Structural Reform and Residents' Income Growth in APEC Economies: Empirical Assessment and Case Studies

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Executive Summary

Structural reform has emerged as an important policy instrument for promoting income growth and enhancing economic growth across the Asia-Pacific region. Since 2004, the Economic Committee (EC) has successively advanced four waves of structural reform agendas—namely, the LAISR, ANSSR, RAASR, and EAASR—whose policy priorities have progressively expanded from institutional improvements and business environment optimization to deeper domains such as reforms for fair and market-oriented competition . This study examines the impact of structural reforms on residents' income growth in APEC economies, aiming to answer three central empirical questions: (1) Have structural reforms significantly contributed to the growth of per capita income and GDP in APEC economies? (2) Do different types of reforms exhibit varying degrees of effectiveness? (3) Through what transmission mechanisms do structural reforms influence residents' income? To address these questions, the research constructs five categories of structural reform factors—using principal component analysis. It applies panel fixed-effects models, mediation analysis, the bootstrap method, and system Generalized Method of Moments (GMM) estimations for identification, complemented by case studies from representative economies and regions.

From a trend perspective, per capita income in the APEC region has grown steadily over the past two decades. However, persistent income disparities across members remain, with imbalances in urban-rural income structures and regional development within developing economies. The mismatch between income growth and income distribution structure may reflect, to some extent, unresolved issues in institutional supply, factor misallocation, and structural distortions. This underscores the urgency of extending structural reform efforts from macro-level growth objectives to micro-level income improvement pathways. Theoretically, structural reforms are conceptualized as policy interventions that influence residents' income through three primary transmission channels: (1) productivity enhancement, (2) capital formation, and (3) distributional improvement.

Empirical results indicate that structural reforms have, overall, significantly promoted the growth of GNI per capita and GDP per capita (the first question). The baseline model results show that the five reform factors exert a positive impact on economic performance to varying degrees. Among them, reforms in resource allocation and openness are most critical in enhancing output efficiency, while reforms in access and innovation play a stronger role in raising residents' income and expanding the breadth of benefit coverage (the second question). The mediation effect models further confirm labor productivity as the primary transmission mechanism, exhibiting strong significance across most model specifications. This indicates that structural reforms may promote economic growth by improving output efficiency per unit of input, rather than merely increasing factor inputs. The per capita capital accumulation channel also plays an important role in explaining the growth of GDP per capita, particularly in the case of institutional and innovation reforms, which significantly boost total output by improving the investment environment and increasing the capital formation rate. However, this channel shows weaker explanatory power in the per capita income

models, suggesting that it can operate in coordination with efficiency gains. The role of the income distribution channel displays greater structural heterogeneity. The openness and resource allocation factors significantly contribute to the improvement of the Gini coefficient, helping to expand the income space of low- and middle-income groups. In contrast, although institutional reforms have a positive effect on output, they tend to widen income disparities through the distribution channel, indicating that such reforms may be accompanied by temporary fluctuations in income distribution during the early stage of efficiency improvement. This report uses lagged values of structural reform variables as instrumental variables and applies the residual decomposition method of the mediating variables for corrected regression identification. Combined with the instrumental variable approach, the analysis confirms that structural reform variables robustly and significantly promote residents' income growth.

To enhance the empirical grounding of the analysis, the report incorporates local reform cases and draws upon experiences from economies in promoting structural reform and reform-oriented fiscal mechanisms. These cases may possess cross-regional adaptability in their pathways for enhancing income.

Therefore, the findings of this report strongly support the view that structural reforms can promote residents' income. Structural reform policies not only improve macroeconomic efficiency but also possess micro-level perceptibility, providing measurable policy instruments for economic growth. On this basis, the report proposes policy recommendations, including: reinforcing reforms to promote efficiency; establishing a transmission mechanism through which structural reforms drive resident's income growth by optimizing resource allocation efficiency; prioritizing an enabling business environment; and supporting economies in the progressive advancement of structural reforms by strengthening capacity building and experience sharing.

This study provides both theoretical support and empirical evidence for understanding the linkage mechanism between APEC economies' structural reform policies and income growth, and offers empirical reference and policy direction for regional policy design.

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I. Background of Structural Reform in APEC

1.1 Progress of APEC Structural Reform Agendas

In June 2021, at the APEC Structural Reform Ministerial Meeting (SRMM), ministers mandated the Economic Committee (EC) to coordinate the implementation of the Enhanced APEC Agenda for Structural Reform (EAASR, 2021–2025). A mid-term review was completed in 2023, and the final review is scheduled for 2025[1]. EAASR builds upon and advances a series of structural reform initiatives launched since 2004, including the Leaders' Agenda to Implement Structural Reform (LAISR), the New Strategy for Structural Reform (ANSSR), and the Renewed APEC Agenda for Structural Reform (RAASR). Drawing on past reform experiences, the EAASR aims to promote economic growth across APEC economies[2].

Through a suite of structural reform measures, EAASR was structured around four key pillars:

(1) Creating an enabling environment for open, transparent, and competitive markets;
(2) Boosting business recovery and resilience against future shocks;
(3) Ensuring that all groups in society have equal access to opportunities for growth, and greater well-being; and
(4) Harnessing innovation, new technology, and skills development to boost productivity and digitalization.

In terms of implementation approaches, EAASR advocates three structural reform pathways:

(1) Delivering the six core structural reforms (competition policy and law; strengthening economic and legal infrastructure; ease of doing business; regulatory reform; public sector governance; corporate law and governance) to improve market functioning and transparency;
(2) Implementing specific market reforms to improve innovation and competitiveness of business and achieve benefits for all; and
(3) Adopting a holistic approach to structural reform which combines core reforms, specific market reforms and broader policies to boost productivity and economic resilience.

At the execution level, EAASR requires each economy to develop its own Individual Action Plan (IAP), clearly outlining reform targets and measures to be achieved by 2025. These plans address all four pillars and relevant economic sectors, with particular emphasis on the services sector, and should be accompanied by quantitative and qualitative indicators to enable effective monitoring and ensure that the plans are both ambitious and measurable.

The year 2025 marks the conclusion of the Enhanced APEC Agenda for Structural Reform (EAASR). At the Fourth APEC Ministerial Meeting on Structural Reform (SRMM) held in Incheon, Korea, APEC endorsed the structural reform agenda for

[1] https://apecservicessr.com/about/
[2] https://www.apec.org/meeting-papers/sectoral-ministerial-meetings/structural-reform/2021_structural/annex-1

2026–2030[1], namely the Strengthened and Enhanced APEC Agenda for Structural Reform (SEAASR). The new agenda is structured around four core pillars, with corresponding concept papers submitted on: enabling fair, market-oriented competition; enabling environment for doing business; promoting innovation and digitalization; and empowering all to achieve their economic potential for sustainable economic growth.

1.2 Research Significance

This study focuses on analyzing the impact of structural reforms on residents' income growth in APEC economies. It aims to empirically investigate three core questions:

(1) Have structural reforms in the APEC region contributed to income growth over the past two decades?
(2) To what extent do various structural reform policies affect income growth?
(3) Through what channels do structural reforms influence residents' income?

Clarifying these questions holds the following significance:

First, it establishes the systematic contribution of structural reforms to income growth, providing both theoretical and empirical support for advancing economic growth. Based on panel data models and mechanism identification techniques, this study reveals the central role of structural reforms in promoting growth in both residents' income and GDP per capita across the APEC region. By quantitatively evaluating five dimensions of reform—institutions, openness, opportunity, innovation, and resource allocation—the study identifies the stable effects of reforms in enhancing output efficiency and income levels. Empirical findings show that labor productivity is the primary transmission channel through which structural reforms promote income growth; reforms in resource allocation and openness significantly improve factor productivity, while reforms in innovation effectively expand the scope of beneficiaries. These results highlight the policy value of structural reforms in balancing efficiency. The findings address the impact of structural reforms in APEC economies on residents' income growth, and offer measurable evidence and mechanism-based logic for economies seeking further economic growth in the post-recovery phase, thereby helping translate structural reform from a conceptual agenda into an actionable policy instrument.

Second, it uncovers the heterogeneous effects of different types of structural reforms, thereby enabling more targeted and adaptive reform strategies. The study identifies that the five reform categories exert heterogeneous effects on income and output, emphasizing that reform policies should not adopt a one-size-fits-all approach but rather be implemented in a tiered and categorized manner based on reform type and desired outcomes. Resource allocation and openness reforms show strong effects in improving productivity and optimizing factor allocation, making them suitable for economies seeking to overcome market distortions and promote efficient resource flows. Innovation reforms are more appropriate for policy scenarios focused on income enhancement and reducing inequality. The study also finds that institutional reforms,

[1] https://mddb.apec.org/Documents/2024/SOM/SOM3/24_som3_016.pdf

while conducive to improving the investment environment and increasing total output, may initially exacerbate income disparities. Hence, structural reforms may be accompanied by the use of fiscal policy instruments—such as taxation and transfer payments—to improve the social protection system and strengthen the regulatory and redistributive functions of income distribution.

Third, it constructs an analytical framework for understanding the transmission mechanisms of structural reforms, highlighting the role of reform in improving the efficiency of factor allocation, strengthening the momentum of capital formation, and optimizing the structure of income distribution. Structural reform can be a policy tool that improves residents' income through three mechanism pathways: productivity enhancement, capital formation per worker, and improvement in the structure of income distribution. Empirical results also indicate that reforms tend to drive economic growth more through improvements in factor productivity than through input expansion alone; while capital formation plays a significant role in raising GDP per capita, it should operate synergistically with productivity gains to effectively promote income growth. The effectiveness of the income distribution channel, in turn, depends more heavily on the precise matching of reform types and the institutional design of accompanying adjustment mechanisms.

II. Income Evolution and Structural Reform Transmission Mechanisms in the APEC Region

Over the past six decades, the APEC region has undergone profound income growth and structural transformation. The GNI per capita across APEC economies rose from USD 669 in 1960 to USD 22,720 in 2024, representing an overall annual growth rate of 5.7%[1]. Overall, the region has demonstrated robust growth momentum, yet it also reveals a persistently widening income gap between developed and developing economies within APEC.

This section focuses on the long-term trajectory of per capita income in the APEC region, providing an in-depth analysis of the drivers of income growth and the patterns of divergence—particularly the structural phenomenon of "absolute divergence and relative persistence" in internal disparities. Developed economies have maintained high-income growth by leveraging technological advantages and institutional dividends, whereas many developing economies remain trapped in the "middle-income trap," struggling to achieve meaningful income convergence.

In addition, this section draws on existing literature to examine the theoretical mechanisms through which structural reforms influence income growth. Structural reforms can improve allocative efficiency, optimize factor mobility, and stimulate market dynamism—thereby effectively boosting productivity and enhancing residents' income. However, the effectiveness of reform is highly contingent on the quality of institutions, the coherence of complementary policies, and the capacity for implementation. Successful reform thus requires careful coordination of timing, sequencing, and pacing, to ensure a smooth transition from short-term adjustment to long-term structural optimization.

2.1 Evolution of GNI Per Capita in APEC

2.1.1 Significant Growth in GNI Per Capita

The trajectory of GNI per capita in the APEC region has been shaped not only by global economic cycles, regional institutional capacity, and policy implementation differences, but also by the supporting role of structural reforms in enhancing productivity and income growth.

From 1960 to 2020, the GNI per capita in the APEC region followed a development path characterized by a transition from low to high income levels and from divergence to partial convergence. In the 1960s to early 1970s, overall growth in the APEC region was primarily driven by the industrialization and export-led growth of advanced economies such as Canada; Japan; and United States. Although some progress was made in developing economies, they remained largely agricultural, capital-scarce, and marked by significant income disparities.

From the mid-1970s to the mid-1980s, the world experienced two major oil shocks,

[1] GNP data in this section are from the world bank database:https://data.worldbank.org/.

followed by stagflation and debt crises. Between 1980 and 1990, the GNI per capita of developed APEC economies increased by USD 11,616, whereas that of developing APEC economies grew by only USD 377.

During the 1990s, with the end of the Cold War, the deepening of globalization, and the rise of East Asian economies, the growth of developing APEC economies accelerated significantly. From 1990 to 2000, their GNI per capita rose from USD 827 to USD 1,396, an increase of 68.8%, while that of developed APEC economies grew from USD 21,836 to USD 32,524, an increase of 48.9%.

Subsequently, the information technology revolution, the expansion of global value chains, and regional economic cooperation fostered overall prosperity across APEC. By 2020, the GNI per capita of developed APEC economies had reached USD 53,309, compared with USD 8,759 for developing APEC economies—a substantial gap that still remains. The 2008 global financial crisis and the COVID-19 pandemic in 2020 brought major shocks to the region's economies, leading to volatile and uneven growth patterns within APEC.

