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Factors of Youth Unemployment: A Developing Country Analysis

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ABSTRACT

This study investigates the macroeconomic determinants of youth unemployment in nine developing Asian countries over 29 years using panel data regression techniques and both fixed- and random-effect models, with diagnostic tests for multicollinearity, heteroskedasticity, and autocorrelation. Macroeconomic variables influence youth unemployment in developing Asian countries, including South Asia and ASEAN, primarily through structural and labor-market mechanisms. Economic growth often shows skill-biased patterns, particularly in lower-income South Asian economies such as Bangladesh, Nepal, and Pakistan. At the same time, labor productivity and formal wage employment reduce youth unemployment, especially in more industrially diversified ASEAN economies like Malaysia, Thailand, Indonesia, and the Philippines. Inflation has a limited overall effect but can influence unemployment in the short run. Government education spending may increase youth unemployment when educational expansion exceeds the creation of high-skill jobs. Overall, youth unemployment is driven more by structural factors, as shown by the existing heterogeneity between countries or groups of countries by region. Key determinants are labor-market participation and education–employment alignment rather than short-term macroeconomic fluctuations. Short-run macroeconomic factors, such as nominal GDP or price changes over a single year, do not necessarily affect youth unemployment; rather, sustained education spending, aligned structural changes in the labor market, and productivity enhancements across successive economic cycles do.

Keywords: *Youth Unemployment, Developing Asian Countries, Panel Data, Macroeconomic Determinants, Structural Alignment, Sustained Education Spending, Productivity Transformation, Successive Economic Cycles.*

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CHAPTER ONE
INTRODUCTION

➢ *Background*

Unemployment occurs when an individual or individuals are actively and willingly seeking a job but cannot find one during that period. According to the United Nations, youth refers to the percentage of people in the age group 15-24 (O'higgins, 2001). Youth unemployment among today's generation is a common issue that the world is facing. It is not merely confined to developing countries, as countries like the USA are struggling with it, and even though there are jobs, most of them are taking on blue-collar jobs, and with rising commodity and housing costs, their struggle continues. Though when it comes to developing and middle-income countries, the situation is not any better, because developing countries face multiple challenges, including rising costs, social and technical issues, as found in studies throughout Africa (Ayinla & Ogunmeru, 2018). Some regions face more than others, creating worldwide disparity and disparity within one nation's regions. Youth Unemployment is a challenging issue throughout the developed and developing parts of the world (Msigwa, Kipesha, 2013). Youth Unemployment is a socioeconomic challenge that can be addressed through strong education, increased productivity, reduced population inequality, and enhanced economic growth.

Over centuries, from philosophers to researchers, there has been arguments for socialist and capitalist views for unemployment, and before looking into youth unemployment one must look into certain strong conceptual frameworks, firstly before the causes, let one glance at the word "unemployment", a word that remains consistent as an issue in economics and social sciences to well over 200 years, and one that remains unchanged within this time frame. What has accumulated over the years is perspectives as literature compiled. Unemployment can be categorized into two components, voluntary and involuntary unemployment, which can be placed within the dynamics of the economy. From modern to old, the same categorization was made over many years. In the early 19 hundreds, socialist views were considered "utopian" yet a framework circumscribed to the issue, termed itself as a "remedy" for unemployment.

The idea was that community based and collaborative work, assisted towards adding a more equitable value addition in the economy, for instance, on one hand, labor would work towards meeting the necessities for survival such as the basic day to day needs, while government would fix a wage rate based on the work all the labor are doing, meanwhile, if after the basic needs were met, the labor would exchange their labor for leisure during the rest of the time as, leisure industries started growing. Now, as more of these industries were nationalized, the workers had an option to choose between providing labor or spending leisure (Wallace,1908). The gap there is, that just like value addition, there lies a concept of value depletion, and that through the concept of externalities, if there are externalities from attaining these "basic goods", then there will be additional labor needed to internalize these costs, making employment voluntary however, once external costs occur, it can be transmitted between different sectors of the economy. That requires a range of distinct skills.

Relating to historical frameworks, unemployment has been categorized into different periods of social thought, such as pre-classical thought, the classical period, the 1880's, the age of Keynes, and the contemporary era. In the pre-classical era, the Keynesian element was regarded rather strongly, as full employment was considered the major focus of the term "mercantilist economy" at that time. Distinctions were made between workers preferences of 'labor' and 'leisure', and was later for the time being categorized; workers who voluntarily remained unemployed were the ones who rejected market wage rates, and those who were involuntarily unemployed were rationed within the wage rates. The classical period further attached these core unemployment perspectives with the broader concerns with the economy, adding no more real significance to the concept itself. The late 18th century saw more public awareness evident in public journals, literature, and talks concerning unemployment, which enforced the society then, into the age of Keynes, where an economy at full employment was seen as increasing the volume of profitability in the economy if not the share of the surpluses themselves.

The present climate involves multiple dynamics such as which part of the world one lives in, what type of market one works in, and who the local and regional competitors are, involving a multifaceted macroeconomic environment. For instance, social dynamics such as understanding of gender in the context of the workforce have grown over the last century and in now termed developed countries, female workers are productive and active participants in the workforce (Blaug, 1997).

Youth Unemployment is one such contemporary part of Unemployment, and while it may be seen as neo or modern, it is a derived concern that dates back to ages. When it comes to differentiating between voluntary and involuntary unemployment, voluntary is much more dynamic than a mere choice, as workers can only give labor if the economy allows it. The wage rate itself is determined by the efficiency of the economy. Therefore, it can be that macroeconomic cycles and labor's voluntary decision can work complementary to each other.

Thus, the ability to determine and the decisions towards determining the outcomes play a significant role; this approach will look to figure out a pattern in how youth unemployment plays out in the context of the macro economy.

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➢ *Research Objective*

- *The Research Objectives are to Find*
  The impact of certain macroeconomic factors on youth unemployment in developing countries.

- *The Research Question is:*
  How do macroeconomic variables influence youth unemployment in developing countries of Asia?

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CHAPTER TWO
LITERATURE REVIEW

Youth unemployment has evolved into a defining socio-economic challenge of the twenty-first century, cutting across geographic, structural, and developmental boundaries. While the issue manifests globally, it does so with different levels of intensity, persistence, and complexity across regions. Developed economies, despite possessing comparatively stronger institutions, diversified economic structures, and established welfare systems, continue to struggle with youth unemployment produced by the accelerating pace of technological transformation, globalization, automation, and the restructuring of labor markets around high-skill, knowledge-intensive industries. Young workers in these economies confront barriers stemming from skill obsolescence, the decline of traditional entry-level jobs, and the rising precariousness of early-career employment.

On the contrary, developing economies, particularly in Asia, Sub-Saharan Africa, the Middle East, and Latin America, experience far more acute and structurally embedded youth unemployment. These regions face a cluster of developmental constraints, including weak labor-market institutions, limited formal-sector capacity, rapid demographic expansion, insufficient industry-based diversification, and significant dependence on the informal economy. Developing Asia, comprising South Asia, Southeast Asia, and the broader ASEAN region, presents a uniquely critical context for understanding youth unemployment. The region is home to the world's largest and fastest-growing youth population, experiencing simultaneous demographic transitions, rapid urbanization, industrial upgrading, and ongoing shifts toward digital and service-oriented economies. These transformations, while expanding opportunities, also intensify competition for limited high-quality jobs and expose structural mismatches between education systems and evolving labor market needs.

