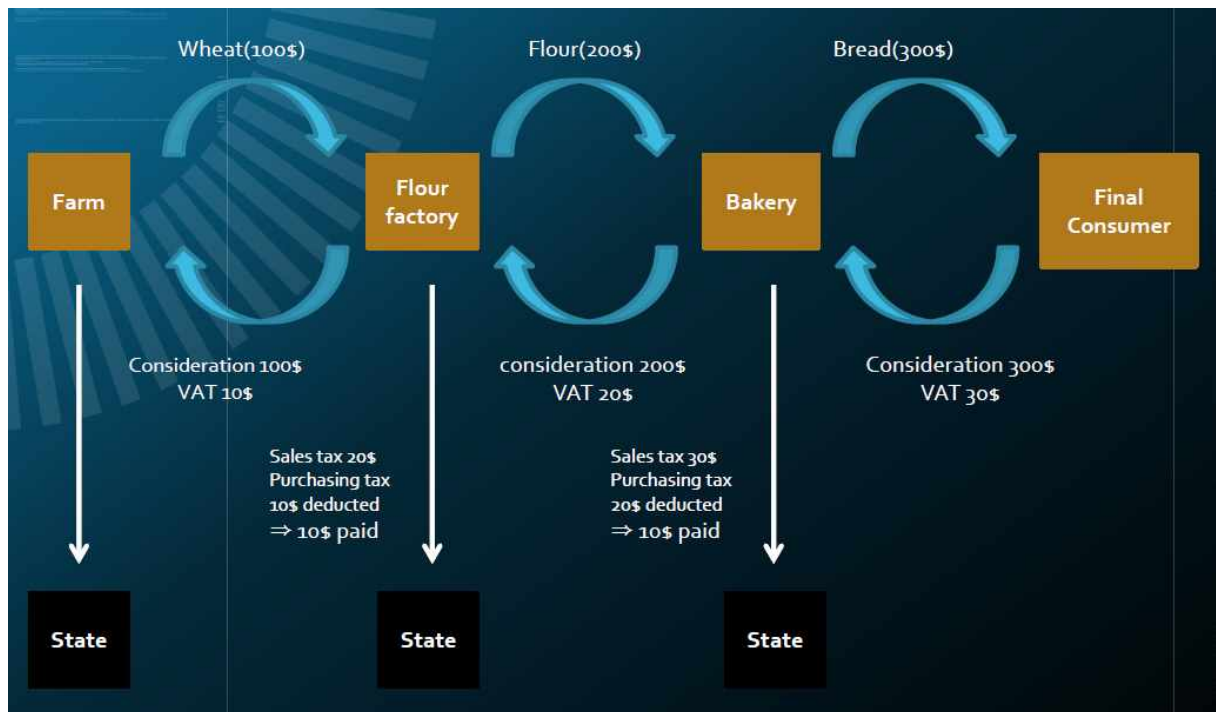
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### 3. 한국의 부가가치세(발표자: 장재형 고문, 법무법인 율촌)

#### 가. 부가가치세의 개요

- 부가가치세는 재화 및 서비스의 거래과정에서 발생하는 부가가치에 대하여 과세하는 세금
  - 한국의 경우, 사업자의 매출세액에서 매입세액을 차감하여 계산
    - 한국외의 다른 나라의 경우, 각 생산요소(임금, 지대, 수익 등)에 세율을 곱하여 산출하는 방식과 (매출 - 매입)에 세율을 적용하는 방식 등을 활용하기도 함

[부가가치세의 도식적인 과정]



#### 나. 부가가치세의 발전과정

- 한국의 부가가치세는 1977년에 도입
  - 1960년대 이후 경제개발 계획을 수립하는 과정에서 복잡한 간접세 체계를 정비할 필요성이 제기



- 이에 따라 1971년부터 정부는 6년간 준비과정에서 발생할 수 있는 부작용을 최소화하는 등의 준비과정을 거쳐 1977년 부가가치세 도입
  - － 부가가치 측정을 위한 인프라를 구축하고, 조세전가로 인한 물가상승에 대비하여 권장소비가격 등을 설정하였으며, 필수재에 대한 부가가치세 감면과 함께 사치재에 대해서는 부가가치세와 별도로 개별소비세를 도입
- 도입 이후 부가가치세는 세입확충과 수출 및 투자 증진, 조세회피 방지 등으로 한국의 경제성장에 기여
  - 부가가치세는 2022년 현재 소득세, 법인세와 함께 주요 세목으로 자리매김
  - 1960~70년대 정부주도형 경제성장 과정에서 수출품목에 대한 면세와 자본재 소비에 대한 감면혜택으로 경제성장에 기여
  - 과세당국의 재화거래에 대한 정보가 축적됨에 따라 부가가치세 뿐만 아니라 소득과세의 조세회피도 방지하는 효과
- 부가가치세의 발전과정에서 과세대상의 제고의 일환으로 세금계산서 및 신용카드의 도입 등의 정책 시행
  - 세금계산서의 도입으로 거래 상호간의 교차검증 등이 가능해졌으며, 전자세금계산서의 도입으로 사업자의 납세비용을 절감하고, 거래의 투명성을 제고
  - 1999년 이후 신용카드 소비에 대하여 소득공제를 실시하는 등 신용카드 도입을 장려함에 따라 일반소비자의 소매단계 거래에서 투명성을 제고
- 부가가치세의 성공적인 도입을 위해서는 다음의 선결과제가 존재
  - 간단한 세율 및 징수체계의 확립
  - 개별 거래단계에 대한 상호교차검증 시스템 확립
  - 기획재정부, 국세청 등 정부기관간 긴밀한 소통
  - 세무행정 실무자 교육 및 납세자 대상 홍보 증진 등
- 이에 따라 부가가치세의 도입단계에서는 간단하고 편리한 과세체계를 확립하고, 필요한 인프라를 구축하여 예상되는 부작용에 대비하는 한편, 도입 이후에는 지속적으로 납세자의 편의를 제고하기 위해 세무행정을 개선할 필요

# KOREA'S VAT OVERVIEW

- Success Factors and Policy Implications

2023.12.