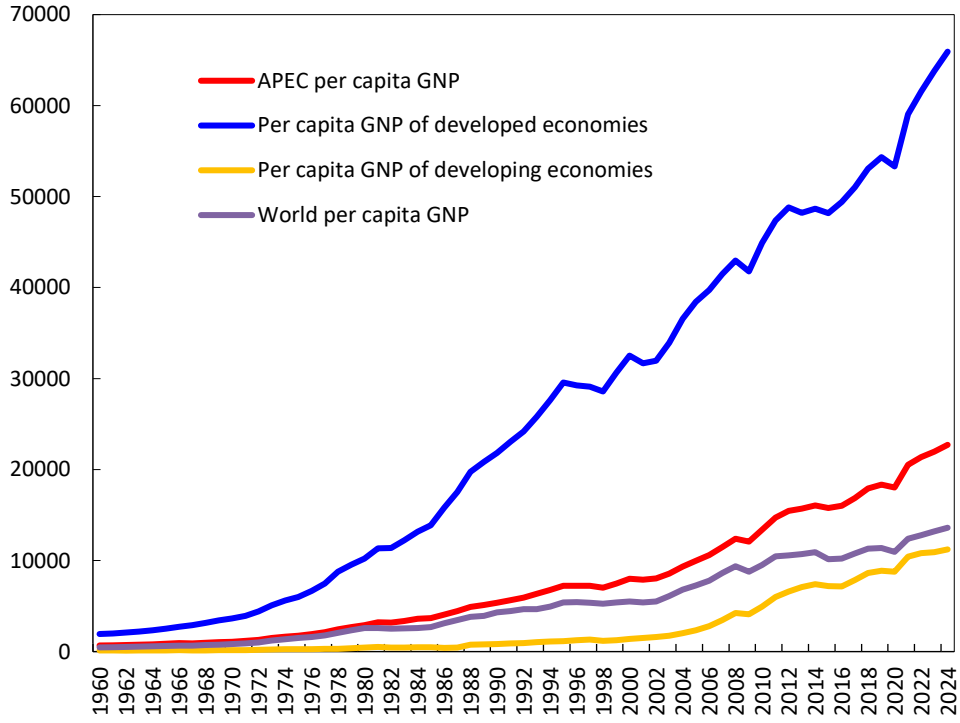

Figure 1: Per Capita GNI of APEC Economies, Current US Dollars

Data Source: World Bank Database. Calculated as the total scale divided by the total population. Developed economies refer to: Australia; Canada; Hong Kong, China; Japan; Republic of Korea; New Zealand; Singapore; Chinese Taipei; United States. Developing economies refer to the remaining APEC members excluding the developed economies.

Since 2020, growth across the APEC region has been shifting from pandemic recovery–driven to structural transformation–driven. The region's GNI per capita rose from USD 18,045 in 2020 to USD 22,720 in 2024, registering an average annual increase of 5.9 percent. Developing member economies have shown notably stronger growth momentum. Supported by the rebound in global commodity prices, recovery in export markets, and renewed inflows of cross-border investment, manufacturing and

digital services have become key growth engines. From 2020 to 2024, their GNI per capita increased from USD 8,759 to USD 11,227, with an average annual growth rate of 6.4 percent. In contrast, developed member economies experienced a two-phase recovery. During 2021–2022, expansion was driven mainly by fiscal spending and accommodative monetary policies that stimulated demand. After 2023, economic growth strengthened further. Their GNI per capita rose from USD 53,309 to USD 65,928, averaging 5.5 percent annual growth.

2.1.2 Persistent Income Disparities across APEC economies

Globalization has undoubtedly contributed to income growth across the APEC region; however, longstanding structural income disparities have not been fundamentally resolved. On the contrary, these disparities have continued to widen over time, particularly through successive global crises and waves of technological transformation. This persistence can be observed in the following four dimensions:

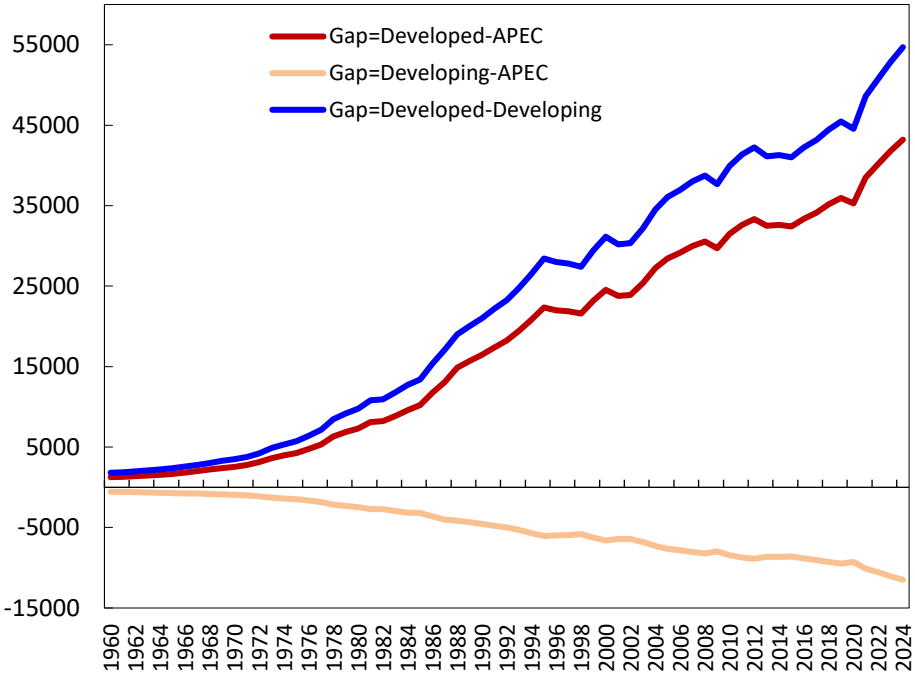

Figure 2: Per Capita Income Gap Between Developed and Developing Economies
Data Source: Calculated based on data from the World Bank Database.

First, the income gap has expanded persistently and dramatically, reflecting deep-rooted structural imbalances. Since 1960, the nominal GNI per capita gap between developed and developing APEC economies has been steadily widening—from USD 1,814 in 1960 to USD 54,701 in 2024. When converted to 2024 constant prices, and taking the global overall GNI per capita at each point as the benchmark, the disparity becomes even clearer: in 1960, the GNI per capita of developed APEC economies was 4.24 times the global overall, while that of developing APEC economies was only 0.25 times. By 2024, these ratios had shifted to 4.84 times and 0.82 times, respectively, indicating that the structural imbalance between the two groups has become even more entrenched. Rather than narrowing with the progress of globalization and regional integration, the gap has widened further in several phases. Although developing APEC

economies have made progress in manufacturing and export expansion, they still face substantial disadvantages in technological innovation, industrial chain positioning, capital formation, and institutional quality. In contrast, developed APEC economies maintain high income levels through technology-intensive industries, core positions in global value chains, and strong demand, while developing economies remain largely dependent on low-value-added activities, making it difficult to achieve sustained "catch-up" growth.

Second, a long-standing "symmetrical deviation" structure exists between developed and developing APEC economies relative to the regional average. Data show that developed APEC economies have consistently maintained GNI per capita levels above the APEC overall level, exceeding it by USD 43,209 in 2024, while developing APEC economies have remained below the average, trailing by USD 11,493 in the same year. This pattern of symmetrical deviation indicates that the APEC overall level is disproportionately elevated by high-income economies, while developing economies remain structurally positioned in a "lagging" state. Consequently, the overall evolution of GNI per capita in the APEC region can not accurately reflect the region's overall development situation, and it highlights the highly unequal distribution of growth gains and the absence of an endogenous mechanism for balanced development within the region.

Third, external economic shocks have often widened the gap, revealing divergent recoveries and insufficient resilience. Following major economic crises, developed APEC economies have typically rebounded more rapidly, leveraging fiscal stimulus, monetary easing, and institutional advantages. In contrast, developing APEC economies—constrained by limited fiscal capacity, industrial concentration, and financial fragility—have experienced significantly delayed recovery processes. Between 2020 and 2024, the per capita GNI of developed APEC economies increased by USD 12,619, whereas that of developing APEC economies rose by only USD 2,468. This clearly demonstrates the asymmetric resilience within the region, as crises have become a catalyst for widening disparities among APEC economies.

Fourth, many developing economies are caught in the "middle-income trap," making substantive convergence difficult. Although a few, such as People’s Republic of China and Viet Nam, have performed well in recent years, most developing APEC economies remain constrained by structural bottlenecks, including low industrial value-added, high dependence on foreign technology, and weak demand. These challenges are compounded by chronic under investment in education and human capital, as well as disparities in governance capacity, which limit their competitiveness in emerging sectors such as advanced manufacturing and the digital economy. Consequently, developing economies struggle to meaningfully catch up with their advanced counterparts, and the income gap remains on a persistent "high plateau." This growing structural divide weakens the foundation for integration in the region and economic growth.

2.1.3 Highly Uneven Regional Development

An analysis of the evolution of GNI per capita growth multiples across different

subregions since 1990 reveals pronounced intra-APEC disparities in economic growth. Distinct patterns emerge with respect to development speed, growth quality, and income levels. These patterns reflect several typical characteristics that underscore the structural imbalance of economic growth in the Asia-Pacific region:

Table 1: APEC Region GNI Per Capita Levels, Current US dollars

Region	1990	2000	2010	2020	2024	2020-2024, growth rate, %
World Average	4325	5500	9519	10945	13619	24.4
APEC Developed Economies	21836	32524	44899	53309	65928	23.7
APEC Developing Economies	827	1396	4958	8759	11227	28.2
APEC Average	5365	8000	13394	18045	22720	25.9
Australia	17614	21240	50119	50620	62244	23.0
Brunei Darussalam	23659	20130	34682	27643	34478	24.7
Canada	20751	23634	46621	43222	53458	23.7
Chile	2357	4876	11815	12296	15850	28.9
People's Republic of China	319	958	4610	10544	13210	25.3
Hong Kong, China	13110	25964	33239	48799	59230	21.4
Indonesia	550	713	2984	3748	4795	27.9
Japan	26080	39736	46166	41497	34632	-16.5
Republic of Korea	6603	12175	23114	31998	36624	14.5
Malaysia	2364	3752	8616	9757	11489	17.8
Mexico	3050	7371	9622	8557	13736	60.5
New Zealand	13093	12866	32088	41026	47037	14.7
Papua New Guinea	795	596	1727	2354	2902	23.3
Peru	1126	1902	4700	5970	7963	33.4
The Republic of the Philippines	792	1150	2406	3472	4504	29.7
The Russian Federation	3487	1726	10345	10039	14947	48.9
Singapore	11743	23707	46726	53535	75933	41.8
Chinese Taipei	8420	15105	19765	29649	35241	18.9
Thailand	1536	1966	4765	6831	7140	4.5
United States	24028	36466	49307	65040	85981	32.2
Viet Nam	93	398	1631	3383	4562	34.8

Data Source: Calculated from the World Bank Database.

First, many developing economies have demonstrated strong growth momentum, with some achieving exponential increases in GNI per capita. Economies such as Chile; People's Republic of China; Indonesia; Peru; The Republic of the Philippines; and Viet Nam have all recorded growth multiples far exceeding both global and APEC averages, positioning them as "catch-up" economies in the current wave of global growth. People's Republic of China and Viet Nam stand out most prominently, with GNI per capita rising from USD 319 and USD 93 in 1990 to USD 13,210 and USD 4,562 in 2024, respectively. The leapfrog development of developing economies has mainly resulted from their long-term adoption of export-oriented industrialization strategies, attraction of foreign investment, and vigorous development of manufacturing and infrastructure, which have together built a stable growth mechanism. While their GNI per capita has yet to reach developed-economy levels, their rapid growth and industrial upgrading efficiency underscore a strong "latecomer advantage," making them key drivers of structural transformation in the region.

Second, some traditional developed economies have exhibited relatively weak growth, entering a "high-income but low-growth" zone. Economies such as Canada; Japan; New Zealand, have not achieved more than a threefold increase in GNI per capita

over the period. Japan, once a regional leader, has remained mired in prolonged low inflation and stagnation since the 1990s. Its GNI per capita in 2024 reached USD 34,632—an increase of only USD 8,552 from 1990.

Third, a group of "newly advanced economies" has achieved dual breakthroughs in both growth quality and speed. Economies such as： Hong Kong, China; Republic of Korea; Singapore; Chinese Taipei, while already high-income economies, have continued to maintain strong growth multiples over the past three decades. From 1990 to 2024, Singapore's per capita GNI grew from USD 11,743 to USD 75,933—an increase of USD 64,191. Hong Kong, China; Republic of Korea; Chinese Taipei, respectively, recorded increases of USD 30,021, USD 46,120, and USD 26,821.

Fourth, the regional overall level is largely driven by developed economies, masking substantial internal disparities. In 2024, the overall GNI per capita of APEC reached USD 22,720, an increase of USD 17,355 compared with 1990. On the surface, this appears stronger than the global average increase of USD 9,293, yet significant structural divergence lies beneath. Within the group of developed APEC economies, disparities have widened notably—for instance, in 2024, the United States recorded a GNI per capita of USD 85,981, an increase of USD 61,953 since 1990, while Japan's GNI per capita rose by only USD 8,552 over the same period, falling even below the global overall increase. Among developing APEC economies, internal differentiation has been even more pronounced: East Asian members such as People's Republic of China and Viet Nam have achieved far higher growth than Latin American economies (e.g., Mexico and Peru) or Papua New Guinea. Therefore, although APEC as a whole demonstrates strong aggregate growth momentum, its overall prosperity is heavily driven by a small number of developed economies, and thus fails to reflect the uneven development realities within the region. APEC still faces major challenges in advancing regional cooperation and achieving economic growth.

2.2 Theoretical Mechanisms Linking Structural Reform and Income Growth

Structural reforms are regarded as a key policy instrument for addressing long-term economic stagnation and income distribution imbalances. At their core, such reforms aim to enhance allocative efficiency and total factor productivity through institutional adjustments, thereby promoting employment expansion, income growth, and improvements in social welfare. Against the backdrop of diminishing globalization dividends, mounting demographic pressures from population aging, and constrained macroeconomic policy space, structural reform plays a dual role: not only does it serve the technical function of unlocking growth potential, but it also carries the institutional mission of reshaping income distribution mechanisms.

Numerous studies have shown that structural reforms—when effectively implemented to remove market entry barriers, strengthen competitive forces, and improve factor mobility—can redirect resources toward high-efficiency sectors, raise productivity, and increase residents' income through improved employment and wage outcomes. At the same time, parallel reforms in education, social protection expansion,

and fiscal redistribution can broaden the scope of beneficiaries, allowing middle- and low-income groups to benefit more substantially.

However, the effects of reform are often subject to significant time lags. In the initial stages, reforms frequently entail industry restructuring, labor market frictions, and social adjustment costs. During such periods, the success of reform hinges less on its design and more on the continuity of policy and the predictability of the institutional environment. Policy volatility, lack of complementary measures, or weak implementation capacity can all undermine reform expectations and delay the materialization of benefits.