Youth Unemployment, likewise to Unemployment, has gone through an integrative lensing, according to Greek philosopher Aristotle, working was central to human purpose, in Greek termed as "telos". On one hand, he had valued leisure for growth in intellectuality; however, on the other hand, unemployment caused by a failure of the state, termed as "polis" in Greek was seen not virtuous to humans seeking to live (Aristotle, translated, 1998, Politics, III .9, 1280b-1281a; Aristotle, Politics, VIII.1, 1337a-1337b). At that time, according to Aristotle (translated, 2000, Nicomachean Ethics, 1.7, 1098a-1098b), forced idleness was thought to undermine flourishing in people; thus, youth seeking to grow intellectually would need to be able to choose between labor and leisure. The state's inability to ensure a just and free market constrains the utility

Marx (1867) suggested a more integrated structural cause of youth unemployment occurring through exploitation, as young workers are part of the economy's excess supply of labor and thus cheaper. Through capitalism, youth unemployment disciplines the workforce while keeping reserves of capital backed up.

According to Keynes (1936, pp. 378-381), youth unemployment reflects macroeconomic inconsistencies in the economy, as youth are more prone to economic cycles as they are employed last and also fired first. This is due to an aversion to risk, and Hannah Arendt's political exclusion theories add up, as these young people are also left out of the political arena.

Sen (1999, pp.87-89) sums this up as the sequence leads up to denial in capabilities such as skills, social networking, and confidence and ability in making future choices.

Philosophically, youth unemployment remains a damaging form of unemployment, as it creates barriers to human development, which, in turn, creates long-lasting or even permanent economic scars. In addition, it signals a systematic failure.

Moreover, a consistent finding in academic literature is that youth unemployment defies simple explanation. Scholars overwhelmingly emphasize its multidimensional nature, arguing that no single cause, whether education, changes in the economic cycle, demographic change, or institutional constraints, adequately captures its complexity. Instead, youth unemployment is shaped by intricate interactions among macroeconomic dynamics, demographic pressures, human capital formation, technological change, socio-cultural norms, labor market institutions, and historical development pathways. Young people are found to be structurally more vulnerable than older adults due to limited job experience, weaker networks, shorter job tenure, and greater exposure to labor market volatility (Blanchflower & Oswald, 1999; O'Higgins, 2001). Their position in the labor market is further shaped by gatekeeping mechanisms that prioritize experience they do not yet possess, thereby creating a paradox of employability choices, as young people cannot gain experience without employment, yet cannot secure employment without experience.

These vulnerabilities are further amplified in developing regions, where the institutional infrastructure supporting the transition from school to work remains underdeveloped. Education systems in many parts of developing Asia continue to emphasize rote learning and theoretical instruction over applied skills, problem-solving capacity, and digital competencies. Labor markets remain heavily dualistic, split between a small formal sector and a dominant informal sector. Intermediary support structures connecting education to employment, such as apprenticeships, vocational training systems, job-matching services, and employer partnerships, are limited or inconsistently implemented. These systemic weaknesses restrict pathways into stable employment and push youth toward perilous, informal, or temporary forms of work.

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Developing nations seek productivity yet contrary to that if the youth are failed to be allocated these productive roles, then this will lead to inefficiency and market failure, although, thus even though Marxist theories suggest that this is a work of capitalism, Keynesian theories suggest developing capitalism, should not mean wastage of resources from which the hypothesis of underemployment was formed (Marx, 1867; Keynes,1936, pp. 3-5, 315-320).

Beyond the implicit nature of how the market incorporates youth, globalization, and technological transformation further compound the challenges faced by developing nations. Digitalization, automation, and the rise of platform-based work disrupt traditional labor market arrangements, reduce demand for low-skilled labor, and increase wage polarization. While these changes generate opportunities for highly skilled youth, particularly in fields such as ICT, engineering, data analytics, and digital entrepreneurship, they simultaneously marginalize youth who lack access to high-quality education or digital infrastructure. Developing Asia faces a pronounced digital divide not only between countries but also within them, exacerbating spatial inequality and limiting upward mobility.

Another defining element of the youth unemployment challenge in developing Asia is the region's demographic trajectory. The "youth bulge", a disproportionately large cohort of young people entering the labor market simultaneously, creates strong pressures on economies to generate millions of jobs annually merely to maintain current employment rates. South Asia alone adds tens of millions of new labor market entrants each year, while ASEAN countries such as Indonesia, the Philippines, and Vietnam experience similar demographic dynamics. Failure to generate sufficient employment opportunities risks producing long-term structural unemployment, heightened poverty, economic informalization, and socio-political instability.

Against this backdrop, the present literature review synthesizes research across regional, national, and global contexts to elucidate the complex interactions shaping youth unemployment. The chapter adopts a multilayered analytical approach, examining determinants of youth unemployment at the micro-level (for instance, individual characteristics, skills, and education), meso-level (labor market structures, institutional frameworks, and sectoral dynamics present in the economy), and macro-level (such as economic growth, technological change, demographic pressures, and globalization). As a result, it integrates insights from a myriad diverse disciplinary perspectives, including labor economics, development studies, education policy, sociology, and demographic analysis, to provide a comprehensive and theoretically grounded understanding of youth unemployment.

The review incorporates a comparative focus on developing economies, with particular attention to developing Asia, South Asia, and the ASEAN region. This contextualization is essential, as these regions exhibit unique combinations of structural transformation, demographic trends, institutional development, and global integration. By retaining the original structure and arguments while expanding theoretical detail, empirical nuance, and scholarly explanation, the chapter aims to deliver a robust foundation for understanding the determinants, consequences, and policy implications of youth unemployment. Furthermore, it emphasizes the necessity of holistic, context-sensitive policy responses that align with national development priorities and labor-market realities.

- *Skill Mismatch, Human Capital, and Employability*

One of the most extensively discussed themes in the youth unemployment literature is the persistent and pervasive problem of skill mismatch. Skill mismatch refers to the misalignment between the skills young people acquire through education and training and the competencies in demand by the market. This mismatch manifests in several forms, including overqualification, underqualification, horizontal mismatch (where qualifications do not match job requirements), and skills gaps (where specific competencies are lacking). Although skill mismatch affects both developed and developing economies, past literature consistently emphasizes its amplified severity in developing regions, where corresponding improvements in quality or labor-market relevance have not accompanied rapid educational expansion. This is because developing countries are more heterogeneous in their structures, including their job markets in both the South Asian and Southeast Asian regions. Developing countries, especially those in Asia, focus on youth experiences in their desired fields of work, and, due to unequal opportunities, they face different constraints.