OECD Tax Center of Korea  
Jaehyung Jang

## Contents

I

KOREA's VAT Introduction

II

VAT's contribution to KOREA's Economic Development

III

Major Factors behind Successful VAT regime

IV

Policy Implications

# I . Korea's VAT Introduction

## Background

### Korea's first half of the 20<sup>th</sup> century

- ✓ 1910 ~ 1945 : under the colonial rule
- ✓ 1950 ~ 1953 : the Korean War
- ✓ 1961 : military coup
- ✓ 1962 : 1<sup>st</sup> 5-year Economic Development Plan

### Complicated Indirect Tax System

- the Korean Government started 1<sup>st</sup> 5-year Economic Development Plan in 1962
- to mobilize fiscal revenue needed to finance the Economic Development Plan, several new tax items added and tax rates raised

## Korean Tax Regime before introducing VAT

Major Tax Items as of 1971		Tax Rate
Direct Tax	Personal Income Tax	8~70%
	Corporate Income Tax	20~40%
Indirect Tax	Business Tax	0.5%~35%
	Commodity Tax	2~200%
	Textile Tax	10~40%
	Petroleum Product Tax	20~300%
	Gas & Electricity Tax	10~15%
	Travel Tax	10%
	Admission Tax	10~250%
	Entertainment & Food Tax	2~20%
	Liquor Tax	10~200%
	Telephone Tax	15%
	Stamp Tax	KRW10~KRW150,000
	Defense Surtax	0.1~30%
	Tax on Monopoly Profits	100%

- ▶ different tax rates among goods & services ⇒ distortion of relative prices
- ▶ too many indirect taxes and rates ⇒ high compliance & administration cost

➡ In 1971, the Korean government started to consider **abolishing complicated indirect taxes in multiple tax rates and adopting the VAT regime** to establish a simple and neutral tax system as well as secure financial resources stably

## 6-year Preparation Period

It took **6 years to prepare to set up the VAT regime** from considering VAT introduction in 1971 and its enactment in 1976

- Consultation with Tax Experts of the IMF and the UN
- Consultation with academia, business, research institutions, media, financial institutions, lawyers
- Persuading the opponent of the VAT introduction

## Pros and Cons

Pros	Cons
Simplification of tax system and tax administration	Immaturity of VAT infrastructure
Promotion of export and investment	Possibility of inflation
Enhancement of the neutrality of indirect taxes	Regressivity of tax burden

## Efforts to mitigate Adverse Effects

### To establish VAT infra

- nation-wide campaign for issuing and receiving of receipts and use of cash register
- training tax officials
- taxpayer education : 3 rehearsals participated by all 830,000 taxpayers

### To ease the inflation worries

- set guideline price for 851 items of goods & services
  - on-site inspection of the prices by 4,920 teams of gov't officials
- ※ CPI increase rate (%) : ('74) 24.3, ('75) 25.3, ('76) 15.3, ('77) **10.1**, ('78) 14.5

### To mitigate regressivity

- tax exemptions for necessities  
(food, public transportation, books, medical & education service, etc)
- Special Consumption Tax on luxury goods  
(jewelry, passenger car, colour TV, audio device, air conditioner, etc)

## II . VAT's contribution to Korea's Economic Development

- **Major Source of Fiscal Revenue**
- **Streamline the Indirect Tax System**
- **Support Export and Investment**
- **Reduce Tax Evasion**

### III . Major Factors behind Successful VAT Regime

- Simple Rate Structure
- Simple VAT Payment Scheme for small businesses
- Cross-check system at every stage of transaction
- Cooperation between MOSF & NTS
- Training & Enlightenment

### Policy Implications

#### Introduction stage

- Design a simple & convenient tax system  
⇒ Mitigate tax resistance
- Prepare necessary infrastructures
- Cope with any potential problems

#### Maintenance stage

- Improve the VAT regime in a steady manner to enhance taxpayer's convenience

**Commitment and responsibility of politicians & administrative officials**

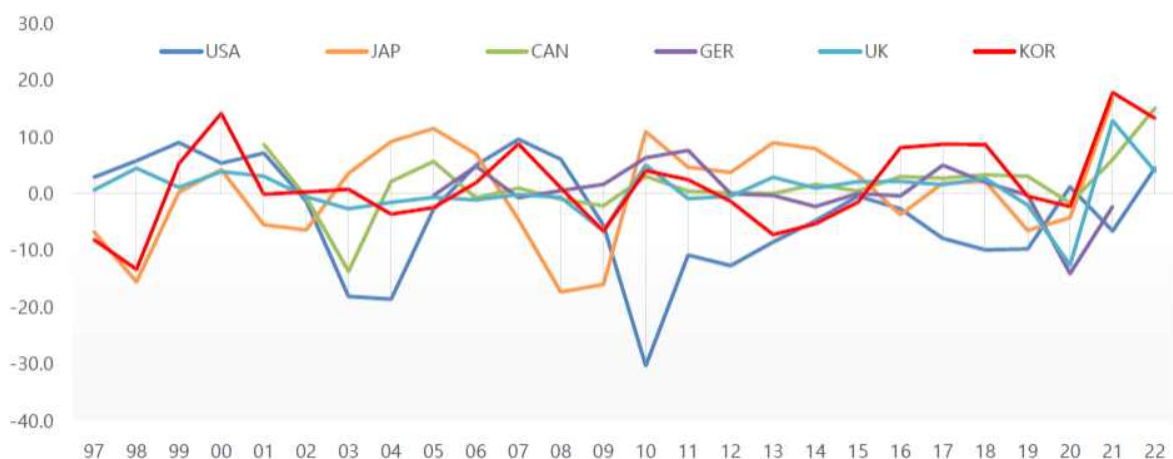


#### 4. 세수오차의 원인과 개선과제 및 한국경제 발전과정에서 조세정책의 역할 (발표자: 심혜정 조세분석심의관, 국회예산정책처)

##### 가. 세수오차의 원인과 개선과제

- 최근 대규모 국세수입 전망오차(이하 세수오차)가 발생함에 따라 재정운용상의 다양한 부작용을 초래
  - 한국의 경우 2021~2022년간 대규모 초과세수가 발생한 반면, 2023년에는 대규모 부족세수의 발생이 예상
    - － 세수오차: ('21년) 61.3조원, ('22년) 52.6조원, ('23년, 추정치) △60.2조원
  - 코로나19 팬데믹 이후 세입여건의 불확실성이 확대됨에 따라 한국 뿐만 아니라 세계 각국에서도 국세수입의 전망오차가 증가하는 추세
    - － 세목별로는 법인세와 재산과세를 중심으로 세수오차 확대