Therefore, while structural reform holds real potential to enhance residents' income, its success may rest on a foundation of sound institutions, coherent policy packages, and carefully sequenced implementation. Only under these conditions can reforms move beyond simply incentivizing growth and effectively translate into income improvement.

2.2.1 Mechanisms Through Which Structural Reform Promotes Income Growth

The foremost mechanism through which structural reforms drive income growth is by enhancing productivity and allocative efficiency. When reforms facilitate the "flow of resources toward efficiency," even in the context of slow technological progress, economies can still achieve output expansion and income improvement through structural optimization. Cross-economy evidence confirms that the most immediate effect of structural reform lies in enabling efficiency-driven growth—that is, output increases achieved through better resource allocation within existing constraints.

For instance, Eslava et al. (2004), in their analysis of reforms in Colombia, show that reform significantly strengthened a "productivity-oriented" allocation mechanism, whereby market shares shifted toward more productive firms. Simultaneously, "demand-oriented" allocation diminished. The rise in total factor productivity (TFP) was not mainly attributable to technological advancement but rather to resource reallocation toward more efficient enterprises. Bailliu and Hajzler (2016), focusing on emerging markets, found that infrastructure investment, and governance reform were key drivers of growth potential. These reforms enhanced TFP by stimulating private investment and expanding market access, which in turn supported employment and wage growth, thereby providing a realistic foundation for income gains. De Mello et al. (2010) argue that structural reforms are essential for fostering medium- to long-term growth, controlling fiscal risks, and contributing to global rebalancing, particularly during and after crises. Based on OECD evidence, they found that reforms such as improving education quality, simplifying tax systems, reducing labor taxation, restructuring labor market incentives, fostering product market competition, and raising retirement ages all contribute positively to employment, capital accumulation, and TFP—while also supporting fiscal consolidation by strengthening public savings. From a broader perspective, Rovo (2020) emphasizes that institutional quality, regulatory efficiency, and human capital accumulation are core variables determining whether structural reforms translate into higher potential output. Using data from Europe and Central Asia, he highlights the critical role of education reform and financial deepening:

the former enhances labor participation and technology absorption, while the latter reduces capital misallocation and improves investment efficiency.

2.2.2 Conditions for Reform to Translate into Broad-Based Income Gains

Whether structural reform leads to widespread income improvement depends on the presence of compensatory policies and whether employment serves as the core transmission mechanism. Reform outcomes are determined not only by GDP or per capita output increases but also by improvements in income distribution—particularly for low- and middle-income households.

Causa et al. (2015) offer optimistic evidence suggesting that most structural reforms—especially those that remove structural barriers, attract FDI, and improve employment services—not only enhance efficiency but also improve the disposable income distribution for lower-income groups. However, the income effects of reform are not always evenly distributed. In a subsequent study, Causa et al. (2016) argue that under high inequality aversion, certain reforms may negatively impact bottom-income groups. For example, cuts to unemployment insurance may improve labor force participation but also compress the income of low-income households. Botev et al. (2022) quantitatively assess the household welfare effects of reform by comparing reform impacts on GDP versus actual household disposable income. They find that reforms transmitted via capital accumulation (e.g., corporate tax reductions) primarily benefit capital owners, whereas those channeled through employment and social policy (e.g., childcare, education expenditure) have more immediate and direct effects on household welfare. In short, if reforms focus solely on output growth, they risk deviating from welfare goals.

2.2.3 The Importance of Institutional Context for Reform Effectiveness

The success of structural reform is highly dependent on institutional foundations and implementation capacity—factors that differ markedly between developed and developing economies.

Daude (2016), in his study on Greece, finds that although reforms increased potential growth, the absence of equitable institutional support led to a dual burden on low-income groups—stemming from job instability and reallocation of social spending—thus limiting actual income improvement. Lin and Wang (2020) further theorize the institutional dependency of reform. They argue that failure to simultaneously reform the services sector can create a structural barrier, especially for middle-income economies. As productive services are central inputs for industrial upgrading, inefficiency in this sector suppresses the expansion of high-value-added manufacturing, thereby constraining further income growth. Governments can break the "low-level equilibrium" trap by removing structural barriers, reducing institutional uncertainty, and guiding investment into the service sector. Campos et al. (2025) take a more systemic view, arguing that institutional complementarity is critical to reform sustainability.

2.2.4 The Need for Gradualism and Economies-Specific Sequencing

To effectively achieve income-enhancing outcomes, structural reforms should be

carefully timed, sequenced, and paced. Reforms often yield significant time-lagged effects, and in some cases, short-term disruptions or "growing pains" may precede long-term benefits. Bouis et al. (2012) found that while labor market and product market reforms can entail short-term adjustment costs, their confidence effects and improved expectations can offset negative impacts if implemented during periods of economic recovery or expansion. Using a synthetic control method, Marrazzo and Terzi (2017) evaluated 23 waves of structural reform across 22 economies between 1961 and 2000. They found that while short-term effects were modestly negative, GDP per capita increased significantly over the medium term (approximately ten years), laying a solid foundation for sustained growth. Notably, reform returns were higher for developing economies—provided institutional support and policy continuity were in place. Georgiev et al. (2017) propose a three-phase structural reform framework: the initial phase focuses on markets (e.g., price and trade reforms); the intermediate phase emphasizes institutional deepening (e.g., competition law, regulatory oversight); and the long-term phase targets institutional maintenance and innovation support. They argue that failure to complete the intermediate phase—as observed in some Eastern European economies—not only leads to TFP stagnation but also undermines income growth and exhausts reform momentum.

Ⅲ. Empirical Study on APEC Structural Reforms Promoting Residents' Income Growth

This section primarily addresses the three questions raised at the outset through empirical research: First, over the past 20 years, have structural reforms in the APEC region promoted residents' income growth? Second, what is the magnitude of the impact of various structural reform policies on residents' income growth? Third, through what pathways do these structural reforms affect residents' income? By constructing five structural reform policy variables (institutional factor, openness factor, innovation factor, and allocation factor) and using income per capita and GDP per capita as dependent variables, these questions are answered through pooled panel regression, mediation effect models, and instrumental variable methods.

3.1 Variable Construction

To measure the policy effectiveness of structural reforms in promoting high-quality development, this report systematically aligns with the structural reform practices outlined in APEC's *LAISR*, *ANSSR*, and *RAASR*, as well as the four reform pillars and three promotion pathways proposed in the *Enhanced APEC Agenda for Structural Reform (EAASR)* launched in 2021. An indicator system was constructed covering five core dimensions: institutional, openness, opportunity, innovation, and allocation. During the variable selection process, emphasis was placed on both the policy relevance of each indicator and its operability in international comparisons. To construct composite indicators for these five dimensions, principal component analysis (PCA) was primarily used to calculate factor scores for each dimension. By extracting the main components of the data, the primary variations in the original information were retained, avoiding biases that could arise from subjective weighting. The five dimensions and their selected indicators closely align with the international consensus on structural reforms and APEC's policy priorities, reflecting the institutional depth of reforms while also considering long-term developmental sustainability.

Table 2: Construction of Structural Policy Independent Variables

Variable Type	Indicator Name	Theoretical Justification	Relevant APEC Structural Reform Pillar
Institutional Factor	Rule of Law Index Government Effectiveness	The rule of law and the efficiency of policy implementation within the system of government governance form the foundation of institutional reform. The rule of law is a fundamental prerequisite for market order and property rights protection, while government effectiveness shapes the business environment and resource allocation.	Government Governance and Regulatory Efficiency
Openness Factor	Economic Globalization Index Social Globalization Index Information Globalization Index	The three respectively correspond to the flows of capital, people, and information, reflecting an open reform strategy that facilitates the introduction of competitive pressure and institutional learning.	Market Openness and International Integration
Opportunity Factor	Internet Usage Rate Proportion of Female Employers Cultural Globalization Index	The focus is on whether reforms extend to all and provide opportunities for all.	Growth and Social Protection for All
Innovation Factor	Public Education Expenditure (% of GDP) Human Capital Index Number of Patent Applications	Education and human capital supply form the foundation for innovation, while intellectual property and patent activity reflect innovation outputs. Interest rates influence the financing conditions for innovation. Together, these	Innovation-Driven Development

	International Scientific Collaboration Payments for Use of Intellectual Property Real Interest Rate	elements capture the overall development of an economy's innovation system.	
Allocation Efficiency Factor	Share of Private Sector Credit Labor Income Share Share of Services in Value Added Government Consumption as a Share of GDP	The degree of market-based resource allocation is characterized from three aspects: capital markets, factor allocation, and industrial structure, serving as a measure of the functioning of market mechanisms.	Factor Market Reform and Competitive Neutrality Principle

The construction of specific structural reform policy variables is as follows:

3.1.1 Institutional Factor (ZD_{it})

Institutional and governance quality form the foundation for long-term economic development. A high-quality institutional environment ensures effective market operations and enhances allocation efficiency. In the realm of structural reforms, APEC has long focused on strengthening legal frameworks, regulatory reforms, corporate governance, and public sector governance to improve economies' institution quality and support economic development. The institutional dimension aligns with the first pillar of the EAASR, "Fostering an open, transparent, and competitive market environment," and its six core structural reform tasks. It primarily selects two widely used governance indicators: the "Rule of Law Index" and "Government Effectiveness," which respectively represent the legal safeguarding capacity of the institutional environment and administrative execution efficiency. These indicators reflect the optimization direction of structural reforms on institutional infrastructure and market governance structures.

3.1.2 Openness Factor (KF_{it})

Open cooperation is a cornerstone of APEC collaboration and a key area of structural reform. Traditionally, openness has been measured by economic indicators such as the share of trade and investment in GDP. However, to more comprehensively capture the multidimensional nature of openness, this report selects three variables under the openness dimension: the Economic Globalization Index, the Social Openness Index, and the Information Openness Index, representing the degree of openness in economic, socio-cultural, and information domains, respectively. The openness factor responds to the EAASR's policy intent of "improving market functions and eliminating unnecessary burdens on businesses". These indicators measure an economy's openness in economic, social, and digital dimensions, covering aspects such as goods flows, people's cross-border mobility, and cross-border information exchange, reflecting the reform outcomes in market institutions, cross-border connectivity, and institutional compatibility.

3.1.3 Opportunity Factor (BR_{it})

Structural reforms to promote economic growth should provide all people with benefits of economic growth, emphasizing access to economic participation.

To measure the realization of the opportunity dimension, this report selects three indicators: internet usage rate, the proportion of female employers, and the Cultural Globalization Index. These indicators are selected because they capture different

dimensions of economic opportunity. Internet usage rate measures access to digital opportunities, the proportion of female employers serves as a proxy for entry barriers and access to entrepreneurial opportunities, and the Cultural Globalization Index captures exposure to cross-border social and informational opportunities. These align with the third pillar of the EAASR, "Ensuring equal access to growth opportunities for all social groups." The three indicators respectively represent the reduction of the digital divide, economic opportunities, reflecting the institutional essence of structural reforms in promoting economic growth.

3.1.4 Innovation Factor (CX_{it})

APEC's policy framework strongly emphasizes the concept of innovation-driven growth. The innovation dimension aligns with the fourth pillar of the EAASR, "Leveraging innovation, new technologies, and skills development to enhance productivity and digitalization," highlighting that structural reforms should foster an environment that encourages technological progress, skill enhancement, and cross-border collaboration. This study constructs indicators from three aspects: innovation inputs (education expenditure, human capital index), innovation outputs (patent applications), and external linkages (international scientific cooperation, intellectual property transactions). Additionally, the "real interest rate" is introduced as a supplementary variable to capture the financial environment's support for innovation-driven pathways.

3.1.5 Allocation Factor (ZY_{it})

Efficient allocation is critical for enhancing factor productivity and achieving sustained economic growth. One of the key objectives of supply-side structural reforms is to correct resource misallocation, directing capital, labor, and other factors toward sectors and areas with higher productivity. Within the APEC framework, structural reforms emphasize optimizing allocation through market-oriented reforms, such as strengthening financial market support for the real economy, improving fiscal expenditure structures, and promoting industrial optimization and upgrading. The allocation factor aligns with the second pillar of the EAASR, "Enhancing business resilience and promoting future shock resistance," emphasizing the optimization of factor flow efficiency through structural mechanisms. This report adopts four indicators: "private sector credit share," "value-added share of the service sector," "labor compensation share," and "government consumption share." These systematically capture the reform effects on capital allocation, fiscal structure, income distribution, and industrial transformation, reflecting the pathways through which supply-side structural reforms enhance factor productivity and growth quality.

3.2 Model Design

This study employs a panel data econometric model to analyze the impact of structural reform policies on per capita income and their underlying mechanisms. The core explanatory variables are the five structural reform variables mentioned above. The dependent variables are the logarithm of per capita income (in current USD) and

the logarithm of GDP per capita, which serve as mutual validations to assess whether structural reforms consistently affect both residents' actual income and macroeconomic output. Considering that structural reforms may influence per capita income or GDP per capita through other intermediate variables, this report analyzes the mechanisms of structural reform from the perspectives of labor productivity, per capita capital stock, and income disparity. The control variable selected is the urbanization rate (CZH_{it}), measured as the proportion of the urban population to the total population, with data obtained from the World Bank database, to account for the impact of economic development stages and population structure changes on per capita income. To control for annual shocks and regional differences, the model includes year dummy variables.