- *Efficient Allocation of Human Capital*

Human capital theory provides a foundational lens for examining the relationship between education and labor market outcomes. According to human capital theory, education enhances productivity by equipping individuals with knowledge and skills, thereby improving employability and wage prospects (Becker,1993). However, empirical studies reveal significant variation in the returns to education across countries, sectors, and socio-economic groups. These variations reflect differences in institutional quality, labor-market structure, sectoral composition, and levels of technological development. In developing Asia, the relationship between education and the labor market is heterogeneous, suggesting that it depends on the allocative efficiency of equity allocation to enhance labor employability.

Furthermore, in developing Asia, educational systems often remain heavily academic and examination-driven, privileging theoretical knowledge over applied learning, problem-solving, and technical competence. Dinika (2024) and Lam et al. (2009) argue that rising educational attainment does not automatically lead to better employment outcomes unless education systems are better aligned with evolving industry needs. In many ASEAN countries, such alignment remains incomplete. Hasan and Sasana (2020) show that high rates of graduate unemployment stem partly from students specializing in fields with limited labor-market demand,

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such as humanities, common business studies, or social sciences, while industries increasingly require technical, ICT-related, engineering, and vocational skills.

Malaysia illustrates this challenge clearly. QI (2024) finds that employers often identify gaps in communication, digital literacy, creativity, teamwork, and problem-solving as primary barriers to youth employability. These soft skills, alongside digital and technical competencies, are essential for navigating the modern labor market, but are still insufficiently emphasized in the curriculum design. Therefore, the vocational skills demanded tend to vary, comprising both soft and technical skills.

In South Asia, educational systems face even deeper structural constraints, including outdated curricula, teacher shortages, inadequate pedagogical training, and limited access to technical and vocational education. Sato (2024) highlights that the absence of high-quality technical education in countries such as Bangladesh, Nepal, and India restricts youth access to opportunities in the manufacturing, ICT, and service sectors, thereby compromising industries central to economic transformation in the region. Therefore, the risk of misutilization of specializations is boosted. For instance, Bangladesh, Nepal, and India all have their own flaws in their national curricula; for Bangladesh, it could be a lack of cohesion with the international curriculum taught skills and demanded by foreign firms, such as communication in English, standard international general and specialized knowledge, while in India, the flaws come from an excessive strict scoring based system with less room for self-improvement. While Bangladesh, Nepal, and India-based households face financial and accessibility barriers to international schools or curricula, the countries also lack sufficient investment in the quality of schools and in structuring a more integrated and cohesive skill-based system of education.

The literature also suggests that investment in human capital alone is insufficient. Rather, the alignment between education systems and industrial development trajectories is critical. When education systems fail to produce graduates with skills relevant to the labor market, youth unemployment rises even as educational attainment increases. This phenomenon, sometimes referred to as "educated unemployment," is particularly pronounced in developing Asia, where millions of university graduates remain unemployed or underemployed despite holding formal qualifications. With a volatile employment market on one side and an asymmetric education development system on the other side, the heterogeneity in the labor-market structures is magnified.

- *Skill Obsolescence and Structural Shifts*

The accelerating pace of technological change further complicates the skill-mismatch scenario. Automation, artificial intelligence, and digital innovation are reshaping labor markets worldwide, shifting labor demand towards high-skilled occupations and reducing demand for routine and low-skilled tasks. Bardak (2014) and Franz et al. (2012) observe that many developing economies, especially in ASEAN and South Asia, struggle to adapt to these shifts due to inadequate digital infrastructure, limited institutional support, and insufficient skill development systems.

Skill obsolescence is a key concern. Young people trained for traditional occupations may find their skills outdated even before entering the labor market. For example, the rapid diffusion of digital tools, online work platforms, and automation in manufacturing requires competencies that many young workers have not acquired. Adamu (2016) argues that youth from lower-income families are especially vulnerable to skill obsolescence because they lack access to high-quality training, digital tools, and learning resources.

Countries undergoing structural transformation face additional challenges. As economies shift from agriculture toward the manufacturing and service sectors, new skill requirements emerge. In South Asia, structural transformation has been slow, and agriculture retains a large workforce characterized by low productivity and limited labor mobility. Youth transitioning out of agriculture often lack the skills needed for modern manufacturing work or services, resulting in transitional unemployment, which then leads to sectoral and cyclical unemployment. ASEAN economies such as Indonesia, the Philippines, and Vietnam face similar adversities as they seek to move up global value chains without sufficient investment in vocational and technical training. In addition, in developing economies, vertical labor mobility is not merely sectoral; intragenerational mobility is also at play in affecting the youth unemployment rate. This is due to long-lasting generational norms that impact different classes of the population. The larger the need for necessities, the more supply is required, in certain sectors, such as agriculture for some, while manufacturing for others, as all of these countries are usually more affected by differences in class segregation and are sensitive to sectoral changes within their economies.

While thought on unemployment continues to last for ages, it can certainly be mapped out from first to neo – temporary that, both the voluntary and involuntary nature of youth unemployment are most susceptible to sectoral changes within an economy.

- *Digital Skills, Entrepreneurship, and Technological Flexibility as Emerging Imperatives*

In response to limited formal employment opportunities, entrepreneurship is often promoted as an alternative pathway for youth employment. Digital entrepreneurship, enabled by online platforms, mobile technologies, and social media, has expanded rapidly in developing regions. Dinika (2024) emphasizes that digital entrepreneurship lowers entry barriers and provides opportunities for youth to engage in e-commerce, freelancing, content creation, and other innovative activities.

However, entrepreneurship is not a universal solution. Effective entrepreneurship depends on supportive ecosystems, such as access to capital, training, mentorship, and reliable digital infrastructure. Many developing regions lack these prerequisites,

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particularly in rural areas. In South Asia and rural ASEAN, barriers such as inadequate internet connectivity, limited financial inclusion, poor digital literacy, and bureaucratic hurdles constrain the viability of entrepreneurship. Consequently, while entrepreneurship can complement job-creation efforts, it cannot substitute the need for broader structural reforms within the economy.

Across global and regional contexts, the literature identifies skill mismatch as a central driver of youth unemployment. Addressing this issue requires comprehensive reforms encompassing curriculum redesign, expanded vocational training, improved digital infrastructure, stronger university-to-industry linkages, and investment in innovation systems, particularly in developing Asia, comprising ASEAN and South Asia. It further coerces more economic merging between the two regions, as an enhanced trade bloc can create cooperative policies that potentially could fill up the gaps in the larger labor market comprising the countries of the two regions.

Keynesian theory suggests that entrepreneurship is systematic and depends on the macroeconomic environment, while Max Weber argued that it is within the process of capitalism and rational and disciplined interactionism (Weber, 1905, Chapters 2-4, pp. 60-63; Keynes, 1936, pp. 315-320).

- *Macroeconomic Factors, Dynamic Labor Market Variations, and Economic Cycles*

Macroeconomic dynamics, including economic cycles such as GDP growth, inflation rate, foreign investment shifts, and structural change, deeply influence youth unemployment. These factors shape labor demand, employer incentives, and job creation potential. Understanding the macroeconomic environment that affects employment overall is essential for analyzing youth unemployment trends across developed and developing contexts. Macroeconomic factors are present within and across countries. These factors are economic growth, the state of capital and current account balances in trade; general price increases in the market; whether the rate of inflation is persistent; the state of the country's resources; efficiency in use and the natural environment; and, finally, the budget balance. While cross-country factors play a role, within-country heterogeneity also plays a pivotal role. Many of the factors are correlated, leading to some degree of collinearity.