[세계 각국의 세수오차를 추이]



- 대규모 세수오차의 발생은 재정운용상 투명성과 효율성을 저해하고, 지출의 적자편향성을 강화하며, 재정정책의 경기 자동안정화 기능을 저해하는 등 다양한 부작용을 초래
- 대규모 세수오차의 발생원인은 예상치 못한 빠른 경기국면 전환과 조세부양성의 변동폭 확대 등
  - 대규모 세수오차는 경기국면이 전환되는 과정에서 주로 발생하며, 이후 2~3년간

지속되는 특징

- 또한, 경제성장률 대비 국세수입 증가율의 탄력성이 조세부양성의 변동성이 2000년대 이후 확대됨에 따라 경제성장률 등을 활용하는 전망모형의 오차가 확대
  - 조세부양성의 변동성 확대는 법인세 및 자산관련 세수의 총국세 대비 비중이 커지는 등의 조세구조 변화와 소득 상위구간에 대한 세수의존도의 상승에 따른 세입기반의 분포적 특성 변화 등에 기인

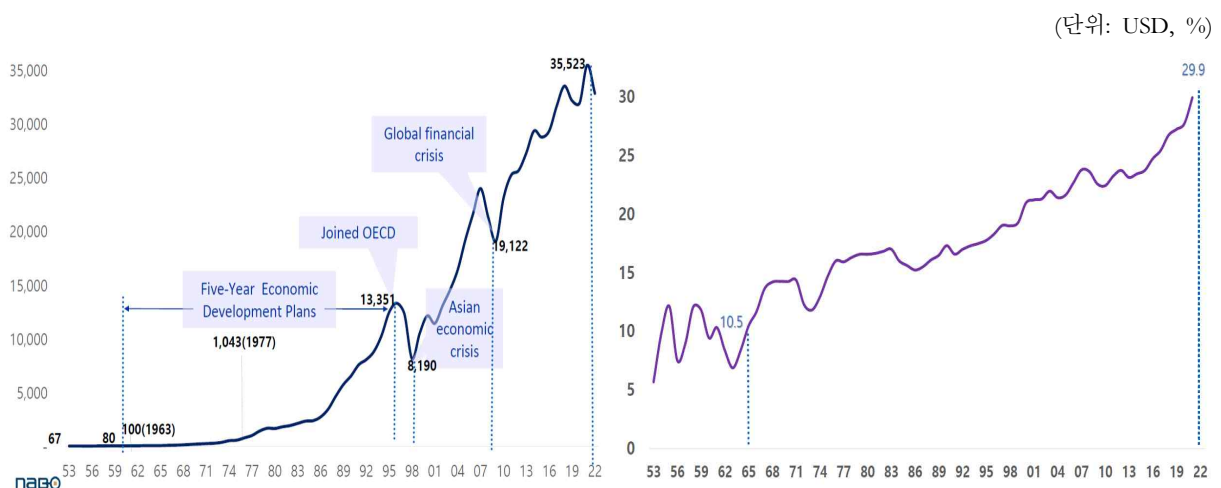
□ 세수오차 발생 및 재정상의 부작용을 완화하기 위해 세입전망, 경제전망, 거버넌스, 재정운용 등 다양한 측면에서의 개선이 필요

- 소득 및 소비의 분포적 특성을 반영한 미시정보와 정책효과 분석을 위한 미시모형을 세입전망에 활용하는 한편, 세입여건 및 실적의 모니터링을 강화할 필요
- 세입전망 기관의 독립성 강화, 민간기관과의 협력 강화 등과 함께 세수오차에 대비한 재정운용상의 완충장치 마련 필요

## 나. 한국경제 발전과정에서 조세정책의 역할

□ 해방 이후 한국은 높은 경제성장을 기록하여 저개발국가에서 선진국으로 도약하였으며, 이 과정에서 경제규모 대비 세입의 비중 또한 급격하게 증가

[한국의 GDP(좌) 및 GDP 대비 조세수입 비중(우) 추이]





- 각 경제성장 단계에서 한국의 조세체계는 과세대상의 확충, 복지재원을 위한 지속가능한 성장체계 구축 등을 통해 선진국형으로 전환
  - 1960~70년대 정부주도형 경제성장 과정에서 국세청의 설립 등 세무행정의 체계를 갖추는 한편, 종합소득세와 부가가치세 등 선진적인 조세를 도입하고 산업정책을 위한 조세지출 활용
  - 1980~90년대에는 조세정책을 통한 재정건전성 확보에 주력하여 과세대상을 확충하는 한편, 과세체계의 단순화 등 제도 개선
    - － 제고된 재정건전성은 이후 1998년 외환위기, 2008년 글로벌 금융위기 극복에 기여
  - 2000년대 이후 신용카드 공제 도입, 법인세 비중 증가, 재산과세 강화 및 EITC 도입 등으로 과세대상을 확충하여 복지지출 증가 등에 대응하는 한편, 소득재분배 기능 강화를 통한 지속가능한 성장체계 구축에 기여
- 그 결과, 선진국형 과세체계로 전환되는 상황
  - 한국의 GDP 대비 총조세 비중은 여전히 OECD 평균에 비해 낮은 수준이나, 점차 증가하는 추세
    - － 한국의 GDP 대비 총조세 비중은 2021년 29.9%로 OECD 평균인 34.1%에 비해 낮은 수준이나, 1990년 18.6%에서 지속적으로 증가하는 추세
  - 세목별 비중을 살펴보면, 소득세, 법인세, 부가가치세가 전체 국세수입의 70~80%를 차지하여 선진국형 과세체계에 근접
    - － 개발도상국 대비 선진국은 소득과세와 부가가치세 등 보편적인 소비과세의 세목별 비중이 높고, 투자와 저축에 왜곡을 줄 수 있는 자산에 대한 과세의 비중이 감소하는 특징을 지님
    - － 다만, 법인세와 자산의 거래에 대한 과세(증권거래세 등)의 비중이 여전히 높으며, 부가세(surtax) 및 목적세의 활용이 많은 개발도상국형 특징도 함께 존재
  - 또한, 조세회피를 축소하기 위한 다양한 정책을 시행
    - － 신용카드 사용에 대한 소득공제 등 거래의 투명성을 제고하기 위한 정책 시행
    - － 과세체계를 간소화하고, 징수시스템의 디지털화 등의 정책 시행
    - － 상대적으로 과세기반의 포착이 용이한 법인세 등의 의존도를 높임