3.2.1 Baseline Model

Model (1) is the baseline model, which includes only the five structural reform factors and control variables, with the logarithm of per capita income as the dependent variable. It is used to examine the direct impact of structural reforms on income and economic growth. The model is specified as follows:

$$Y_{jit} = \alpha_{j0} + \alpha_{j1}ZD_{it} + \alpha_{j2}KF_{it} + \alpha_{j3}BR_{it} + \alpha_{j4}CX_{it} + \alpha_{j5}ZY_{it} + \alpha_{j6}CZH_{it} + \mu_{ji} + \lambda_{jt} + \varepsilon_{jit} \quad (f.1)$$

In the model, the subscript j distinguishes the coefficient values when the dependent variable is either the logarithm of per capita income ($lnPIn_{it}$) or the logarithm of GDP per capita ($lnPGDP_{it}$). Here, i denotes the economy, and t represents the year; λ_{jt} is the year fixed effect, controlling for systematic time-related factors in each year; μ_{ji} is the economy-type fixed effect, controlling for heterogeneity across economies; and ε_{jit} is the random error term. The dependent variable Y_{jit} represents either the logarithm of per capita income ($lnPIn_{it}$) or the logarithm of GDP per capita ($lnPGDP_{it}$). The coefficients α_{ji} in Model (1) capture the direction and magnitude of the impact of each structural reform factor on per capita income, reflecting the net effect of policy progress in various structural reform domains on an economy's economic performance.

3.2.2 Mediation Effect Models

Models (2) to (4) are mediation effect models designed to examine the mechanisms through which structural reforms influence per capita income via labor productivity (LR_{it}), per capita capital stock (PK_{it}), and income distribution (Gini coefficient, GN_{it}). The explanatory variables in these models are labor productivity, per capita capital stock, and the Gini coefficient, respectively. By testing the impact of structural reforms on these three variables, the models assess whether reforms indirectly affect per capita income by enhancing productivity, increasing capital accumulation, or improving income distribution. The specifications for Models (2) to (4) are as follows:

$$M_{hit} = \beta_{h0} + \beta_{h1}ZD_{it} + \beta_{h2}KF_{it} + \beta_{h3}BR_{it} + \beta_{h4}CX_{it} + \beta_{h5}ZY_{it} + \beta_{h6}CZH_{it} + \mu_{hi} + \lambda_{ht} + \varepsilon_{hit}$$

(f.2)

In the models, h denotes the model sequence number, where $h = 2, 3, 4$, and the estimated coefficients vary depending on the dependent variable. In Model (2), the mediating variable M_{2it} is the logarithm of labor productivity (LR_{it}). If structural reforms—such as deepening market mechanisms, expanding external openness, or encouraging innovation—enhance the efficiency of production factors, it is expected that reforms will boost labor productivity. In Model (3), the dependent variable M_{3it} is the logarithm of per capita capital stock ($\ln PK_{it}$), reflecting the impact of structural reforms on capital formation and accumulation. Improvements in property rights systems, financial openness, and similar reforms are expected to promote investment and capital accumulation, thereby increasing per capita capital stock. In Model (4), the dependent variable M_{4it} is the Gini coefficient (GN_{it}), indicating that structural reform factors also influence income distribution.

3.2.3 Comprehensive Model

Model (5) is the comprehensive model. This model incorporates all variables into a single regression, simultaneously examining the direct effects of structural reforms and their indirect effects through various mediating pathways. Additionally, building on Models (1) to (5), the Bootstrap method is used to calculate the mediating effects of the intermediate variables. The model is specified as follows:

$$Y_{it} = \gamma_0 + \gamma_1 ZD_{it} + \gamma_2 KF_{it} + \gamma_3 BR_{it} + \gamma_4 CX_{it} + \gamma_5 ZY_{it} + \gamma_6 CZH_{it} + \eta_1 LR_{it} + \eta_2 + \eta_3 \ln PK_{it} + \eta_3 GN_{it} + \mu_{5i} + \lambda_{5t} + \varepsilon_{5it}$$

(f.3)

In the model, the coefficients of the structural reform factors, $\gamma_1$to γ_6, reflect the residual impact of reforms on GNI per capita or GDP per capita after controlling for the three mediating variables and the urbanization rate. Meanwhile, the coefficients of the mediating variables, η_1 to η_3, capture the impact of each pathway on GNI per capita or GDP per capita, indicating the strength of the indirect effects. If a structural reform factor is significantly positive in Model (1) but its coefficient decreases or becomes insignificant in Model (5), while the corresponding mediating variable's coefficient is significant, this suggests that the reform partially exerts an indirect effect on income growth through the mediating variable. Conversely, if a reform factor remains significant even after including the mediating variables, it implies that its impact on growth is not fully explained by the examined pathways, potentially indicating direct effects or other pathways. It should be noted that there may be high correlations between the structural reform factors and the mediating variables in Model (5), and further robustness tests will be conducted later in the study.

3.3 Empirical Results

The variables in this report are primarily sourced from three databases: the World Bank database, the Penn World Table (PWT) 10.01 macroeconomic database from the University of Groningen in the Netherlands, and the CEIC database. Data from the

World Bank includes: GDP per capita, Rule of Law Index, Government Effectiveness, internet usage population proportion, proportion of female employers, education expenditure share, patent applications, international scientific cooperation, intellectual property usage fees, real interest rate, private sector credit share, and service sector value-added share. Variables from the KOF Globalization Index include: Economic Globalization Index, Social Openness Index, Information Openness Index, from the Penn World Table (PWT) 10.01 macroeconomic database includes: Human Capital Index, labor compensation share, and government consumption expenditure as a share of total GDP. Data from the CEIC database pertain to per capita annual income levels, primarily referring to per capita annual disposable income. If this indicator is unavailable, per capita annual residents' income is used instead, or weekly or quarterly income is converted to annual per capita income in current US dollars. If neither of these indicators is available, GNI per capita is used as a substitute.

Due to data availability constraints, the World Bank database and the Penn World Table (PWT) 10.01 macroeconomic database do not include statistics for Chinese Taipei. Additionally, Brunei Darussalam and Papua New Guinea lack data for many key independent variables. Therefore, the regression analysis in this study focuses primarily on 18 economies, excluding these three. The data cover the period from 2000 to 2019.

3.3.1 Impact on Per Capita Income

In the models with the logarithm of per capita income as the dependent variable, the regression results indicate that structural reforms play a significant role in increasing per capita income, exerting both direct effects on income growth and indirect effects through mechanisms such as enhancing labor productivity, promoting capital accumulation, and improving income distribution. In the baseline model, all structural reform factors have a positive impact on per capita income, with all variables being significant in both types of panel models, except for the openness factor in the random effects model. The mediation effect models analyze the mechanisms through which structural reforms affect per capita income. The labor productivity model shows that the institutional, openness, innovation, and allocation factors significantly enhance labor productivity in both fixed effects and random effects models. The per capita capital stock model indicates that, except for the openness factor, which has a suppressive effect on per capita capital stock, the other factors significantly promote capital accumulation to varying degrees. In the Gini coefficient model, the allocation and openness factors significantly reduce income inequality, with the openness factor showing a particularly pronounced effect in increasing income; however, the institutional factor has an adverse effect on income disparity. The comprehensive model incorporates both structural reform factors and mediating variables into the regression. The results show that increases in labor productivity significantly promote per capita income growth, while a larger Gini coefficient significantly suppresses per capita income growth. Per capita capital stock is not statistically significant but still shows a positive direction.

Table 3: Per Capita Income – Standard Panel Regression

	Baseline Model		Mediation Effect Model						Comprehensive Mode	
	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random

	Per Capita Income		Log of Labor Productivity		Capital Stock per Capita		Gini Coefficient		Per Capita Income	
Institutional Factor	0.132*	0.130*	0.158**	0.136**	0.168***	0.156***	0.026***	0.0241***	0.0167	0.0261
	(2.18)	(2.52)	(2.66)	(2.77)	(3.53)	(3.70)	(4.63)	(4.59)	(0.65)	(1.08)
Openness Factor	0.175**	0.0831	0.169**	0.0946*	-0.121*	-0.0639	-0.0274***	-0.024***	-0.0143	-0.0167
	(2.89)	(1.69)	(2.83)	(2.07)	(-2.54)	(-1.56)	(-4.92)	(-4.55)	(-0.55)	(-0.71)
Opportunity Factor	0.167**	0.201***	0.0889	0.120*	0.147***	0.111**	0.0053	0.00186	0.0877***	0.0848***
	(3.12)	(4.08)	(1.69)	(2.55)	(3.49)	(2.79)	(1.08)	(0.38)	(3.97)	(3.86)
Innovation Factor	0.144***	0.116***	0.130***	0.133***	0.181***	0.174***	0.00248	0.000295	0.0220	0.0042
	(4.33)	(4.04)	(3.97)	(4.92)	(6.97)	(7.37)	(0.81)	(0.10)	(1.52)	(0.30)
Allocation Efficiency Factor	0.191***	0.184***	0.173***	0.143***	0.0742*	0.0744**	-0.0076*	-0.00824*	0.0189	0.033*
	(4.75)	(5.38)	(4.37)	(4.43)	(2.34)	(2.67)	(-2.04)	(-2.37)	(1.12)	(2.05)
Urbanization Rate	0.0135**	0.0207***	0.0279***	0.0275***	0.0267***	0.0252***	0.000011	0.00018	-0.013***	-0.007***
	(2.66)	(5.58)	(5.60)	(8.03)	(6.70)	(7.97)	(0.02)	(0.43)	(-5.84)	(-3.73)
Labor Productivity									0.914***	0.918***
									(38.81)	(38.01)
Capital Stock per Capita									0.0545	0.0431
									(1.77)	(1.38)
Gini Coefficient									-1.28***	-1.04***
									(-5.28)	(-4.39)
_cons	7.832***	7.272***	7.812***	7.795***	9.103***	9.218***	0.397***	0.384***	0.900**	0.547
	(21.11)	(24.96)	(21.39)	(28.97)	(31.22)	(36.97)	(11.63)	(11.44)	(2.86)	(1.71)
N	360	360	360	360	360	360	360	360	360	360

t statistics in parentheses
** p<0.05, ** p<0.01, *** p<0.001*

3.3.2 Impact on GDP Per Capita

In the models with the logarithm of GDP per capita as the dependent variable, the regression results generally align with the explanatory patterns observed in the previous model. In the baseline model, all structural reform variables, except for the institutional factor, which shows slightly weaker significance, significantly and positively impact GDP per capita levels. In the labor productivity model, all structural reform variables, significantly and positively promote GDP per capita. In the per capita capital stock model, all variables except the openness factor significantly and positively contribute to GDP per capita, with the innovation and institutional factors notably enhancing per capita capital stock accumulation. In the Gini coefficient model, the institutional factor significantly increases income inequality, while the openness factor significantly reduces it. The allocation factor shows a slight but significant reduction in income inequality in the fixed effects model, and although insignificant in the random effects model, its direction remains toward reducing income disparity. In the comprehensive model, labor productivity, per capita capital stock, and the Gini coefficient all significantly affect GDP per capita, with the first two promoting it significantly and the last one significantly suppressing it. Among the structural reform variables, the openness factor exhibits a significant positive effect in both fixed and random effects models, while the institutional factor demonstrates a significant negative effect. The effects of the remaining structural reform variables are insignificant. This could be attributed to two factors: first, factors like institutional reforms may primarily influence GDP per capita through mediating variables; second, the estimation results may lack robustness due to endogeneity issues.

Table 4: GDP Per Capita– Standard Panel Regression

	Baseline Model		Mediation Effect Model						Comprehensive Model	
	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random	Fixed	Random
	Per Capita Income		Log of Labor Productivity		Capital Stock per Capita		Gini Coefficient		Per Capita Income	
Institutional Factor	0.124*	0.101	0.158**	0.136*	0.168***	0.167***	0.0258***	0.028***	-0.032***	-0.032***
	(2.05)	(1.91)	(2.66)	(2.55)	(3.53)	(3.71)	(4.63)	(5.14)	(-3.64)	(-3.57)
Openness Factor	0.193**	0.116*	0.169**	0.0963*	-0.121*	-0.0595	-0.0274***	-0.02***	0.0235**	0.0255**
	(3.19)	(2.56)	(2.83)	(2.07)	(-2.54)	(-1.44)	(-4.92)	(-4.05)	(2.67)	(3.07)
Opportunity Factor	0.111*	0.137**	0.0889	0.119*	0.147***	0.110**	0.0053	0.000805	0.0149*	0.0130
	(2.08)	(2.92)	(1.69)	(2.53)	(3.49)	(2.77)	(1.08)	(0.17)	(2.00)	(1.78)
Innovation Factor	0.143***	0.141***	0.130***	0.133***	0.181***	0.176***	0.0025	0.000519	0.0024	0.000845
	(4.32)	(5.21)	(3.97)	(4.84)	(6.97)	(7.40)	(0.81)	(0.18)	(0.49)	(0.18)

Allocation Efficiency Factor	0.175*** (4.35)	0.150*** (4.31)	0.173*** (4.37)	0.144*** (4.10)	0.0742* (2.34)	0.0819** (2.75)	-0.0076* (-2.04)	-0.00548 (-1.51)	-0.0049 (-0.85)	-0.00244 (-0.44)
Urbanization Rate	0.022*** (4.42)	0.0239*** (6.88)	0.0279*** (5.60)	0.0274*** (7.58)	0.0267*** (6.70)	0.0259*** (7.82)	0.000011 (0.02)	0.000493 (1.17)	-0.007*** (-9.53)	-0.0064*** (-9.05)
Labor Productivity									0.98*** (115.32)	0.981*** (115.10)
Capital Stock per Capita									0.0823*** (7.39)	0.0808*** (7.30)
Gini Coefficient									-0.524*** (-6.00)	-0.493*** (-5.75)
_cons	7.504*** (20.23)	7.273*** (27.60)	7.812*** (21.39)	7.798*** (28.48)	9.103*** (31.22)	9.244*** (36.63)	0.397*** (11.63)	0.400*** (11.94)	-0.706*** (-6.64)	-0.809*** (-7.44)
N	360	360	360	360	360	360	360	360	360	360

t statistics in parentheses
** p<0.05, ** p<0.01, *** p<0.001*

Compared with the results using "per capita income" as the dependent variable, on one hand, the impact pathways of structural reforms on GDP per capita are structurally consistent. Particularly in the mediation effect models, structural reform factors have positive effects on enhancing labor productivity, promoting capital accumulation, and improving income distribution, and demonstrate consistent operational logic under both dependent variables. On the other hand, the comprehensive models of both types indicate that labor productivity is the most important mediating mechanism through which structural reforms influence outcomes. After controlling for mediating variables, labor productivity maintains extremely high significance in both models, far exceeding other mechanism variables, which signifies the central position of "efficiency improvement" as the core transmission pathway for reform outcomes.