- *Hysteresis in Unemployment*

Foundational economic theorists such as Blanchard and Summers (1986) and Clark and Summers (1982) introduced the concept of hysteresis, the idea that temporary economic shocks can lead to long-lasting increases in unemployment. This theory is especially applicable to youth, who experience strong "scarring effects" from early-career unemployment. Long-term youth unemployment can reduce lifetime earnings, diminish future employability, and lower the psychological well-being of the workforce population. When developing countries and their youth are susceptible to economic cycles, youth unemployment lags because the unemployment phase may be longer, and at times it may even be willing due to a lack of motivation.

Papell et al. (2000) argue that persistent unemployment structures can become embedded in labor markets even after economic recovery. Developing regions, particularly South Asia and Sub-Saharan Africa, are especially vulnerable due to economic volatility, limited social protection, and weak labor-market institutions. Chen (2022), Shiferaw (2023), and Fung and Nga (2022) show that economic downturns in developing Asian economies disproportionately affect youth, especially in sectors like manufacturing and services. This is because developing countries have more intense competitiveness in manufacturing and service sectors as they are growing, and the employers often demand more specific skills in these sectors.

The effects of hysteresis are thus intensified by the structure of labor markets in developing economies, where temporary, informal, and unstable employment dominates. Youth often lose jobs first during downturns and re-enter last during recovery, reinforcing patterns of long-term unemployment.

- *Employment Elasticity in Relation to Economic Growth over Phases of Hysteresis*

The relationship between economic growth and employment creation is a central theme in labor economics. In theory, rising GDP should increase labor demand, leading to job creation and lower unemployment. However, the strength of this relationship, known as employment elasticity, varies significantly across countries depending on economic structure, sectoral composition, technological intensity, and labor market flexibility.

In many developing economies, economic growth does not translate proportionately into youth employment. Chen (2022) and Kalu et al. (2020) argue that growth concentrated in capital-intensive sectors, such as mining, finance, and high-technology services, generates limited employment opportunities for youth, who typically possess low-to-medium levels of skill. This phenomenon is particularly visible in developing Asia, where the fastest-growing sectors often require specialized skills or advanced digital competencies that many young workers lack.

In South Asia, growth is increasingly driven by high-tech service sectors such as IT-enabled services, finance, and telecommunications. While these industries generate substantial value, their employment elasticity is low, meaning they absorb relatively few workers despite high output. As a result, millions of youth in India, Pakistan, Sri Lanka, and Bangladesh are unable to enter stable employment despite rapid GDP growth.

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ASEAN countries exhibit more varied patterns. Some countries, such as Vietnam and Cambodia, have higher employment elasticity due to labor-intensive manufacturing and export-oriented industries. These industries, textiles, electronics assembly, and food processing, have historically absorbed large numbers of young workers. However, even these sectors face pressures from automation, global competition, and supply chain restructuring, which threaten future job creation.

Msigwa and Kipesha (2013) argue that structural transformation can increase employment elasticity over time, but only when economies invest in labor-intensive, value-adding sectors. Without such investment, growth becomes jobless, contributing to unemployment and underemployment among youth.

Thus, developing South Asian and Southeast Asian countries rely on intensive labor in their most value-added sectors, and most laborers have job stability, although at times at lower wages.

- *Wage Rate, Inflation, Employment Stability*

Inflation plays a complex role in shaping youth employment. On one hand, moderate inflation can stimulate economic activity; on the other, persistent inflation erodes real wages, raises production costs, and discourages hiring. Shiferaw (2023) highlights that inflationary pressures have dual impacts: on the one hand, they reduce employers' capacity to expand their workforce, while simultaneously undermining households' purchasing power, decreasing youth's ability to finance job searches, additional training, or labor mobility.

In developing regions, inflation is often volatile due to global commodity price shocks, currency fluctuations, political instability, or structural bottlenecks in supply. South Asia and ASEAN countries frequently experience food and fuel price inflation, which disproportionately affects low-income households. As a result, youth from such households face greater difficulty participating in education and training opportunities or relocating for work.

Sato (2024) argues that inflation can worsen youth unemployment by reducing real wages and encouraging firms to substitute labor with capital. In contexts where labor is relatively costly due to inflationary wage adjustments, firms may adopt labor-saving technologies. This is particularly problematic in developing Asia, where many SMEs where youth are most likely to work struggle to maintain profit margins in inflationary periods.

Additionally, youth employees, who are often placed in temporary, contract-based, or informal jobs, are typically the first to lose employment during inflation-driven contractions.

In developing countries, lower-income households are likely to be in excess supply whenever inflation rises, increasing youth unemployment, while middle to higher income households are likely to be impacted by sectoral within-country shifts. Thus, it shows that the within-country class stratification determines the supply of unemployed youth.

- *Sectoral Shifts and Labor Demand*

Structural changes such as transitions from agriculture to industry and then to services play a significant role in shaping labor demand. As countries develop, labor demand typically shifts from low-skilled agricultural work toward more complex industrial and service-sector employment. However, youth often face barriers in making this transition.

Studies from Tanzania, Nigeria, and ASEAN (Msigwa & Kipesha, 2013; Ayinla & Ogunmeru, 2018; Hasan & Sasana, 2020) indicate that structural transformation can create “mismatch unemployment,” where young people are unable to access new jobs due to inadequate skills or educational background. In South Asia, slow structural transformation means that agriculture continues to absorb large numbers of youth, often in low-productivity roles with limited upward labor mobility.

ASEAN countries such as Indonesia, Laos, and Myanmar face similar challenges. Even as manufacturing expands, youth with limited education or vocational training struggle to transition into these roles. The result is a paradox where job vacancies increase alongside youth unemployment, driven by skill misalignment.

Macroeconomic indicators, including GDP growth, inflation, and structural change, have profound implications for youth unemployment. Without stable macroeconomic conditions and labor-intensive growth, youth employment remains constrained. The literature suggests that macroeconomic strategies must be integrated with labor and education policies to improve employment outcomes, especially in developing regions.

The literature is also consistent for a century as the first proposed remedy for Youth Unemployment was also thought in accordance of adjusting the labor between sectors, however, the economic burden lies in the welfare losses that will occur as a consequence of not regulating the external costs to society, moreover the intergenerational structure of how youth unemployment persists, remains the stronger determinant of how the causal impact occurs.

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➢ *Demographic Pressures and Structures of the Labor Market*

Demographic dynamics and institutional characteristics significantly shape youth labor market outcomes. Developing regions, particularly South Asia and Africa, are experiencing unprecedented "youth bulges," creating considerable pressure on labor markets to absorb millions of new entrants each year. Combined with weak labor market institutions, these demographic pressures contribute to high youth unemployment rates, in contrast to prior theoretical frameworks, which treated youth as only one component of unemployment; now, youth impacts the economy at an increasing rate.