# **Tax Revenue Estimation Errors and Fiscal Policy**



**December 2023**

**National Assembly Budget Office of Korea**

## **contents**

- I. The Growing Gap**
- II. Why Estimates Matter ?**
- III. What is Causing the Errors ?**
- IV. The Growing Tax Buoyancy Volatility**
- V. What Should be Done ?**

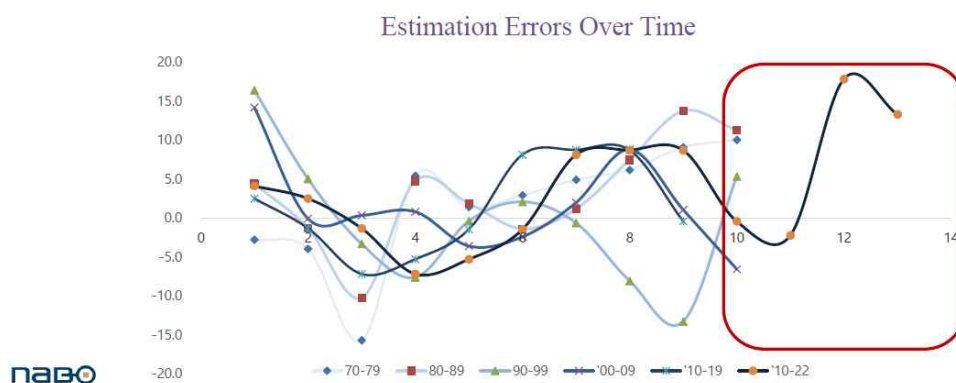


# The Growing Gap

## I. The Growing Gap

### Revenue Estimation Errors in Korea

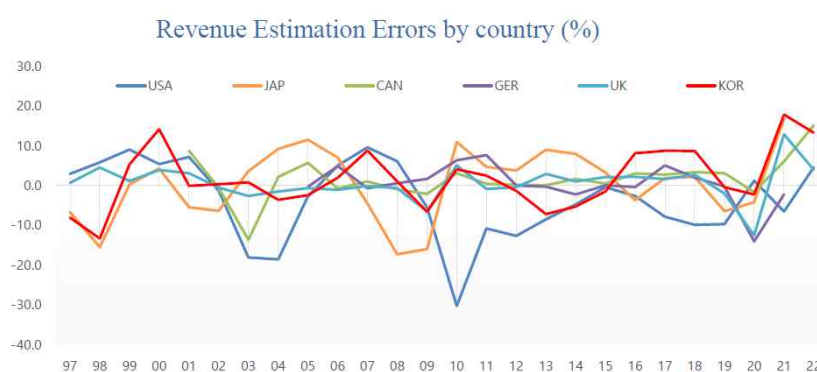
- Revenue estimation errors are increasing
  - 61.3 trillion Won ↑ in 2021, 52.6 trillion Won ↑ in 2022
  - ≫ 60 trillion Won ↓ in 2023



## I. The Growing Gap

### Revenue Estimation Errors in other Countries

- International Comparison of the size of Errors (Average of Absolute Value from 1997 to 2022 )  
: (US)8.0 (JAP)7.0 (KOR)5.7 (CAN)3.5 (GER)2.7 (UK) 3.0
- The Gap expands since 2020, just after COVID crisis in most countries



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## I. The Growing Gap

### Revenue Estimation Errors

- Relatively Bigger Gap in Corporate Income Tax and Property Tax

Revenue Estimation Errors by Tax Bases(%)

	Total	Income Tax	Individual Income	Corporate Income	Consumption Tax	Property Tax
2010~14	4.3	5.4	3.3	13.0	3.2	10.8
2015~19	3.4	5.4	4.5	13.0	4.6	3.9
2020~22	9.6	12.3	8.8	32.7	8.6	13.8

Note: Average absolute value of errors in five countries, including the US, UK, Canada, Japan and Germany

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## II

# Why Estimates Matter?

## II. Why Estimates Matters ?

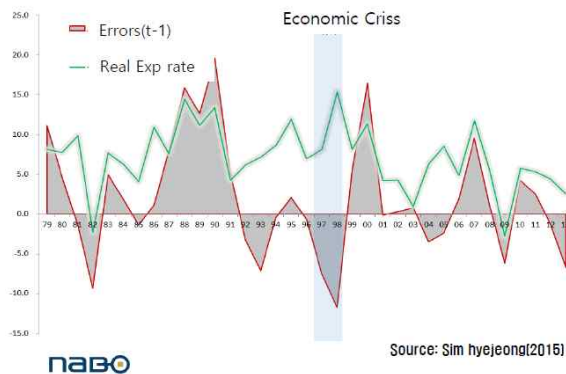
### Hampers transparency and effectiveness of fiscal management

- Revenue overestimates cause the greatest political pain
- Government must compensate for overestimates by
  - Raising taxes, Using spending reserves
  - Reducing spending on programs
  - Drawing up the Supplementary Budget for issuing additional government bond
- Urgent measures to compensate for overestimates can aggravate the efficiency and transparency of fiscal management