3.3.3 Identification of Intermediate Pathways through which Structural Reforms Affect Income

From an overall perspective, labor productivity is the most important mediating variable through which structural reforms affect per capita income, with all structural reform variables having significant promoting effects on this pathway. Among these, the resource allocation factor, openness factor, and institutional factor demonstrate more pronounced effects in promoting per capita income enhancement through labor productivity. The mediating effect of the per capita capital pathway is not significant. Regarding the income distribution pathway, the institutional factor tends to worsen income distribution, while the openness factor significantly suppresses income distribution gaps, with other factors showing no significance.

Table 5: Per Capita Income – Bootstrap Mediation Effects of Structural Reform via Three Pathways

Dependent Variable = Log of Per Capita Income	Path	Coefficient	Standard Error	z	P
Institutional Factor	Labor Productivity	0.146	0.072	2.030	0.043*
	Capital Stock per Capita	0.005	0.005	0.930	0.350
	Gini Coefficient	-0.036	0.011	-3.340	0.001**
Openness Factor	Labor Productivity	0.155	0.062	2.520	0.012*
	Capital Stock per Capita	-0.004	0.005	-0.760	0.450
	Gini Coefficient	0.038	0.013	2.990	0.003**
Opportunity Factor	Labor Productivity	0.082	0.057	1.440	0.149
	Capital Stock per Capita	0.004	0.005	0.900	0.370
	Gini Coefficient	-0.007	0.007	-1.030	0.305
Innovation Factor	Labor Productivity	0.119	0.037	3.250	0.001**
	Capital Stock per Capita	0.006	0.006	0.930	0.350
	Gini Coefficient	-0.003	0.006	-0.620	0.536
Resource Allocation Factor	Labor Productivity	0.160	0.036	4.470	0.000***
	Capital Stock per Capita	0.002	0.003	0.820	0.413
	Gini Coefficient	0.010	0.008	1.360	0.174

** p<0.05, ** p<0.01, *** p<0.001*

In the GDP per capita model, the impact mechanism of structural reforms on GDP

per capita primarily follows the logic of "efficiency improvement" and "factor accumulation," while the influence of distributional structure is relatively secondary. Compared with the mediation model that uses per capita income as the dependent variable, both share a high degree of consistency in their dominant transmission paths. Among them, labor productivity is the core transmission mechanism across all reform pathways. All five categories of structural reform factors exert significant positive indirect effects on GDP per capita through improvements in labor productivity, with relatively larger coefficients observed for resource allocation (0.141), institutional (0.133), innovation (0.131), and opportunity factors (0.117). Along the per capita capital stock path, institutional (0.014), innovation (0.014), opportunity (0.009), and resource allocation factors (0.007) all contribute positively to GDP per capita by promoting capital accumulation. In contrast, the mediating role of the Gini coefficient in explaining GDP per capita is generally insignificant. Among the reform factors, openness significantly helps curb the widening of income inequality, while institutional factors tend to increase distributional disparities to some extent.

Table 6: GDP Per Capita– Bootstrap Mediation Effects of Structural Reform via Three Pathways

Dependent Variable = Log of Per Capita Income	Path	Coefficient	Standard Error	z	P
Institutional Factor	Labor Productivity	0.133	0.027	4.880	0.000***
	Capital Stock per Capita	0.014	0.001	10.070	0.000***
	Gini Coefficient	-0.014	0.004	-3.540	0.000***
Openness Factor	Labor Productivity	0.094	0.013	7.450	0.000***
	Capital Stock per Capita	-0.005	0.003	-1.680	0.092
	Gini Coefficient	0.010	0.002	4.310	0.000***
Opportunity Factor	Labor Productivity	0.117	0.026	4.430	0.000***
	Capital Stock per Capita	0.009	0.002	4.020	0.000***
	Gini Coefficient	0.000	0.005	-0.080	0.937
Innovation Factor	Labor Productivity	0.131	0.013	10.450	0.000***
	Capital Stock per Capita	0.014	0.002	6.950	0.000***
	Gini Coefficient	0.000	0.002	-0.110	0.914
Resource Allocation Factor	Labor Productivity	0.141	0.014	9.910	0.000***
	Capital Stock per Capita	0.007	0.002	4.560	0.000***
	Gini Coefficient	0.003	0.003	1.100	0.270

** $p<0.05$, ** $p<0.01$, *** $p<0.001$*

A comparative analysis of the three-path mediation effects using Bootstrap, with income per capita and GDP per capita as dependent variables, reveals a high degree of consistency in their main transmission mechanisms. Labor productivity serves as the core channel through which structural reforms exert their impact in both models, with nearly all reform variables showing significant positive effects along this path. At the same time, the per capita capital stock path also plays a mediating role, though it is more prominent in the GDP per capita model. Regarding the distribution mechanism, both institutional and openness factors have a significant impact on the outcome variables through this pathway, whereas other structural reform variables do not show significant effects.

3.3.4 Robustness Check

To more rigorously identify the true effects of labor productivity, per capita capital stock, and the Gini coefficient on income per capita and GDP per capita, this report further incorporates a cleansing mechanism for the mediating variables based on the above models, and employs two-stage least squares (2SLS) estimation to mitigate potential endogeneity bias. For instance, improvements in income or GDP per capita

may in turn lead to enhanced productivity, increased capital stock, or deteriorated income distribution. The presence of mediation effects also indicates strong collinearity among the mediating variables of various structural reform factors.

Therefore, this report constructs a residual decomposition model for the mediators. In the first stage, for the three mediation models (Models 2 to 4), the residuals are extracted respectively as proxy variables for labor productivity, per capita capital stock, and the Gini coefficient. By filtering out the effects of structural reform from the original level variables, the resulting three variables represent relatively "clean" measures that more accurately capture the "spontaneous fluctuations" driven by market forces or technological accumulation, thus avoiding the repeated inclusion of structural reform effects along the factor transmission paths.

Although the residual treatment helps alleviate endogeneity arising from "collinearity," the "net value" components of labor productivity and per capita capital stock may still be correlated with the error term in the GDP equation. Therefore, in the second stage, this report employs two-stage least squares (2SLS), introducing the third-period lags of structural institutional factors as external instrumental variables to identify the "net value" portions of labor productivity and per capita capital stock. This report does not apply instrumental variable treatment to the Gini coefficient. On the one hand, the structural factors have already been controlled for in the first stage; on the other hand, the Gini coefficient has relatively weak inertia, making it difficult to find strongly correlated exogenous instruments.

The reason for choosing third-period lagged structural policy variables as instruments is that they can be regarded as "remote causes" of labor productivity and per capita capital stock. These variables possess predictive power for current factor allocation and are not directly affected by the contemporaneous random disturbances in GDP, thus satisfying the relevance and exogeneity criteria for valid instruments. Instrument validity test results indicate that both model sets are well-identified overall, with exogeneity established and the model specifications relatively robust. By comparison, the identification strength in the per capita income model is slightly weaker than in the GDP per capita model, but the difference is limited and does not undermine the validity of the overall conclusions.

Table 7: Tests for Instrument Validity

Test Item	Indicator Name	Per Capita Income Model	GDP Per Capita Model	Validity Assessment
Identification Test	Kleibergen-Paap rk LM	15.37	15.37	All models pass the identification test
	p value	0.004**	0.004**	The instrumental variables are significantly correlated with the endogenous regressors
Weak Instrument Test	Cragg-Donald F	4.01	4.01	All values fall below the 10% critical threshold (4.32), indicating that the instruments may be weak.
	Kleibergen-Paap rk Wald F	3.25	3.25	Exceeding the 15%, 20%, and 25% critical thresholds indicates that the instrument strength is still acceptable.
	Stock-Yogo 10%	4.32	4.32	
	Stock-Yogo 15%	3.13	3.13	
	Stock-Yogo 20%	2.78	2.78	
	Stock-Yogo 25%	2.60	2.60	

Overident ification Test	Hansen J	5.377	2.12	All models pass the overidentification test
	p value	0.146	0.547	The instrumental variables satisfy the exogeneity condition

** p<0.05, ** p<0.01, *** p<0.001*

In the robustness checks, the independent variables—labor productivity, per capita capital stock, and the Gini coefficient—are all replaced by the residuals from the mediation effect models, i.e., the "net value" portions remaining after filtering out the structural reform variables from the original level variables. All structural reform variables remain unchanged, and year and urbanization rate are included as control variables. A total of five robustness test models are constructed: the standard fixed effects model, the standard random effects model, the two-stage fixed effects model, the two-stage random effects model, and the limited-information maximum likelihood (LIML) two-stage specification.

From the robustness estimation results for both income per capita and GDP per capita, the following conclusions can be drawn:

First, across all five models, all structural policy factors have a significant positive impact on GDP per capita. The only exception is in the LIML two-stage model, where the openness factor does not have a statistically significant effect on per capita income, though the direction remains positive. This indicates that even under stricter identification strategies, the causal relationship between structural reforms and both income per capita and GDP per capita remains robust.

Second, in terms of impact magnitude, the resource allocation and opportunity factors exert the strongest income-enhancing effects, followed by innovation and openness, while the institutional factor is relatively weaker. In the case of GDP per capita, the resource allocation and openness factors show stronger effects, followed by innovation and institutional factors, with the opportunity factor having the weakest impact.

Third, after using the "purified" versions of labor productivity, per capita capital stock, and the Gini coefficient in the models, the results show that in the standard panel models, improvements in labor productivity and a fairer income distribution significantly promote per capita income. All three variables significantly promote GDP per capita. However, in the instrumental variable models, only improvements in labor productivity show significant positive effects in both models, while the other two variables do not exhibit significant effects.

Table 8: Robust Estimation Results for Per Capita Income

	Fixed Effects	Random Effects	Two-Stage Fixed Effects	Fixed Effects	Random Effects
Institutional Factor	0.113*** (4.62)	0.128*** (5.36)	0.105** (2.98)	0.113*** (3.41)	0.0989* (2.13)
Openness Factor	0.104*** (4.20)	0.0738** (3.13)	0.0950* (2.53)	0.0819* (2.34)	0.0821 (1.50)
Opportunity Factor	0.199*** (9.15)	0.207*** (9.30)	0.179*** (6.37)	0.181*** (6.56)	0.184*** (5.38)
Innovation Factor	0.150*** (11.16)	0.134*** (10.00)	0.144*** (6.56)	0.136*** (6.45)	0.133*** (4.73)
Allocation Efficiency Factor	0.165*** (10.09)	0.171*** (10.80)	0.190*** (8.05)	0.191*** (8.42)	0.192*** (7.55)
res_Labor	0.922***	0.925***	0.986***	0.960***	1.041***

	(36.57)	(33.98)	(7.45)	(7.11)	(4.83)
res_Gini	-1.380*** (-5.33)	-1.365*** (-4.88)	-0.672 (-1.45)	-0.594 (-1.28)	-0.449 (-0.71)
res_Capital	0.0305 (0.93)	0.0246 (0.69)	-0.250 (-1.50)	-0.263 (-1.57)	-0.375 (-1.46)
Urbanization Rate	0.0128*** (6.23)	0.0180*** (9.82)	0.0149*** (4.73)	0.0176*** (6.14)	0.0155*** (3.99)
_cons	7.838*** (52.17)	7.457*** (51.14)	7.670*** (33.15)	7.471*** (31.92)	8.483*** (27.16)
N	360	360	306	306	306

t statistics in parentheses
** p<0.05, ** p<0.01, *** p<0.001*

Table 9: Robust Estimation Results for GDP Per Capita

	Fixed Effects	Random Effects	Two-Stage Fixed Effects	Fixed Effects	Random Effects
Institutional Factor	0.124*** (15.02)	0.123*** (15.03)	0.124*** (10.17)	0.123*** (10.44)	0.123*** (0.61)
Openness Factor	0.193*** (23.36)	0.191*** (23.22)	0.193*** (16.37)	0.190*** (16.62)	0.193*** (15.02)
Opportunity Factor	0.111*** (15.24)	0.113*** (15.43)	0.108*** (11.05)	0.109*** (11.44)	0.108*** (9.96)
Innovation Factor	0.143*** (31.65)	0.143*** (31.75)	0.135*** (17.03)	0.135*** (17.50)	0.133*** (13.38)
Allocation Efficiency Factor	0.175*** (31.84)	0.174*** (31.96)	0.183*** (21.13)	0.181*** (21.58)	0.183*** (21.75)
res_Labor	0.982*** (115.32)	0.982*** (115.09)	1.095*** (23.45)	1.091*** (23.80)	1.107*** (20.26)
res_Gini	-0.524*** (-6.00)	-0.524*** (-5.98)	0.23 (-1.43)	-0.24 (-1.48)	-0.215 (-0.215)
res_Capital	0.0823*** (7.39)	0.0823*** (7.38)	-0.03 (-0.58)	-0.03 (-0.55)	-0.0482 (0.71)
Urbanization Rate	0.0224*** (32.36)	0.0224*** (32.90)	0.0224*** (20.65)	0.0225*** (21.57)	0.0224*** (16.18)
_cons	7.504*** (148.03)	7.500*** (94.99)	7.461*** (93.90)	7.453*** (68.15)	8.040*** (72.65)
N	360.00	360.00	306.00	306.00	306

t statistics in parentheses
** p<0.05, ** p<0.01, *** p<0.001*

3.4 Empirical Conclusions

3.4.1 Structural reforms can significantly promote income growth

This study systematically evaluates the economic consequences of structural reform policies, focusing on two core economic indicators: income per capita and GDP per capita. The results indicate that structural reform not only significantly improves per capita income levels but also strongly drives the growth of GDP per capita.