- *Youth Bulges in Developing Economies*

Youth bulges occur when a country has a disproportionately large cohort of people aged 15–29. While this demographic pattern can fuel economic growth by providing a large labor force, it also increases the risk of unemployment if job creation does not keep pace.

Ali (2021) and Maguire et al. (2013) highlight that youth bulges can lead to structural unemployment, especially in developing economies where job-creation capacity is limited. When millions of young people enter the labor market simultaneously, competition intensifies, wages stagnate, and unemployment rises. Without sufficient opportunities, youth may experience long-term joblessness, leading to social unrest, migration pressures, and increased participation in the informal sector.

South Asia exemplifies these trends. India alone adds more than ten million new entrants to the labor market annually, while Pakistan, Bangladesh, and Nepal exhibit similar demographic pressures. Many of these youth have completed secondary or tertiary education, yet the labor market cannot accommodate them due to slow formal-sector expansion and limited industrial diversification.

ASEAN countries, including Indonesia, the Philippines, and Vietnam, are also experiencing demographic transitions, though at different stages. While these countries benefit from relatively younger populations compared to their rapidly aging East Asian counterparts, they also face the challenge of creating sufficient high-quality jobs to prevent youth unemployment from becoming structurally entrenched.

The developing and smaller economies in South Asia tend to be more rigid in their structural adaptability to youth unemployment. Countries like Sri Lanka, despite having a highly educated labor force and lower inequality, face job insecurity due to barriers to labor mobility during sectoral shifts.

- *Institutional Rigidities and Entry Barriers*

Institutional characteristics, including labor regulations, wage-setting mechanisms, and systems of employer incentives, significantly influence youth employment prospects. Blanchflower and Oswald (1999), O'Higgins (2001), and Šileika et al. (2004) argue that institutional rigidities such as high minimum wages, stringent hiring rules, or lengthy employment protection procedures can increase hiring costs and reduce entry-level openings for youth.

In developing economies, labor market institutions are often underdeveloped or poorly enforced. South Asia's labor market is dominated by informal employment, where regulations exist on paper but are rarely applied. Formal jobs, those with contracts, social security, and legal protection, are limited, and youth face substantial barriers in accessing them.

ASEAN countries demonstrate a range of mixed institutional characteristics. While Singapore and Malaysia have relatively strong institutional structural frameworks and coordinated labor market systems, others, such as Cambodia, Laos, and Myanmar, exhibit fragmented institutions, limited job-matching services, and minimal employer engagement with training programs due to the more challenging structure of their respective economies. Apprenticeships remain underdeveloped in many ASEAN states, and young people often lack practical experience when they graduate.

- *Segmented Labor Markets*

Labor market segmentation is a defining feature of many developing economies. Segmentation refers to the division of labor markets into a small formal sector and a much larger informal sector. Youth often enter the informal sector due to limited access to formal jobs, insufficient qualifications, or restrictive hiring practices.

Adamu (2016) and Fapohunda (2013) highlight that informal employment provides livelihoods but rarely offers stability, social protection, career progression, or adequate income. Youth working informally face high risks of underemployment, exploitation, and economic vulnerability.

In South Asia, informal employment dominates youth employment patterns, with most young workers engaged in low-skilled roles such as agriculture, street vending, construction, and small-scale services. In ASEAN countries such as Cambodia and Myanmar, informal employment accounts for the majority of youth jobs, reflecting weak institutional development and limited private sector growth.

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Demographic pressures, institutional rigidities, and labor market segmentation profoundly shape youth unemployment dynamics. Addressing these challenges requires strengthened labor-market institutions, expanded formal sector capacity, improved job-matching systems, and strategies to absorb large youth populations. The adaptability of the market depends on the availability of resources, geographical inequality, and transactional costs, including transport expenses needed for job search.

As theorized by Wallace (1908), segmenting labor markets into luxury- and necessity-based markets might allow for full employment, yet intersectoral costs might play a role in utility.

➢ *Infrastructure and Transactional Costs*

Spatial inequalities and infrastructure deficits are among the most significant yet under-examined determinants of youth unemployment. These factors shape labor mobility, access to information, job-search behavior, and regional labor-market opportunities.

- *Transport Barriers and Geographic Disparities*

Franklin (2014; 2018) demonstrates that transportation costs significantly reduce youth job search activity, particularly in developing economies. When commuting costs are high or transport systems are unreliable, youth are discouraged from exploring job opportunities in urban centers where most formal jobs are located.

In South Asia, rural youth face severe mobility constraints. Poor road infrastructure, long distances to urban centers, and high travel costs limit their job search options. Youth living in India's poorer states, Pakistan's rural districts, or Bangladesh's peripheral regions often cannot afford to relocate or commute for employment.

Similar patterns exist in ASEAN countries. In Indonesia, for instance, youth in outer islands face structural disadvantages compared to those in Java or Sumatra. In Vietnam and Myanmar, limited rural connectivity prevents young people from accessing industrial and service-sector jobs concentrated in major cities.

- *Infrastructure and Employment Ecosystems*

Infrastructure: Transportation, electricity, telecommunications, and digital networks are critical for economic development. Okeke and Okoye (2024) argue that inadequate infrastructure constrains enterprise growth, limits private sector activity, and reduces employment opportunities for youth.

In developing Asia, regional disparities in infrastructure quality create uneven labor markets. Urban centers such as Jakarta, Manila, Bangalore, and Ho Chi Minh City attract investment and generate employment, while rural and remote regions remain underserved. These divides reinforce spatial unemployment patterns and inhibit labor mobility.

- *Rural–Urban Stratification and Asymmetric Information*

Rural youth face greater barriers to stable employment due to limited access to information, skills training, and formal job opportunities. Mohammed Shuker and Hashim Sadik (2024) note that rural youth frequently migrate to cities actively and willingly seeking employment, yet many end up in informal work or underemployment.

In South Asia and ASEAN, rural–urban migration is a common coping mechanism. However, without sufficient skills, networks, or housing, migrants often struggle to succeed, resulting in persistent geographical inequalities.

Spatial inequalities include transport barriers, uneven infrastructure development, and limited regional opportunities and are key determinants of youth unemployment. Addressing these issues requires comprehensive investments in connectivity, mobility, and regional development.

Many of these developments take time, and one way to ease the adversities of geographical inequality is by developing skills and strengthening education in an equitable manner across regions.

Transactional costs, such as spatial ones, might add up to welfare losses when youth unemployment is considered in developing countries. These costs create an unequal basis for formulating the core remedy for youth unemployment and add texture to ancient literature about how social costs can alter value added in the economy.

➢ *Educational Systems and Skill Formation*

Education and skill formation represent some of the most critical determinants of youth employment outcomes. A substantial body of research underscores the role of education in shaping employability, productivity, and adaptability to labor market demands. However, in many developing economies, including those in South Asia and ASEAN, the education-to-employment nexus is characterized by systemic gaps, misalignments, unequal access, and limited responsiveness to evolving economic structures.