## II. Why Estimates Matters ?

### Rising Spending and Deficit Bias

- Revenue underestimation leads to increased spending
  - ✓ When Revenue Surplus increased by 1%p → Size of Supplementary budget increased by 0.7%p



$$y = c + b(X) + e,$$

y= The size of Sup. Budget, X= Revenue Surplus

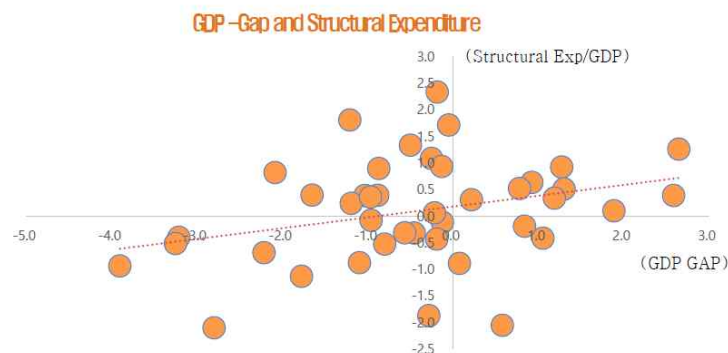
	[1] <sup>1)</sup>		[2] <sup>2)</sup>	
	Coef	z-value	Coef	z-value
C	1.038	[0.869]	0.381	[0.432]
surplus(x)	0.748	[3.550]***	0.721	[6.762]***
Obs.	50		51	
Period	1970~2020		1970~2020	

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## II. Why Estimates Matters ?

### Weakening of the Fiscal Stabilizaion function

- Underestimate Revenue; Revenue surplus → Fiscal Expanding
  - Overestimate Revenue; Revenue shortfall → Fiscal tightening
- **Strengthening the Fiscal Pro-cyclicality** ↑



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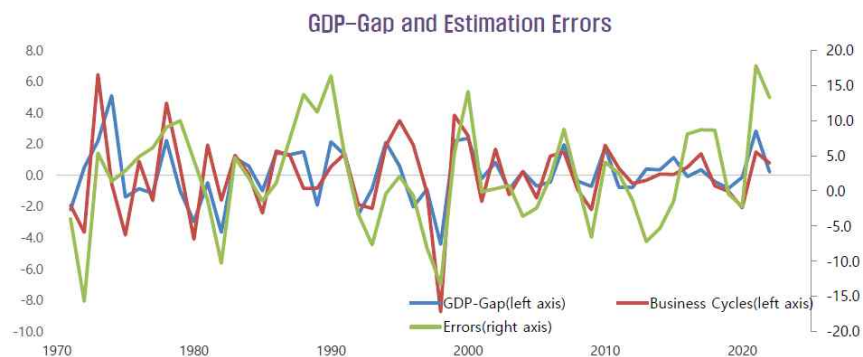
### III

## What Is Causing the Errors?

### III. What Is Causing the Errors ?

#### Rapid Pivot Point Change

- The biggest errors occur when the economic cycle changes rapidly
  - Excess 1%p of GDP-gap Difference → Estimation error exceeds the average level
- Showing the Limitation of the traditional regression model

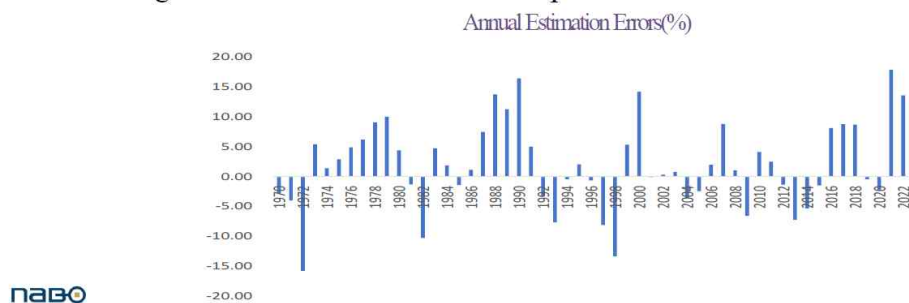




### III. What Is Causing the Errors ?

#### Persistency of the same direction of errors for 2-3years

- Transferring the base year's error to the following year
- Difficulty to judge whether errors in the base year caused by temporary or structural factors
  - > Cognitive Bias of regarding errors caused by temporary disturbance
  - > Continuing same estimation method and practice

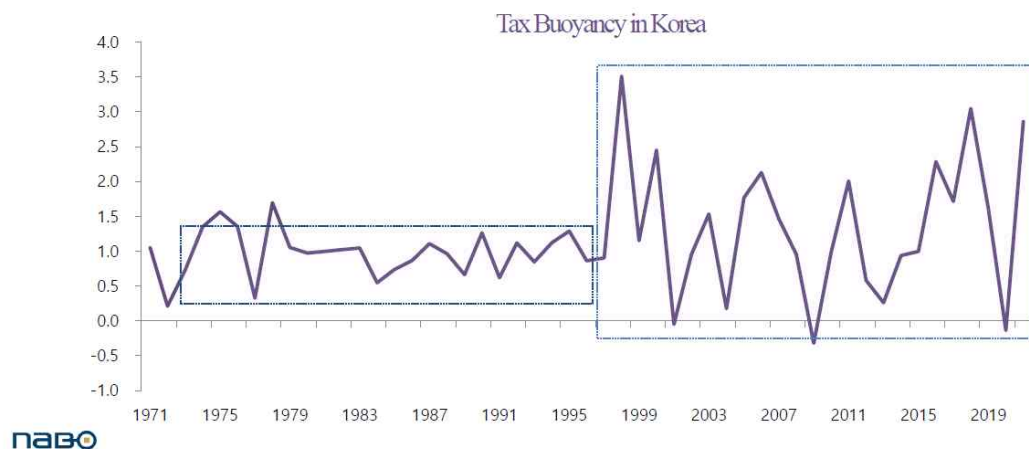


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### III. What Is Causing the Errors ?