Based on panel data models, the analysis constructs a baseline regression, a mediation effect model, and robustness test models to assess the overall impact of five categories of structural reforms. In both the baseline and mediation effect models, structural reform policies show significant positive effects on both income per capita and GDP per capita. Among them, reforms related to resource allocation and openness are particularly critical for improving output efficiency, while innovation reforms play a more prominent role in enhancing residents' income and expanding the scope of beneficiaries.

The mediation path analysis reveals that labor productivity is the primary mechanism through which structural reforms affect income and economic growth.

Capital accumulation and income distribution also play a role—capital accumulation is more prominent in the GDP per capita model, while income distribution has a more significant effect in the per capita income model.

The robustness tests further reinforce these findings. After applying instrumental variable methods and decomposing the residuals of mediators, the main structural reform variables still exhibit positive effects on the outcome variables. This indicates that the reform effects identified in this report remain highly stable and explanatory even after addressing endogeneity concerns.

Thus, the empirical conclusions provide clear answers to the three key questions posed at the beginning of this report.

3.4.2 Mechanisms Through Which Structural Reforms Promote Income Growth

From the perspective of direct effects, structural reform policies exhibit significantly positive estimated results across all models, particularly in the areas of resource allocation, opportunity, and openness. Resource allocation reforms strengthen market mechanisms, enhance factor mobility, and the ability of marginal return differentials to guide resource flows, thereby concentrating resources in high-efficiency sectors and unleashing supply-side dynamism. Reforms improve residents' access to public services, enhance human capital quality and social protection coverage, and promote the participation and benefit of low- and middle-income groups. Openness reforms expand market boundaries and introduce competition, which improves enterprise efficiency and drives residents' income growth.

At the level of mediation mechanisms, labor productivity is clearly identified as the core transmission channel. In the mediation effect models and Bootstrap estimates, nearly all structural reform factors indirectly increase income and output by enhancing labor productivity. In the robustness checks using instrumental variable settings, labor productivity remains highly significant across all models, indicating that its mediating effect is not only stable but also causally interpretable. This finding suggests that the "primary mechanism" of structural reforms is not merely to inject additional inputs or expand capacity, but rather to enhance output efficiency under existing constraints by optimizing resource allocation and incentive structures—thus achieving "efficiency-driven growth."

The per capita capital stock pathway serves as a secondary mechanism, more pronounced in the GDP per capita model. This indicates that reforms promote investment, improve the financing environment, and raise the capital formation rate, thereby driving macroeconomic output growth. However, in the per capita income model, this pathway is relatively less significant, suggesting that the impact of capital accumulation on residents' income is more indirect and depends more on complementary efficiency gains and institutional support.

The income distribution pathway—i.e., the Gini coefficient channel—is most prominent in the per capita income model. Reforms that promote openness and improve resource allocation efficiency help narrow income disparities to some extent. However, while the institutional factor generally exerts a positive influence on both income per capita and GDP per capita, the mediation analysis shows that it tends to widen income

inequality through the distribution channel. This reveals that while institutional reforms improve efficiency, they may also be accompanied by temporary imbalances in income distribution structures.

IV. Practical Cases of Structural Reforms Promoting Residents' Income Growth in APEC Economies

This section analyzes practical cases of structural reforms in APEC economies that promote residents' income growth, with a focus on findings from field research conducted by the study team in Australia; China; and Indonesia. It also summarizes relevant practices from other economies.

4.1 China's Practical Experience

From 16-22 February 2025, the APEC research team on "Structural Reforms Promoting Residents' Income Growth" conducted field visits in People′ s Republic of China, covering four locations: Zhanjiang City, Guangdong Province (16th–17th, February); Guangzhou City, Guangdong Province (18th, February); Lishui City, Zhejiang Province (19th, February); and Chongqing Municipality (20th–22nd, February). Through roundtable discussions and on-site visits, the team investigated key initiatives and outcomes of structural reforms aimed at promoting residents' income growth in these four regions.

4.1.1 Zhanjiang Promotes Residents' Income Growth Through Reform and Innovation in the Marine Economy Model

First, Zhanjiang has fully leveraged its marine resource advantages to vigorously develop a distinctive modern marine city. By establishing the Zhanjiang Bay Laboratory, focusing on three major areas—marine equipment, marine energy, and marine biology—it has advanced the construction of marine ranches and developed the marine equipment manufacturing industry. In terms of residents' income, in 2024, the "Liu Sha Wan No. 1 Sea Area" was successfully approved as a marine ranch demonstration zone, and China's first independently operated lift-type marine ranch platform, "Zhan Nong No. 1," was completed and put into operation. The city has cumulatively built 3,426 gravity-type cages, accounting for 65% of the provincial total, along with 6 large-scale aquaculture platforms. Zhanjiang's oyster industry was selected as a provincial-level dominant specialty industrial cluster. By promoting the integrated development of marine ranching, marine equipment, and marine tourism, Zhanjiang has created diversified income-generating channels for coastal residents, while the concentration of technological talent and enhancement of innovation capabilities have effectively driven high-quality employment.

Second, Zhanjiang has fostered a port-based industrial support system to accommodate the orderly relocation of industries from the Pearl River Delta and beyond, and actively introduced major advanced manufacturing projects to build a modern industrial system.

By advancing the implementation of major projects such as BASF's ethylene complex in Zhanjiang and establishing platforms like the Guang-Zhan Industrial Transfer Cooperation Park, the region has attracted high value-added industries and quality employment opportunities. In terms of residents' income, this has contributed

to local growth, with the per capita disposable income of Zhanjiang residents reaching RMB 30,810 in 2024, representing a year-on-year increase of 3.6%. The Guang-Zhan Cooperation Park introduced 41 new projects in 2024, launched 15 new industrial projects, and saw growth in industrial output and added value above 20%, creating a substantial number of high-quality jobs and significantly raising residents' income levels.

Third, Zhanjiang has driven residents' income growth through technological innovation. By strengthening the role of enterprises as the main agents of innovation and continuously improving industrial innovation capacity, specific policies include promoting the recognition of high-tech enterprises and cultivating tech-oriented SMEs, establishing various R&D institutions, and increasing overall R&D investment. In 2024, total R&D investment in Zhanjiang reached RMB 4.126 billion, up 29.1%, ranking first among cities in eastern, western, and northern Guangdong. The city recognized 130 high-tech enterprises, registered 183 tech-oriented SMEs, and had over 520 R&D institutions. The enhancement of technological innovation has effectively driven high-quality employment and sustained residents' income growth.

Fourth, Zhanjiang has vigorously developed county-level specialty industrial clusters and promoted rural e-commerce development. Suixi County was selected as one of the first "Leading Counties" in rural e-commerce in China, with an industrial park offering zero-rent policies to attract businesses and cultivating farmer cooperatives. In terms of income, the e-commerce industrial park attracted 48 companies, including 43 agriculture-related e-commerce enterprises, employing 830 workers and training over 8,300 individuals. The city hosts 7,455 farmer cooperatives, the highest in the province, and the cluster effect of county-level industries has effectively boosted rural residents' income.

Fifth, Zhanjiang has expanded reform and opening-up comprehensively, actively promoted the upgrading of traditional industries, and cultivated emerging industries that create new employment. Projects like the Guangdong Bihui Smart Eyewear Manufacturing Park have been introduced to drive the digital transformation and upgrading of traditional sectors. In terms of income, industrial transformation has played an important role in stabilizing employment. In 2024, 64,800 new urban jobs were created, and 35,100 unemployed individuals were reemployed. The Bihui project has already hired over 300 workers and is expected to employ 2,000 people once it reaches full capacity. After forming an industry cluster, it is projected to provide 10,000 jobs, offering sustainable employment support for residents' income growth.

4.1.2 Guangzhou Promotes Residents' Income Growth Through Digital-Intelligent (Smart) Innovation and Structural Reform

First, Guangzhou's digital-intelligent structural reform of industrial parks has promoted high-quality employment and income growth. By digitally restructuring its industrial spatial layout and reforming traditional park development models, Guangzhou has developed a series of smart-featured industrial parks, including the Tianhe Central Business District, Huadu International Fashion Smart Port, and the Pazhou Artificial Intelligence and Digital Economy Pilot Zone. These initiatives have

fostered six emerging pillar industries, five strategic leading industries, and four clusters of distinctive competitive industries. Both Huadu Economic Development Zone and Tianhe District are advancing the upgrading and construction of more advanced new zones, focusing on areas such as new energy and intelligent connected vehicles, ultra-high-definition video and new displays, and biomedicine and health.

These structural reforms driven by digitalization and intelligent technologies have driven high-quality employment and income growth. In 2024, Guangzhou added over 340,000 new urban jobs. Urban residents' per capita disposable income rose by 3.6%, and rural residents' income increased by 6%. A total of 603,000 new business entities were registered, up by 11.6%. High-tech jobs created by smart parks significantly boosted wage income levels for residents.

Second, Guangzhou's structural reform of manufacturing through digital transformation has enhanced the incomes of skilled workers. The city has systematically advanced the digital transformation of manufacturing by promoting the "Four Transformations": digitalization, networking, structural upgrading, and greening. It launched initiatives such as "AI+", the "1,000 Enterprises Plan," and "Smart Molds Empowering Industries," while establishing a pilot zone for AI foundation model applications and becoming a demonstration city for "5G+ Industrial Internet" integration. Companies like Baiyun Electric were selected as model cases of manufacturing digital transformation. These smart transformation reforms have raised the income of skilled workers. In 2024, output of integrated circuits, analog chips, and service robots grew by 68.9%, 23.7%, and 22%, respectively, while drone and LCD production increased by 2.9 times and 2.3 times, respectively. The digital transformation generated large numbers of digital-skilled jobs, boosting the wage income of technical workers and digital talent.

Third, Guangzhou's structural reform of government services through digitalization has supported growth in entrepreneurial and flexible employment income. Treating digital reform of the business environment as its "No. 1 Project," Guangzhou comprehensively restructured its digital governance system, introduced 660 deep reform measures, and integrated over 2,000 enterprise-related digital service policies. It built an "industrial version" smart business environment and an "ecosystem-style" innovation environment, developed a digital platform for enterprise services to enable precise delivery, centralized release, and easy access to business support policies, and promoted smart construction in demonstration innovation zones and the Guangzhou Private Science and Technology Park.

This smart reform has facilitated entrepreneurial and flexible employment income. Participating banks under the inclusive loan risk compensation mechanism issued over RMB 300 billion in actual loans, invigorating digital enterprises. Guangzhou led China in live-streaming e-commerce retail sales, providing diversified income channels for digital entrepreneurs and new forms of employment.

Fourth, Guangzhou's structural reform in scientific and technological innovation through digital-intelligent upgrades has raised the income of high-level talent. The city deepened reforms in the digital allocation of innovation factors, rebuilt the digital

research resource distribution and talent training systems, and reformed traditional models of research funding and talent evaluation. A RMB-10-billion angel fund of funds was established to support the transformation of digital sci-tech achievements, along with 14 new proof-of-concept centers and 20 smart high-skilled talent training bases. The city also implemented a digital training plan for "new artisans," promoted a "new eight-grade worker" classification system, and introduced a lifelong digital skills training mechanism.

These smart reforms have significantly boosted the income of high-level talent. In 2024, Guangzhou hosted more than 13,500 high-tech enterprises and 72,000 high-value invention patents (up 17.1%), while total R&D expenditure grew at an annual rate of 10.4%. Nearly 30,000 PhDs and postdoctoral researchers have been introduced to the city, effectively raising the income levels of digital research personnel, AI experts, and highly skilled smart-tech professionals.

4.1.3 Lishui Promotes Economic Growth by Leveraging the Development of Mountainous Specialty Industries

First, Lishui's spatial layout reform for economic growth has increased the income of low-income groups. By optimizing development patterns in mountainous areas, Lishui has systematically reformed poverty alleviation relocation and employment support mechanisms, improving the spatial distribution of population and industry. It implemented relocation for 10,700 people and supported employment for 20,000 key groups. Additionally, 1,002 Workshops were established to promote nearby employment. Through structural reforms aimed at economic growth, the city significantly raised the income of low-income groups. In 2024, it created 22,500 new urban jobs, and the workshops enabled 63,000 people to find employment close to home. Village collective income grew by 15.4%. Lishui ranked first in the province in terms of income growth for urban residents, rural residents, and low-income rural households. Rural income growth has led the province for 16 consecutive years, and income growth for low-income households has ranked first for 9 consecutive years, effectively narrowing the urban-rural income gap and advancing the path toward economic growth.

Second, Lishui's reform of specialty agricultural industry structures has increased farmers' operating income. Capitalizing on its mountainous resource endowments, Lishui has systematically reformed the traditional agricultural structure and promoted full value-chain transformation and upgrading of local specialties, laying an industrial foundation for economic growth. It has coordinated the development of specialty products and "mountain-branded" agricultural trademarks, continuously building six full industry chains in tea, edible fungi, traditional Chinese medicine, bamboo shoots, livestock, and oil crops. Signature products such as wild tea, camellia oil, and ganoderma spore powder have been cultivated. By transforming agricultural advantages into economic development strengths, Lishui has expanded income-generating channels for farmers, explored an industrial development path suited to mountainous areas, and created more high-quality jobs and income opportunities—ensuring broader farmer participation in the benefits of industrial development.