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- *The Role of Education in Labor Market Outcomes*

Education enhances youth employability by providing foundational competencies such as literacy, numeracy, problem-solving abilities, and communication skills. It also develops human capital, enabling youth to access higher-productivity jobs, adapt to technological changes, and pursue opportunities in growing industries.

Maguire et al. (2013) affirm that higher levels of education generally reduce the likelihood of youth unemployment. Okolie et al. (2019) further argue that a well-functioning education system equips young people with market-relevant skills, creating a smoother transition from school to work.

However, the benefits of education depend significantly on its quality, relevance, and alignment with labor market needs. As in many developing regions, education systems emphasize rote learning, exam-based assessment, and theoretical knowledge with limited practical application. This contributes to an imbalance between skills supplied by graduates and skills demanded by employers. Education varies drastically across curricula: some enhance labor productivity in specialized fields, while others focus on systems that develop diverse job skills.

- *Skill Mismatches and Labor Market Frictions*

Skill mismatch, whether vertical (overeducation or undereducation) or horizontal (mismatch between field of study and job requirements), is a prevalent issue in developing economies.

Budría and Moro-Egido (2018) note that vertical mismatch often arises when young people obtain degrees that exceed the skill requirements of available jobs, leading to underemployment, low job satisfaction, and reduced productivity. Conversely, horizontal mismatch occurs when youth obtain qualifications in fields with limited labor demand or declining sectors.

In South Asia, millions of youth graduate with degrees in social sciences, humanities, commerce, or general studies that do not correspond with the needs of industries such as engineering, ICT, manufacturing, or high-growth service sectors. The disconnect between educational offerings and economic priorities leads to chronic underemployment, skill waste, and inefficient use of human capital.

ASEAN countries face similar challenges, though the severity varies. Malaysia and Singapore have made progress in integrating industry-driven training and competency-based education, and can focus more on addressing mismatches and progress towards efficiency in alignment. However, countries such as Laos, Myanmar, and Cambodia still operate education systems that have limited engagement with private-sector needs, resulting in persistent skill mismatches that clearly reflect disparities across economies of different sizes and structures.

- *Vocational Training and the Limitations of Skill Development Initiatives*

Vocational education and training are widely promoted as a strategy to bridge the gap between schooling and employment. Such effective systems integrate practical training, work-based learning, employer partnerships, and competency-based assessment used throughout developed countries. Many of these programs in developing Asia suffer from fragmentation, insufficient resources, outdated curricula, and weak linkages to labor markets.

Jugran et al. (2020) argue that poorly designed vocational programs can create false expectations among youth, leading to frustration when training does not translate into employment. Furthermore, vocational education often carries social stigma, with many families perceiving it as inferior to academic pathways.

In South Asia, large-scale national skill initiatives, such as India's Skill India Mission, have sought to expand vocational training capacity. Despite some progress, concerns remain regarding training quality, certification, and weak employer engagement. Many vocational graduates struggle to find jobs due to a lack of alignment with the industry.

ASEAN's experience is equally diverse. Thailand has invested in improving technical and vocational education, whereas Myanmar and Cambodia continue to face challenges in developing coherent, industry-relevant vocational systems. The comparatively, well and structured economies of the ASEAN, especially Thailand and Malaysia faces youth unemployment as a result of having existing specialized markets, which create segmentation In addition to that, asymmetry in information is moreover a key driver of the mismatch between the employer firms and the workforce supply and the less developed a country is such as some in ASEAN and the whole of South Asia (where the market outcomes are not sustained), the more the risk of market failure due to asymmetry.

- *Job-Matching Inefficiencies*

One of the major obstacles in youth labor market transitions is the lack of accurate, timely, and accessible labor market information. Youth often lack knowledge about job opportunities, skill requirements, wage expectations, and industry trends. Employers, meanwhile, lack information about job seekers' competencies.

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Franklin (2014; 2017) highlights that improving information flow can significantly increase youth job search activity and employment outcomes. However, in many developing economies, labor market information systems are fragmented, outdated, or non-functional.

Digital skills platforms, mobile job-matching applications, and public employment services remain underutilized in South Asia and ASEAN, limiting the potential for efficient job matching. Rural youth, in particular, face acute information deficits due to limited connectivity, lack of digital literacy, and weak institutional support.

- *Transitional Pathways: From Education to Work*

The transition from education to employment involves intricate interactions among schooling, job search behavior, employer expectations, and labor market institutions. Seamless transitions require coordinated action across the education system, labor market, and public policy.

However, in developing economies, the transition is often slow, fragmented, and full of uncertainty as youth experience prolonged job search periods, and initial employment is more often than not informal or low-paid, with limited career development pathways.

Shin et al. (2019) note that effective school-to-work transition systems require strong public–private partnerships, labor market information systems, work-based learning opportunities, and targeted interventions for at-risk youth.

Without these institutional supports, youth in developing Asia encounter significant barriers to entering productive employment, contributing to both high unemployment and underemployment rates.

Education, skills, and labor market transitions are pivotal in shaping youth employment outcomes. Key challenges include skill mismatch, weak vocational training systems, limited employer engagement, and insufficient and asymmetric labor market information. Addressing these challenges requires comprehensive reforms in educational design, expository approaches, and labor-market alignment.

The design of the alignment will likely be at a time of digital modernization across the world's economies; thus, there is not only one intelligent driver of unemployment and the economy, but also more simulated drivers within. According to Keynes (1936, pp.315-320, 378-381), technology might have an inverse relation to labor; however, it can enhance productivity. Aristotle (1998, Politics, 1.9; Nicomachean Ethics, 1.7) presented that there ought to be a moral need associated with the technology.

➢ *Technology, Automation, and the Digitalization of Work*

Technological transformation is reshaping global labor markets at an unprecedented pace. While digitalization offers new opportunities for innovation, productivity growth, and employment creation, it also threatens traditional jobs, particularly those that require routine, manual, or cognitive tasks. Youth who often lack experience, specialized skills, or access to digital technology are particularly vulnerable to the risks associated with the technological forthcoming.

- *Automation and Threats to Low-Skill Employment*

In developing economies, youth disproportionately occupy low-skilled roles in retail, manufacturing, hospitality, and administrative services. These sectors are highly susceptible to automation, which reduces labor demand.

Yacoub (2018) argues that technological change has already begun replacing many low-value tasks with machines and digital systems.

✓ *For Example:*

- Automated checkouts reduce cashier demand
- Industrial robots displace assembly line workers
- Digital platforms replace clerical and administrative roles
- AI reduces entry-level service jobs

The extent of automation's impact depends on the nature of the economy. In South Asia, as manufacturing becomes more capital-intensive and service sectors increasingly digitalized, the threat to low-skilled youth workers is substantial. In ASEAN countries, the penetration of automation varies, but export-oriented manufacturing hubs such as Vietnam, Malaysia, and Thailand face growing pressure from the adoption of robotics by multinational corporations.

- *Digital Skills and the Emerging Digital Divide*

Digital literacy is essential for youth employability in modern labor markets. Yet significant digital divides persist across developing regions.