#### Growing Tax Buoyancy Volatility

- Weakening the relationship between tax revenue growth and GDP growth since the 2000s



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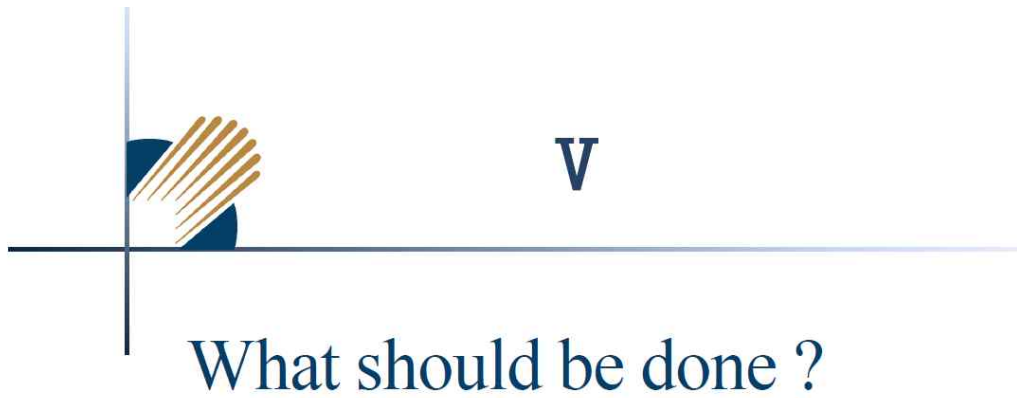
# The Growing Tax Buoyancy Volatility

## IV. The Growing Tax Buoyancy Volatility

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### Key Factors of Growing Tax Buoyancy Volatility

1. Growing Reliance on Income Tax
2. Effect of Asset cycles on Tax revenue
3. Rising dependence on high-earning taxpayers.



## V. What Should be Done ?

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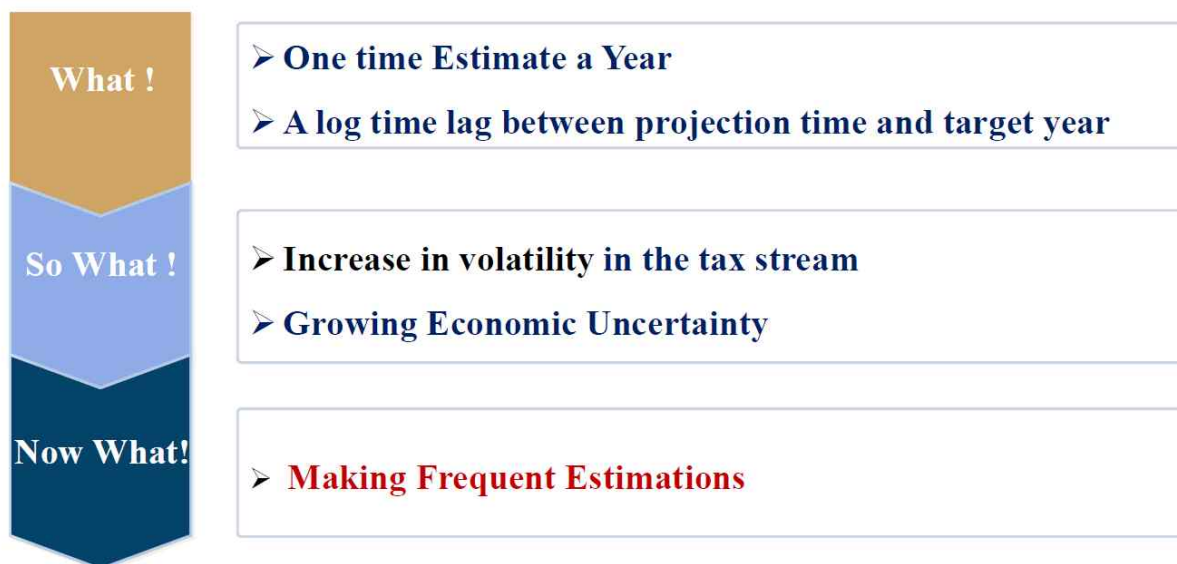
➤ **Based on the Regression model using Economic indicators**

➤ **Weak Correlation between  
Tax Growth Rate and Economic Indicators**

- **Analyzing Errors and Refining Assumptions**
- **Using the Micro Information**
- **Developing and Application of the Micro Simulation Model**

## V. What Should be Done ?

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## V. What Should be Done ?

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## V. What Should be Done ?

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- Growing Income Disparity
- Increasing Volatility of Capital Gains

- More sensitive Tax stream to Economic Cycles
- Managing the Effects of Revenue Volatility

- **Rainy Day Funds**
- **Fiscal Device for Limiting Reliance on Volatile Taxes**
- **Spending Rules**

## 5. 경기변동 확대에 대응하는 세입전망 개선방안 (발표자: 백경업 세제분석2과장, 국회예산정책처)

- 국회예산정책처의 국세수입 전망은 정부의 예산안을 심의하는 의정활동을 지원하기 위해 수행되며, 기간 및 방법에 따라 전망을 구분할 수 있음
  - 삼권분립의 원칙하에 행정부가 제출한 예산안과 예산에 영향을 미치는 법률은 국회의 심의과정을 거쳐야 하며, 국회의 예산안 심의 과정에서 국회예산정책처의 세입전망 및 세법개정에 대한 세수효과가 활용
  - 국세수입 전망은 기간에 따라 당해연도, 예산연도, 중기, 장기전망으로 구분, 전망방법에 따라 시계열 회귀분석, 조세부양성, 진도비 등을 이용한 전망으로 구분
- 국회예산정책처의 주요 세목별 기준선의 전망방법은 다음과 같음
  - 소득세는 세부세목별로 경제 등 세입여건을 반영하는 설명변수를 이용한 전망모형을 통해 전망
    - 가령, 근로소득세는 임금근로자수 및 명목임금을 통해 과세표준을 추정한 후, 실효세율 등을 감안하여 전망
  - 법인세는 2단계 회귀분석을 통해 법인 영업이익과 세액을 전망
    - 단계별로 1단계에서는 거시경제 여건을 반영하는 변수를 통해 법인 영업이익을, 2단계에서는 세율 등 제도적 요인을 반영하여 산출세액을 전망
  - 부가가치세는 GDP, 통관수출입, 환율, CPI 등 거시경제변수를 통한 회귀분석을 이용하여 세액을 추정한 후, 지방소비세 등 제도를 반영하여 전망
- 주요 세목별로 기준선을 전망한 후, 제도변화로 인한 세수효과를 추정하여 최종적인 전망치를 도출
  - 세수효과는 제도(세법)가 현행 유지되었을 경우와 개정되었을 경우의 차이를 의미
    - 국회예산정책처의 세수효과 추정은 정부가 제출한 세법개정안을 토대로 한 국세수입 전망 뿐만 아니라 세법관련 발의된 의원안에 대해서도 수행
  - 과세표준, 세율, 세액공제 등 개정안의 내용에 따라 다른 방법론 적용