Third, Lishui's structural reform of village collective economies has optimized

collective income distribution. The city deepened reforms of rural collective property rights, systematically reshaping the development model and income distribution mechanisms of village collectives, thus realizing economic growth at the village level. It promoted joint operations by strong village enterprises, rural property rights transactions, and collective forest tenure reforms, innovating collective economic development models and optimizing income distribution structures. These reforms have effectively improved the allocation of collective income, created multiple channels for increasing farmers' earnings, and ensured that more low-income residents benefit from the collective economy. This has enabled all villagers to share in the fruits of collective economic development, effectively advancing village-level economic growth.

Fourth, Lishui's structural reform of basic public services for economic growth has improved residents' actual income levels. It carried out integrated reform of basic public services in mountainous areas, systematically reconstructing the urban-rural public service provision system and narrowing urban-rural gaps. Reforms were promoted in education, healthcare, and elderly care. Ten integrated transport-postal routes were launched, 1,480 mobile convenience service vehicles were deployed, and 234 new elderly meal service points were established. County-level coverage of child development guidance centers was achieved. These initiatives contributed to raising actual income levels. Three counties, including Liandu, passed the evaluation for inclusive preschool education in China. By reducing residents' spending burdens on basic public services, Liandu and the other 2 counties improved real disposable incomes and laid a solid social protection foundation for achieving economic growth in mountainous areas.

4.1.4 Chongqing Promotes Residents' Income Growth Through Structural Reforms in Resource Allocation and Innovation

First, Chongqing's structural reform of the rural collective property rights system has promoted growth in farmers' property income. By deepening institutional innovation in rural collective property rights, Chongqing has systematically restructured rural property allocation and income distribution mechanisms, revitalizing dormant rural assets. In Lvfeng Town, Tongliang District, a comprehensive "Strong Village, Prosperous People" reform was implemented through a mechanism of "grassroots leadership, social capital participation, and corporate governance." This approach integrated 14 enterprises and leveraged RMB 2.1 billion in social capital, while establishing a "guaranteed dividend + performance-based dividend" income distribution system. This structural reform significantly boosted farmers' property income. In 2024, the total income of village collectives across Chongqing increased by 15.4%, and over 90% of villages reported individual household operating income exceeding RMB 100,000. Rural residents saw steady income growth, with broader access to asset-derived income and a greater share in collective asset appreciation.

Second, Chongqing's structural reform promoting the integration of the digital and real economies has raised wage income levels. As an inland hub of openness, Chongqing has systematically promoted deep integration between the digital and real economies, restructuring its industrial development and employment models. The city

accelerated digital economy development, adding over 6,400 new software companies, cultivating emerging industrial clusters in intelligent connected vehicles and integrated circuits, and promoting the growth of modern service sectors such as transportation, warehousing, leasing, and business services. These reforms enhanced wage income: in 2024, Chongqing added 719,000 new urban jobs and retained 345,000 local and incoming youth. The software and information service industry achieved RMB 420 billion in main business revenue, employing 438,000 people. New energy vehicle production reached 953,000 units, with value-added in the automotive sector growing by 26.7%. Value-added from strategic emerging industries accounted for 34.6% of large-scale industrial output, generating a substantial number of medium- to high-income jobs.

Third, Chongqing's multi-tiered structural reform of the social protection system has increased actual disposable income. As a strategic stronghold of Western Development, Chongqing has systematically improved its social protection system and optimized public service provision to reduce household expenditure burdens. Reforms included: outpatient mutual aid in employee medical insurance; expanding long-term care insurance benefits to include moderately disabled individuals; completing age-friendly home renovations for 10,000 elderly households; establishing 1,695 senior canteens; promoting universal preschool education and after-school services for compulsory education; and accelerating urban infrastructure construction. These reforms boosted actual disposable income. In 2024, both urban and rural per capita disposable income continued to grow. The outpatient mutual aid reform saved patients RMB 4.2 billion. Universal preschool education coverage reached 94.6%, and after-school services were made available to all students in need. The city built three new water plants, two waste incineration facilities, and added 10 million square meters of urban green space. By reducing expenditures on education, healthcare, and elderly care, Chongqing significantly increased residents' real disposable income.

4.2 Practical Experiences in Australia and Indonesia

From 23-30 April 2025, the research team conducted field studies in Australia and Indonesia. At the academic level, the team selected the Crawford School of Public Policy at the Australian National University as the primary research target, where Professor Peter Drysdale convened five economists for an in-depth discussion.

At the policy practice level, the research covered relevant governmental institutions in both economies, including the Australian Treasury; Indonesia's Coordinating Ministry for Economic Affairs, Ministry of Creative Economy, Bank Indonesia (the central bank), the ASEAN Business Advisory Council, and the Ministry of Communication and Digital of the Republic of Indonesia.

4.2.1 Australia's Practices in Promoting Residents' Income Growth

A. Promoting Data Governance to Support Residents' Income Growth

Australia’s Consumer Data Right (CDR) was legislated in 2019 as a major economic reform designed to give consumers greater control over their data, enabling

informed choices about the goods and services they use. By placing ownership of data in the hands of consumers, CDR provides consumer empowerment for portability of their data, which is expected to enable market innovation and bring about greater competition. This aligns with the empirical study's dimensions of reform and efficiency in resource allocation.

First, CDR is a secure data-sharing mechanism established by the Australian government that grants consumers control over their personal data. Consent is the cornerstone of the CDR mechanism. It affirms the access and control rights of individuals over their own data, allowing them to decide how and with whom their information is shared. Accredited Data Recipients and Data Holders must obtain explicit informed consent from consumers before collecting, using or disclosing their data.

Second, CDR operates through a five-step process—authorization, verification, selection, transfer, and use. Consumers first authorize data access via an accredited platform; the system verifies identity through a one-time password; users then choose specific content to share; the data is securely transferred via APIs between providers; and finally, the authorized party uses the data to deliver personalized services. The entire process is subject to strict regulation, and consumers can manage their data sharing settings at any time, including withdrawing authorization, updating sharing scope, or modifying the duration.

Third, CDR reshapes the relationship between consumers and data as well as the competitive market environment. It reduces the cost of finding quality goods and services and improves product matching. The consumer-centric data-sharing model is the core innovation of CDR. It empowers consumers and small businesses to access data previously controlled by large corporations and institutions, integrate data scattered across different providers, gain new perspectives on their financial status, and participate in finance.

B. Promoting Infrastructure Investment System Reform to Support Income Growth

The Australian Government's policy objectives for land transport infrastructure investment, including in partnership with Australia's states and territories, are set-out in its Infrastructure Policy Statement (IPS). The IPS outlines three strategic themes that guide the Australian Government's investment decisions: enhancing productivity and resilience, improving livability, and promoting sustainability. The IPS also includes the project delivery goals of promoting women's participation, increasing employment opportunities for First Nations job-seekers and businesses, and decarbonization in the construction sector—key elements consistent with the empirical study's focus on resource allocation efficiency reforms.

The Australian Government's Infrastructure Investment Program (IIP) is governed by a partnership agreement with the states and territories. The Federal Funding Agreement Schedule on Land Transport Infrastructure Projects (FFAS) sets clear terms for federal-state relations, supports priority setting, risk management and delivery, and

includes details on outcomes and performance reporting.

An independent advisory body, Infrastructure Australia, evaluates significant infrastructure proposals or proposals that are seeking investment from the Australian government of AUD 250 million or more.

Infrastructure investment indirectly supports income growth through multiple pathways. On the one hand, by enhancing the connectivity of the transportation network, it promotes the integration of markets across Australia, reduces the logistics and transaction costs of enterprises, and improves the operational efficiency of the supply chain, thereby driving industrial expansion and employment growth; On the other hand, the development of logistics and related service industries has increased labor demand and labor productivity, and its economic benefits have been further transmitted to residents' income levels through wage growth and increased employment opportunities.

4.2.2 Indonesia's Practices in Promoting Residents' Income Growth

A. Promoting Digital Access Reform to Increase Residents' Income

Indonesia's Ministry of Creative Economy (Kementerian Ekonomi Kreatif) and the Ministry of Communication and Digital Affairs (Kementerian Komunikasi dan Digital, KOMDIGI) presented the concrete structural reform measures in the digital economy and their mechanisms for promoting income growth among residents and micro, small, and medium enterprises (MSMEs). These initiatives align with the empirical study's dimensions of reform, and resource allocation efficiency reform.

First, Indonesia has prioritized digital talent development as a cornerstone of its digital economy strategy to address structural shortages in human capital. The Ministry of Creative Economy identified closing the digital talent gap as a top policy objective, estimating a shortfall of 9 million digital professionals by 2025. KOMDIGI established tiered training programs called Digital Talent Scholarship (DTS), selecting participants through submitted executive essays and partnering with international companies and universities—including Tsinghua University, Alibaba, and Huawei of China—to deliver training in cloud computing, 5G, and big data. Since its launch in 2018, over 500,000 people have applied and more than 300,000 have completed training[1].

Second, Indonesia has focused on MSME digital transformation as a key breakthrough, using policy incentives and technology matching to improve overall productivity. It has introduced supportive policies targeting MSMEs and strengthened an integrated "training-to-employment" mechanism by linking skill development with labor market demand. Partnerships with e-commerce platforms and tech companies have also directly created new employment opportunities.

B. Advancing Poverty Reduction and Growth Through TNP2K

Indonesia's Coordinating Ministry for Economic Affairs shared the experience of the Indonesian Team for the Acceleration of Poverty Reduction (TNP2K) in promoting poverty alleviation and economic growth. To coordinate efforts among ministries and

[1] https://digitalent.komdigi.go.id/data-capaian

agencies, reduce poverty, and mitigate inequality, the Indonesian government issued Presidential Regulation No. 15 in 2010, establishing TNP2K under the leadership of the Vice President. On 10 February 2015, then-Vice President Jusuf Kalla instructed technical ministries to leverage TNP2K's integrated data for policymaking in social protection and poverty reduction.

First, TNP2K is a poverty coordination body established in 2010 and directly overseen by the Vice President. Its mission is to enable precise intervention targeting the bottom 40% of the Indonesian population by building a unified database, designing targeted policies and mechanisms, strengthening program evaluation, and providing implementation support to technical agencies.

Second, TNP2K fosters multi-stakeholder collaboration through a "Joint Poverty Reduction Platform" that unites government, businesses, and NGOs. It promotes the formulation of Regional Poverty Reduction Plans (RPKD) by local governments, offers technical assistance to help provinces identify poverty characteristics and root causes, and guides resource prioritization by region and population group to enhance policy relevance.

Third, in addition to TNP2K's direct anti-poverty efforts, Indonesia is also expanding employment through the creative economy. Employment in this sector has grown from 14 million in 2013 to 26.4 million, with a target of 27.66 million by 2029 (around 10% of the total population), concentrated in food services, handicrafts, apparel, gaming, and digital content.

Fourth, Indonesia is building a digital economy ecosystem to support poverty reduction. With 180 million IoT users and 130 million social media users, the digital economy is projected to generate USD 210–360 billion in revenue. Efforts include strengthening data protection and privacy, digital literacy, and talent development. Specific programs—such as livestream training for housewives—expand participation in economic activities.

C. Accelerating Financial System Reform to Support Income Growth

Bank Indonesia (BI) emphasized its roadmap, *Indonesia: 2030 Payment System Blueprint*, outlining the path forward for the Indonesia digital payment system. These financial system reforms align with the empirical study's themes of resource allocation and reform by improving financial resource efficiency and expanding access to finance.

First, Indonesia aims to digitalize and broaden its payment system to increase financial opportunity and income accessibility. By modernizing payment infrastructure, Indonesia has lowered barriers to financial services in remote areas. Direct integration of payment systems with fiscal transfer mechanisms reduces intermediaries and corruption risk, enhancing the effectiveness of poverty-targeted financial support. The rapid expansion of QRIS (Quick Response Code Indonesian Standard) has enabled many MSMEs and informal vendors to access the digital economy.

Second, Indonesia is integrating banking and non-banking resources to expand employment and income channels in the payments sector. By promoting open API standards, the government encourages interoperability between banks and fintech firms,

creating jobs in areas like digital platforms, payment apps, and identity verification—particularly benefiting urban youth and educated groups.

Third, reforms supporting MSME finance have revitalized grassroots economic activity and boosted entrepreneurial income. Efforts include building credit histories for small firms, improving access to formal financing, and using QR-based payments to bring informal businesses into the digital finance network, thus converting informal income into measurable credit assets.

Fourth, the push for financial formalization and literacy has improved long-term income capacity and resilience. Bank Indonesia has established offices and training systems to teach SMEs standardized financial knowledge and management skills, helping informal and fragmented businesses transition toward structured operations.

D. Promoting Income Growth Through the Creative Economy

Indonesia is actively using the creative economy to drive income growth for residents and SMEs, making it a key focus of the government's structural reform agenda. The creative economy is positioned as a strategic lever for boosting residents' income, supporting SME development, and enhancing global competitiveness.

First, Indonesia is developing diverse creative economy sectors to expand employment and entrepreneurship. The Ministry of Creative Economy currently focuses on 17 sectors, with seven prioritized. The government sees the creative economy as not limited to high-tech innovation, but also encompassing the reinvention and value creation of culture, arts, and lifestyle. It aims to absorb approximately 10% of the Indonesian workforce in the future.

Second, it supports the digital transformation of SMEs to participate in global markets. The core of Indonesia's innovation strategy is the digitalization of industries and enterprises. By integrating SMEs with e-commerce, social media, and short video platforms, the government improves market access. AI tools are being promoted for market research, content optimization, and product positioning to empower entrepreneurs and micro-business owners.

Third, Indonesia is strengthening digital talent development and international cooperation to support the creative economy. Addressing Indonesia's significant digital talent gap, the government has established multi-level training systems for entrepreneurs, SMEs, and workers. Initiatives such as creative city networks in local areas, localized training, and international linkages are helping to build a local creative ecosystem and drive residents' income growth through creative economy development.