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Frey and Osborne (2017) underscore that workers lacking digital competencies are at high risk of displacement.

✓ *Younger workers in developing Asia often face:*

- inconsistent access to technology
- low-quality ICT education
- limited availability of digital devices
- high internet connectivity costs
- weak digital infrastructure in schools, especially in disadvantaged areas, often rural

The digital divide is not solely technological but also socio-economic. Youth from low-income households, rural areas, and caste-based marginalized communities face additional barriers to acquiring digital skills. This exacerbates inequalities in employment outcomes, creating a cycle of lack of access that limits opportunities.

- *Labor Market Informalization (Gig Economy)*

The rise of digital platforms has transformed employment in many developing economies. Gig work, such as freelancing, ride-hailing, delivery services, and online microwork, offers flexible opportunities for youth but often lacks job security, stability, or social protection.

While some youth leverage informal platforms to supplement incomes or gain work experience, many find themselves trapped in volatile employment. Gig work does not always translate into long-term career development, and competition on global digital platforms can suppress earnings for youth in developing economies.

Short-term contracts, the absence of benefits, algorithmic management, and a lack of bargaining power and need for additional vocational skills heighten vulnerabilities for young workers entering the gig economy.

- *Opportunities from Digital Transformation*

Despite risks, digitalization also offers new avenues for youth employment, particularly in developing Asia. Growth in information technology services, e-commerce, digital finance, and online education tools and media has created demand for digitally skilled workers.

Countries such as India and Malaysia have become major hubs for IT-enabled services, business process outsourcing, and software development. These industries offer high-value employment for youth with appropriate qualifications.

Digital entrepreneurship, including content creation, online retail, and digital consulting, also provides new possibilities for income generation. With adequate policy support, digital transformation can play a significant role in reducing youth unemployment.

Technology and automation are reshaping youth employment dynamics, creating both opportunities and challenges. Youth in developing economies and those with added layers, such as India and Malaysia, are particularly vulnerable to displacement due to limited digital skills, but also stand to benefit from emerging digital sectors if provided with adequate training and infrastructure. Bangladesh and Thailand face multidimensional challenges in managing labor mobility amid pressures from both vertical and horizontal sectors of the economy. At a time of technological and cyclical shifts, workers need strong unions to ensure work protection. A strengthened constitutional structure reduces asymmetry among stakeholders in the economy, including the government, employers, workers, and households.

➢ *Labor Market Institutions and Social Protection*

Labor market institutions, including regulations, collective bargaining systems, employer incentives, and social protection frameworks, shape youth employment patterns by influencing hiring costs, job security, wage levels, and worker safety.

- *Labor Regulations and Youth Hiring*

Labor regulations play a crucial role in determining hiring behavior. While strong protections such as minimum wage laws, employment security, and benefits support worker welfare, they may also create rigidities that discourage firms from hiring inexperienced workers.

Blanchflower and Oswald (1999) and O'Higgins (2001) argue that stringent employment protection can increase hiring costs and reduce opportunities for youth, who employers often view as risky or less productive.

In South Asia's largely informal labor markets, regulations exist but are poorly enforced. Formal employment governed by protective legislation covers only a small cohort of the youth population, limiting the reach of institutional protections. In ASEAN, the landscape varies: Singapore and Malaysia maintain structured systems, while smaller economies such as Myanmar, Cambodia, Laos, etc. have fragmented regulatory environments.

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- *Social Protection and Vulnerability Among the Youth Population*

Social protection systems, including unemployment benefits, income support, training subsidies, and job placement services, are essential for reducing vulnerability among unemployed youth. However, many developing economies lack robust social protection frameworks.

Fapohunda (2013) emphasizes that youth in the informal sector, contract workers, and informally recognized workers typically lack access to benefits such as health insurance and unemployment assistance. Without such support, youth experiencing unemployment face increased risks of debt and long-term exclusion from the labor market. This can lead to a population of workers facing poverty in developing countries.

Moreover, in developing Asia, social protection coverage is low, especially among rural youth and workers in informal employment. Expanding social protection requires fiscal capacity, administrative capability, and political commitment, challenges that many South Asian and ASEAN governments continue to grapple with to various extents.

- *The Importance of Active Labor Market Policies*

Active labor market policies such as job search assistance, training programs, apprenticeships, and wage subsidies play an important role in facilitating employability for youth unemployment. Effective programs improve job-matching efficiency, enhance skills, and incentivize employers to hire young workers.

Ayres (2020) notes that the effectiveness of the active labor market-based program depends on targeting, its quality, and strong coordination with employers. In developing economies, many of these program initiatives lack adequate resources and monitoring mechanisms integrated into the labor market institutions.

In South Asia and ASEAN, these initiatives remain underdeveloped. Job centers, public employment services, and apprenticeship systems are either underfunded or limited in coverage. Strengthening the active labor market schemes is essential for improving youth employment outcomes and addressing structural barriers.

Labor market institutions profoundly affect youth unemployment. Weak social protection, regulatory rigidities, and limited labor market programs contribute to persistent vulnerabilities among youth in developing regions. Strengthening institutions is vital for creating inclusive labor markets and improving youth employment prospects.

- *Demographic Dynamics and Youth Labor Supply*

Demographic change plays an essential role in shaping youth unemployment trends, especially in developing regions such as South Asia and developing ASEAN economies. These regions are experiencing rapid population growth and expanding youth cohorts, creating unprecedented pressures on labor markets. Understanding demographic factors is crucial for designing policies capable of enabling new labor market entrants.

- *Large Youth Population Against Labor Market Dynamics*

As termed in the literature, “youth bulge” refers to a disproportionately large cohort of young people relative to the adult population. Ali (2021) notes that these large youth cohorts are most pronounced in African and Asian economies, where fertility rates remain high, and mortality rates have declined. Such demographic pressures increase competition for scarce job opportunities, driving up unemployment.

South Asia provides a compelling example: India, Pakistan, Bangladesh, and Nepal collectively add millions of new labor market entrants annually. Even when economic growth is robust, job creation often fails to keep pace with population expansion. The same structural challenge affects developing ASEAN countries such as Cambodia, Laos, and the Philippines, where youth represent between 30% - 40% of the working-age population.

The literature emphasizes that large youth cohorts in the population present both risks and opportunities. If harnessed effectively through education, skills development, and productivity, young workers can help speed up economic growth. However, if employment opportunities remain limited, youth bulges may lead to social instability, increased informal employment, and, as a result, prolonged unemployment.

- *Economic Burdens Due to High Dependency Costs*

Dependency ratio measures the number of dependents (children and the elderly) relative to the working-age population. High youth dependency ratios, as observed in many developing economies, place significant pressure on governments to provide education, healthcare, housing, and social services, and increase welfare costs, which are economic burdens.

✓ *A Prolonged Mismatch Between Dependency Burdens and Labor Market Absorptive Capacity can:*

- Enable constraints on public finances

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- Limit the investment opportunities in youth training programs
- reduce the household's ability to invest in children's education
- Weaken human capital formation
- Exacerbate intergenerational inequality

In South Asia and in developing ASEAN, high youth dependency ratios often coincide with limited fiscal capacity, which magnifies the challenge of generating sufficient employment opportunities for young people.