- 최근 코로나19 팬데믹으로 인한 세입여건의 변화로 대규모 초과세수 발생
  - 2021년 및 2022년 모두 예산 편성 과정에서 국세수입을 낮게 전망함에 따라 대규모 초과세수 발생
    - － 동 시기 세수오차의 확대는 한국 뿐만 아니라 세계 주요국가에서도 공통적으로 발생
  - 이러한 대규모 초과세수의 발생은 자산시장의 호조, 예상치 못한 빠른 경제회복 등에 주로 기인
    - － 저금리 기조로 인한 자산시장의 유동성 확대가 자산시장 수요를 증대시켜 코로나19로 인한 경기침체에도 양도소득세 등 자산과세는 높은 증가세를 시현
    - － 정부는 예산안 편성 당시 코로나19 팬데믹을 감안하여 보수적으로 경기를 전망하였으나, 실제로는 경기회복세가 빠르게 진행

[2021년 및 2022년 국세수입 전망 당시 전제한 거시경제 지표와 실적 비교]

(Unit: %)	2021		2022	
	Outlook (2020.6.)	Outcomes	Outlook (2021.6.)	Outcomes
Real GDP growth (%)	3.6	4.3	3.0	2.6
- Real Private cons. (%)	4.5	3.6	3.5	4.1
- Real Facilities inv. (%)	6.0	9.3	3.0	-0.9
Changes of employees (thousands)	250	369	250	817
CPI (%)	1.2	2.5	1.4	5.1
Exports (%)	8.5	25.7	3.8	6.1
Imports (%)	9.2	31.5	3.0	18.9

- 국세수입 전망의 정확성을 제고하기 위한 개선과제는 다음과 같음
  - 경제전망의 정확성 제고
  - 세입 전망모형 개선
    - － 국면전환모형, 오차수정모형 등 다양한 시계열 모형을 함께 활용하여 종합적으로 전망
    - － 최근의 경기변동성 확대에 대응하여 전망에 필요한 추가적인 설명변수 발굴 필요
    - － 미시자료 활용 및 제도변화에 대응하는 미시 시뮬레이션 모형 개발 등 세입여건 변화에 대응 필요
  - 국세청 등 관계기관과의 협력 강화를 통한 양질의 데이터 획득



# Changes in the Economy and Revenue Forecast

Dec 2023

BAEK, KyungYeop

*National Assembly Budget Office of Korea*



**National Assembly Budget Office**  
Reading the Budget, Leading the Future

## Agenda

- I. Overview of Tax Revenue Forecast
- II. Forecasting Tax Revenue at NABO
- III. Estimations of Tax Law Revisions Effect
- IV. Changes in the Economy
- V. Improvement Strategies

## Forecasting Tax Revenue

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- Introduction

- Tax revenue forecasting is the work to estimate the size of current year and future tax revenue that forms the basis of national finance.
- It is especially significant to estimate the revenue by National Assembly itself, with the aim of sustaining fiscal soundness of the nation.
- The National Assembly Budget Office (NABO) has put effort into estimating the revenue accurately since 2004, to present objective grounds in examination by National Assembly on next year's budget deliberation.

## How NABO forecasts tax revenue

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- Personal Income Tax

- Using regression model by category of income
- Adding/subtracting the effects of tax law revisions and tax credits (EITC, CTC...)

PIT items	Main explanatory variables
Global income tax	GDP, Taxable personnel ratio
Capital gains income tax	GDP, Real estate index (transactions and prices), Stock transactions, Interest rates
Wage and salary income tax	# of workers, Wage growth, Effective tax rates
Others	GDP growth, Population growth, Yield to commercial bonds, etc.

## How NABO forecasts tax revenue

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- Corporate Income Tax
  - Using multiple stage regression model
    - Multiple stage regression model
      - 1st stage: Regress corporate profits with macro-economic variables
      - 2nd stage: Regress Corporate Income Tax with the fitted corporate profits
  - Adding/subtracting the effects of tax law revisions

	Main explanatory variables
Corporate Income Tax	GDP, Exports, Foreign exchange rates, Corporate profits, Global terms of price

## How NABO forecasts tax revenue

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- Value-Added Tax
  - Using regression model
    - Regress taxes with GDP, external trade, foreign exchange rates, CPI, facilities investments
  - Adding/subtracting the effects of tax law revisions

	Main explanatory variables
VAT	GDP, External trade, Facilities investment, Foreign exchange rates, CPI