4.3 Practices from Other Economies in Promoting Income Growth

4.3.1 Business Environment and Market Mechanism Reforms: Stimulating Employment and Enterprise Growth

Optimizing the business environment and reforming market institutions are fundamental structural reform strategies for raising residents' income.

First, simplifying procedures for business establishment, operation, and exit reduces market entry barriers and boosts private sector vitality. For example, in 2022,

Thailand launched the Digital Trade Platform (NDTP) to integrate import-export processes and link them with other economies. It consolidated registration, licensing, customs, and tax reporting into a unified digital system, delivering one-stop services that significantly reduced startup time and compliance costs. Thailand also promoted paperless license approvals and online business service platforms—particularly beneficial for MSMEs by supporting formal operations and employment expansion.

Second, improving investment protection and commercial legal frameworks enhances policy stability and investor confidence. In recent years, Viet Nam has pushed institutional reforms to improve the business climate, stimulate investment, and expand employment. In June 2025, it amended eight key laws, including the Investment Law, PPP Law, and Bidding Law, clarifying legal boundaries on land use, tax incentives, and profit repatriation for foreign investors. A "Special Investment Procedure" (SIP) was also introduced for strategic sectors like high-tech, semiconductors, and green manufacturing. Additionally, investment arbitration mechanisms were established in Hanoi, Da Nang, and Ho Chi Minh City to expedite commercial dispute resolution.

Third, digitalizing regulation and enhancing government transparency improves administrative efficiency. Since 2023, Chile has strengthened digital governance, the Ministry of Digital Government launched "Gob.cl" to integrate government services and introduced a unified digital identity and e-signature system, and enabled full electronic document workflows. Resolution No. 79 issued in June 2025 mandates that government agencies, payment platforms, and digital businesses verify tax registration before onboarding clients and revalidate it semiannually, reinforcing formal regulatory oversight. Chile also launched a "One-Stop Platform for SMEs," centralizing tax registration, credit matchmaking, and e-invoicing to help more micro- and small businesses formalize, boosting productivity and income potential.

4.3.2 Human Capital and Skills Development Reform: A Fundamental Strategy to Raise Incomes

Reforming education and skill systems is a foundational structural reform to enhance income-generating capacity among workers.

First, strengthening technical and vocational education systems improves labor-market alignment. Malaysia launched a digital skills retraining program via its Digital Economy Centers (PEDi), bridging rural-urban gaps. It aligned vocational curricula with industry demand and encouraged employer participation in curriculum design. For example, the Penang Skills Development Centre (PSDC) co-developed programs with over 150 firms. Under the MyDIGITAL blueprint, Malaysia aims by 2030 to digitalize public services, foster digital talent, and raise digital literacy—providing long-term support for workforce development.

Second, building re-employment support systems assists unemployed and career-interrupted groups in re-entering the labor market. Republic of Korea expanded its Women's Reemployment Centers and Employment Welfare Plus Centers (EWPCs), offering job training, matching, and employer subsidies in over 160 cities as of 2023. Japan's "Work Style Reform" introduced overtime caps and incentives for transitioning non-regular workers to regular positions, while promoting remote work and side jobs

to support mid-career workers and women returning to work.

Third, institutionalizing lifelong learning encourages workers to continuously upskill in response to changing economic conditions. New Zealand's Apprenticeship Boost Initiative supports employers to keep apprentices employed and training toward their qualification and incentivizes employers to take on new apprentices by providing subsidies to employers of eligible apprentices. The New Zealand government redesigned the vocational education and training system, with legislation passed in 2025, so that vocational education and training reflect local and regional education, training, and industry workforce needs. The Final-year Fees Free policy aims to motivate learners to complete their qualification or program by covering fees for their final year of study or final two years of work-based learning.

4.3.3 Technological Innovation and Digital Transformation: Unlocking New Income Opportunities

Promoting innovation and digital transformation is a critical structural reform path for expanding income boundaries in middle- and high-income economies.

First, increasing public investment in R&D and enterprise innovation fosters high-value industries and jobs. Singapore's Research, Innovation and Enterprise (RIE) 2025 Plan committed SGD 25 billion to support digital, healthcare, and sustainability-focused enterprises, aiming to create high-value jobs, enhance competitiveness, and transform the economy. It emphasizes strengthening research ecosystems, accelerating tech commercialization, and encouraging business innovation to sustain Singapore's global leadership.

Second, supporting SME digitalization improves technology absorption and profitability. Since 2022, Hong Kong, China has implemented the *Innovation and Technology Development Blueprint*, outlining strategies for AI, semiconductors, biotech, and new energy sectors over the next 5–10 years. The 2024 launch of a new Digital Policy Office integrated OGCIO and Efficiency Unit functions to spearhead smart city projects and cross-border digital government services (e.g., "One Person, One Form" system). The FinTech Development Framework supported digital asset trading, stablecoin regulation, and account onboarding, issuing 10 retail crypto licenses and several digital bond issuance—establishing Hong Kong, China's digital finance credentials while generating regulatory and market jobs.

4.3.4 Expanding Income Space for Low - and Middle - Income Groups

Improving income distribution can be essential safeguards for increasing household disposable income.

Strengthening labor rights, securing new economy jobs, and investing in infrastructure support fair income growth. In December 2024, Mexico amended its Federal Labor Law to formally recognize digital platform workers as employees entitled to social protection, minimum wages, and injury compensation rights.

V. Policy Implications: Structural Reforms in APEC to Promote Residents' Income Growth

5.1 Structural Reforms Should Advance Efficiency

First, institutional: Strengthen the rule of law and governance capacity to drive effective governance. Within the APEC region, institutional reform may focus on improving policy implementation, enhancing governance transparency, and strengthening legal safeguards.

Second, resource allocation: Deepen factor market reforms to improve resource mobility and promote employment. Resource allocation inefficiency is a shared structural weakness across APEC economies. Optimizing resource allocation can support income growth, especially through gains in labor productivity. APEC economies may consider advancing reforms in land, capital, and labor markets to this end. Strengthening workforce adaptability and training systems may be considered to avoid structural unemployment. This helps improving efficiency and expanding employment.

Third, Enabling environments: Further an enabling environment in the region. It not only significantly boosts income and output but also helps alleviate income inequality. Member economies may consider lowering institutional market entry barriers, promoting trade and investment, while also improving support mechanisms that help disadvantaged industries participate in global value chains.

Fourth, innovation: Strengthen regional innovation collaboration. APEC economies may increase investment in scientific R&D, digital infrastructure, and human capital to reinforce innovation-driven growth models. While innovation reform is a strong driver of efficiency, it should also support SMEs in adopting new technologies, creating platforms for high-skilled job matching, and ensuring that technological achievements are able to be utilized by all. At the regional level, APEC can promote collaborative mechanisms, mutual recognition of technical standards, and to promote an enabling environment for innovation.

Fifth, members may consider increased investment in sectors such as education, healthcare, childcare, and housing—particularly in rural and remote areas where access to digital services remains limited. Digital tools can be leveraged to enhance the accessibility and efficiency of public services, while promoting the exchange of best practices in social policy across the region.

5.2 Reform, Efficiency, and Income Improvement

This report finds that labor productivity is the most critical mediating variable through which structural reforms influence both income per capita and GDP per capita. Nearly all structural policy factors generate significant indirect effects via this pathway, and the significance remains strong even in robustness estimates using instrumental variable identification. This indicates that the effectiveness of reform lies not in simply increasing factor inputs, but in enhancing the efficiency of existing resources through structural reforms.

Therefore, policy design should consider closely aligning reform content to promote productivity: Enhance market competition mechanisms to improve firms' capacity for technological upgrading; Optimize the structure of education and vocational training to increase labor adaptability and productivity.

Moreover, to ensure that this path of efficiency improvement benefits all, complementary reform measures should consider strengthening human capital investment to promote access to education, employment support, and infrastructure. In other words, reform outcomes should be tangible and sustainable at the household level.

5.3 Optimizing the Business Environment as a Key Lever of Structural Reform

First, strengthen intellectual property rights protection (IPR) and the rule of law to enhance institutional predictability in factor allocation. Intellectual property rights and the legal environment form part of the foundation of a sound business environment and are essential for the efficient functioning of factor markets. A robust legal framework can strengthen business and investor confidence in policy stability, reduce transaction costs, and provide guarantees for the free movement of land, capital, and other production factors. A priority in improving the business environment can be for economies to establish a system for intellectual property rights protection and enhance enforcement capacity for intellectual property rights. At the same time, administrative oversight may shift toward a rule-based and service-oriented approach, minimizing discretionary authority. In emerging areas, it is recommended to develop appropriate frameworks to prevent regulatory vacuums from becoming obstacles to factor allocation.

Second, improve the market rules and management arrangements for factor mobility and reduce institutional transaction costs for enterprises. The business environment directly affects the ease with which enterprises can access and allocate production factors. Its core function is to reduce friction in the movement of those factors. While most APEC economies have made progress in simplifying approvals, and improving tax and fee structures through streamlined administration and delegation of authority, challenges remain regarding fairness and transparency in factor access. Complex approval processes, inconsistent rules, and significant variations in enforcement standards, as well as regional disparities—especially in areas such as land financing, talent acquisition, and energy use—often constrain access to factors for private capital and SMEs. Business environment reforms should focus on building a fair, competitive, and orderly system. This includes strengthening credit systems and improving the transparency of resource allocation information, such as land, financing, and energy, to enhance market-based decision-making. It is also essential to ensure that factor access systems include enterprises of different sizes.

Third, promote international cooperation to promote enabling business environments. Within APEC, significant divergences remain among members in areas such as policy transparency, customs efficiency, and foreign investment access. These inconsistencies hinder the integration of regional factor flows. Therefore, improving

the business environment requires greater coherence and coordination of regulatory frameworks to support multinational enterprises and regional value chains. On the one hand, APEC should enhance dialogue and coordination on rules and procedures related to the business environment and strengthen regional policy dialogue platforms to reduce the suppressive effects of regulatory misalignment on factor mobility. On the other hand, in emerging areas like the digital economy, early pilot initiatives and information-sharing mechanisms on a voluntary and mutually beneficial basis can gradually foster stable and transparent regional business rules. In corporate compliance matters regarding cross-border trade in services, tax filing, intellectual property protection, consumer rights, strengthening the communication and coordination of existing rules and practices will lower the institutional barriers for SMEs entering regional markets and expand their scope for participation in regional cooperation.

5.4 Distribution Mechanisms in the Reform Process

While institutional reforms can enhance labor productivity and macroeconomic output, empirical analysis also reveals a potential downside along the income distribution pathway—specifically, a positive association between institutional reform factors and the Gini coefficient in mediation models, indicating a possible widening of income disparities. This highlights a crucial policy insight: if structural reforms lack effective distributional complements, they may not alleviate existing inequalities and could, in fact, exacerbate structural polarization even as efficiency improves.

Therefore, the design and implementation of reforms may be accompanied by the parallel development of distribution systems. On the one hand, the tax system can be leveraged to improve the progressivity and coverage of personal income taxation. On the other hand, social protection support for low- and middle-income groups can be strengthened, especially in ensuring broad-based access to public services such as education, healthcare, and housing.

Furthermore, reform strategies may emphasize employment stability and fairness in the labor market. Hence, a combined strategy of structural adjustment and compensatory mechanisms is essential. This includes planning of reform timing, coverage pathways, and buffering tools, to ensure that structural reforms deliver gains in productivity and income levels.

5.5 Advancing Structural Reform of the Financial System in a Gradual and Adaptive Manner

First, adopt differentiated digital payment development strategies based on the maturity of financial markets. Indonesia's experience in building a multi-layered payment network demonstrates that while digital payment leapfrogging can accelerate financial access in developing economies, it also carries significant risks—especially in the absence of a robust regulatory framework and effective risk control mechanisms. Economies with relatively mature financial markets may consider prioritizing the security and interoperability of payment systems. However, economies should consider anti-fraud systems and consumer protection mechanisms. Indonesia's QRIS mutual

recognition mechanism with other ASEAN economies offers a useful model for APEC regional cooperation. However, given APEC members' differing monetary policy regimes, exchange rate systems, and regulatory standards, a more flexible cooperation framework may be necessary. Third, enable financial access for MSMEs based on their development stage. Indonesia's use of electronic payments to help MSMEs build credit histories has broad applicability, but specific implementation should be context-sensitive. In economies with more advanced financial systems, the focus can be on developing supply chain finance and data-driven credit evaluation models. In economies with less developed financial infrastructure, the priority can be establishing basic credit reporting systems. The key is to appropriate policy tools based on the structural characteristics of MSMEs and the degree of financial market development in each economy. Fourth, develop digital currency strategies that match each economy's regulatory capacity. However, significant differences across APEC economies in monetary policy frameworks, financial market structures, and technological readiness require tailored development paths. Developed economies may focus on the implications of digital currencies for monetary policy transmission and financial stability, while developing economies can prioritize their role in enhancing financial access and reducing transaction costs. Economies can consider evaluation mechanisms to ensure that digital currency development improves the financial system.

5.6 Developing the Creative Economy to Promote Employment in a Context-Specific Manner

First, each economy may consider their own creative economy development priorities. APEC economies can consider selecting creative economy domains with comparative advantages according to their cultural traditions, human capital characteristics, and market conditions. For example, some economies may prioritize the cultural and creative industries; others may focus on digital creative sectors or emphasize tourism-based creative industries. Second, tailored to market environments, policy toolkit for promoting the creative economy, such as regulatory frameworks, platform support, financing mechanisms, and skills development policies, can be refined to enhance the effectiveness of policy interventions. Indonesia's model—combining government guidance, platform support, and international cooperation—offers valuable reference points. However, the specific form of support can be adapted to each economy's conditions. IPR protection is needed. In economies where markets are weaker, it is necessary to step up investment in digital infrastructure and cultural and creative space infrastructure—such as high-speed networks, data platforms, and digital payment systems—in order to reduce the dissemination and transaction costs of creative products and services.

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