## Estimations of Tax Law Revision Effect

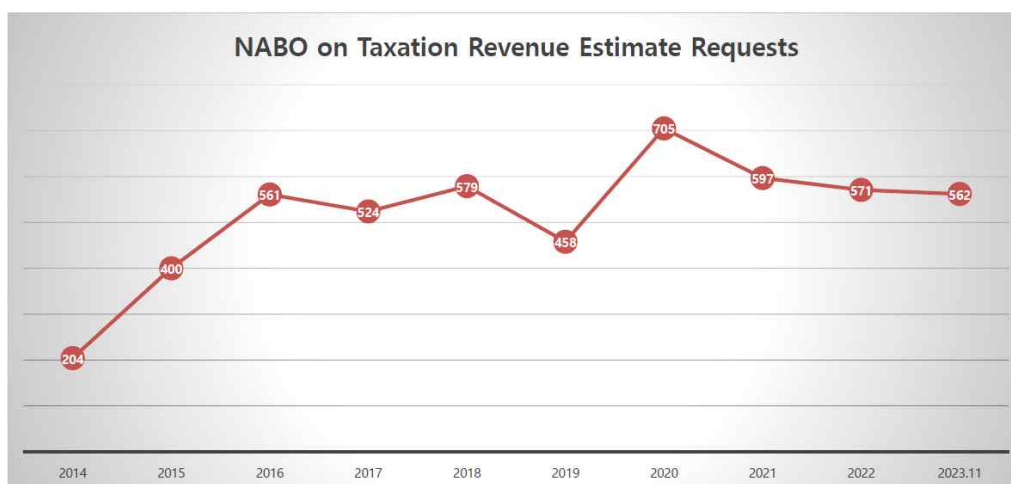
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- Bill Cost Estimates
  - NABO estimates the revenue and spending incurred by the Tax Law or other appropriation bills for the first five years after enforcement.
  - These estimates serve as the baseline data in the deliberation of individual bills to verify their financial feasibility and discuss better policy alternatives.
  - In addition, the estimates NABO calculates are used as a starting point to predict mid-to long-term overall fiscal performance indicators such as total revenue and expenditure, fiscal balance and national debt.

## Estimations of Tax Law Revision Effect

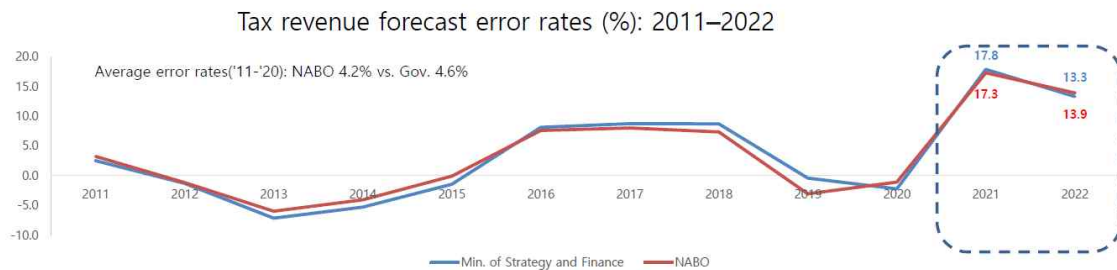
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- Bill Cost Estimates



## Tax revenue forecast errors in 2021 & 2022

- During the COVID-19 pandemic period, forecasting error of tax revenue has increased rapidly.
  - In 2021 and 2022, tax revenue was underestimated, so extraordinary size of positive error occurred.
    - Average error rates (abs. value, %): (2011–2020) 4.2 → (2021–2022) 15.6



## Tax revenue forecast errors in 2021 & 2022

- This is not the only case in Korea, also happening in other major economies.

Tax revenue forecast error rates in major countries

(Unit: %, %p)	USA	CAN	UK	JPN	GER	KOR
2010–2019(A)	7.2	1.7	2.2	6.3	1.8	4.8
2010–2014	7.5	0.7	2.3	9.0	2.1	4.1
2015–2019	6.9	2.8	2.1	3.7	1.5	5.5
2020–2022(B)	8.9	10.6	12.7	8.6	7.4	11.1
B-A	1.7	8.9	10.5	2.3	5.6	6.3



## Why the forecast errors got worse in 2021 & 2022

- Boom in the asset market
  - Low interest rate and rich liquidity → Boom in the asset market



## Why the forecast errors got worse in 2021 & 2022

- Unexpected rebound in business cycle
  - Conservative outlook in consideration of the spread of COVID-19

Comparison of economic indices: outlook vs. outcomes

(Unit: %)	2021		2022	
	Outlook (2020.6.)	Outcomes	Outlook (2021.6.)	Outcomes
Real GDP growth (%)	3.6	4.3	3.0	2.6
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## Improvement Strategies

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- For more accurate economic outlook
  - Strengthen monitoring of economic fluctuations
  - Reflecting the budget plan at a critical moment of economic changes (To incorporate significant economic shift into the budget, when it is identified)
- For better forecasting models
  - Increase the use of micro-information such as individual income distribution data and financial data of corporations
  - Refer to micro-simulation model results for policy effect analysis
  - Test and use various econometric forecasting models
    - e.g. Regime-switching Model, Error Correction Model, Vector Auto-Regressive Model

## Establishing fiscal database using IT

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- Data aggregation and management
  - Processing government revenue and expenditure exploiting a Financial management information system(FSIM) enables fiscal data aggregation and analysis later on
    - In Korea, dBrain+ which supports all fiscal activities and transactions of government finance plays a pivotal role in producing fiscal indices.
    - Government officials or analysts can refer to progress rate generated from the system as well as other fiscal statistics.

## Improvement Strategies

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- Micro-Simulation Model
  - The micro-simulation approach to evaluate fiscal, economic or other types of reform proposals involves modelling the impact of reforms on a representative sample of businesses or households.
  - Differences before and after the policy change can be analyzed at the micro-level and then aggregated to the total population.
  - Micro-simulation looks at the impact on individual decision units.
  - The units can be; households in the case of income support programs, consumers in the case of VAT changes, or corporations in the case of changes to corporate income taxes.

## Improvement Strategies

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- Strengthening the cooperation among institutions
  - To exploit micro information, it is necessary to cooperate with the NTS (National Tax Services) which owns individual tax return files
    - NTS has offered sample dataset of personal income tax returns to policy institutions including NABO, since 2020 revision of the Framework Act on National Taxes.
  - Closer cooperation with other research institutions, that regularly outlook macro economic variables NABO needs for forecasting, is also important
    - For example, NABO receives domestic oil demand outlooks from KEEI (Korea Energy Economics Institute).

## [부록] 세미나 관련 사진 자료