- *Rural to Urban Migration Resulting in Labor Market Congestion*

Migration is generally a core component of demographic dynamics. Young people frequently migrate from rural to urban areas for better education, improved infrastructure, and higher economic opportunities.

✓ *However, Rapid Migration Often Results in:*

- Excess supply of labor in urban areas
- Growth of informal settlements among the population
- Expansion of employment in the informal sectors of the economy
- Spatial mismatches between skills in the labor supply and skills demanded by job availability

Melo and Ceballos (2021) argue that migration can improve youth employment prospects when accompanied by adequate urban planning and labor market policies. Still, in many developing regions, urban labor markets are saturated, leading to increased intersection among youth, underemployment, and income volatility.

South Asia's mega developing cities, Delhi, Dhaka, Karachi, and Kathmandu, illustrate this pattern. At the same time, mega-developing ASEAN cities such as Jakarta, Manila, and Hanoi exhibit similar dynamics, though with varying degrees of institutional support.

- *Gender Demographics and Employment Gaps*

Gendered demographic patterns also shape youth employment. Young women in developing regions often face additional constraints due to social norms, limited mobility, safety concerns, and household responsibilities.

✓ *Studies by ILO (2018) and Boudarbat (2012) Emphasize that:*

- Female youth unemployment rates tend to exceed male rates
- Labor force participation among young women is chronically low
- Unpaid household work and responsibilities with child care limit employment opportunities
- Cultural norms discourage certain job types and restrict labor mobility

In South Asia, female labor force participation remains among the lowest in the world. Developing ASEAN exhibits a better trend, but still has gender gaps, especially in rural and low-income communities.

Demographic pressures significantly influence youth unemployment in developing regions. Peaks in demand for more preferred jobs by the young population, high dependency ratios, rural–urban migration, and gender disparities intersect to create complex labor-market adversities requiring multidimensional policy responses.

- *Labor Mobility, Migration, and Global Market Dynamics*

Migration, both regional and international, serves as a coping mechanism for either unemployed or underemployed youth seeking enhanced economic opportunities. Yet, the migration-youth unemployment nexus is complex, shaped by global labor market trends, domestic economic structures, and mobility barriers.

- *International Migration as an Employment Strategy*

For many developing economies, international migration reduces domestic labor market pressures. Youth migrate to destinations in the Middle East, East Asia, Europe, and North America to work in construction, domestic services, hospitality, manufacturing, and IT-enabled services.

✓ *Remittances from These Migrants Provide Essential Income for Households and Contribute to National Economies. For Instance:*

- In Nepal, remittances account for over 25% of GDP
- In the Philippines, overseas Filipino workers contribute billions annually.
- Bangladesh and Sri Lanka rely heavily on Gulf region migrant employment.

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However, migration also produces challenges such as brain drain, skilled labor shortages, and dependency on foreign labor markets that may be volatile or discriminatory.

- *Barriers to Migration*

✓ *Despite Potential Benefits, Migration is not Universally Accessible. Youth Face Numerous Barriers, Including:*

- High recruitment fees
- Restrictive visa policies
- Asymmetric information within foreign and domestic labor markets
- Financial constraints
- Language barriers and lack of digital skills

Poor rural youth in South Asia and developing ASEAN countries are particularly excluded from international migration opportunities, despite often possessing strong economic incentives to migrate.

- *Challenges of Re-integrating Labor*

One of the understudied phenomena of Youth unemployment is the reintegration of labor through return migration. Returned migrants frequently struggle with reintegration due to:

✓ First, a mismatch between foreign-acquired skills and skills demanded by the domestic market
✓ Second, the inability to transfer savings into productive investments
✓ Third, limited domestic employment opportunities
✓ Fourth , psychological distress from failures associated with migration

Government reintegration programs in South Asia and ASEAN remain limited in scope, often failing to match the scale of youth returnees seeking employment.

- *Internal Migration and Regional Inequalities*

Internal migration, particularly rural-to-urban migration, shapes labor-market dynamics within developing economies. While urban centers may offer better employment opportunities, labor absorption capacity is often limited.

Franklin (2018) documents how transportation barriers and migration costs constrain mobility, thereby limiting job search activities and contributing to unemployment. In South Asia and developing ASEAN, high internal migration continues to challenge policymakers tasked with improving urban employment and managing rural labor surpluses.

Migration plays a multifaceted role in shaping youth employment outcomes. While international and internal mobility can alleviate unemployment pressures, structural barriers, and labor market saturation limit the benefits for many youth.

Moreover, there exists a fundamental within-country distinction regarding regional inequality.

According to Keynesian theory, migration does not necessarily solve unemployment, and thus neither youth unemployment without meeting the national needs, such as creating surplus in the domestic market through strengthening the labor market and reducing domestic inequality (Keynes, 1936, pp.315 -320; 378-381)

➢ *Linkage between Infrastructure, Labor Market Access, and Spatial Inequality*

Geographical inequality remains one of the most persistent determinants of youth unemployment in developing economies. Infrastructure gaps and regional disparities play a significant role in shaping labor market participation and access to opportunities.

- *Spatial Mismatch*

Spatial mismatch theory posits that geographic distance between job seekers and employment opportunities reduces employability, particularly when transportation systems are inadequate. Franklin's (2014; 2018) research in Ethiopia provides empirical evidence that transportation subsidies significantly increase job search intensity and employment outcomes for youth.

✓ *In Developing Asia, Spatial Mismatches are Exacerbated by:*

- Firstly there are congested urban regions, producing externalities
- Secondly, there are poorly connected rural areas, reducing accessibility
- Thirdly, the inefficient and insufficient quality of public transport
- Fourth, limitations in digital infrastructure

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These constraints reinforce inequality, as youth in distant or underprivileged areas have restricted access to labor market information, vocational institutions, and employment networks, resulting in long-term inequity.

- *Infrastructural Inconsistency in Developing Economies*

Infrastructure plays a critical role in the functioning of the labor market. Okeke and Okoye (2024) demonstrate that inconsistent infrastructure, especially the lack of equal access to electricity, transport, and telecommunications, limits enterprise development and job creation.

✓ *In South Asia:*

- Frequent power outages impede firm operations
- Public transportation is frequently inefficient, costly, and regional
- Rural areas lack reliable internet and digital connectivity

The ASEAN countries vary significantly in infrastructure development. Singapore and Malaysia rank among the most advanced countries globally, while Cambodia, Laos, and Myanmar suffer from significant infrastructure deficits that hinder economic diversification and youth employment.

- *Urban and Rural Disparities*

✓ *Rural Youth Often Face Structural Disadvantages Related to:*

- Limited access to formal employment
- Poor quality of education
- Restricted vocational training systems
- Fewer job networking
- High transactional costs, such as transportation
- Lack of connectivity with urban areas

Mohammed Shuker and Hashim Sadik (2024) highlight how rural–urban disparities constrain youth employment both directly by limiting access to jobs and indirectly by shaping human capital development.

These disparities often push youth toward informal employment or encourage migration to urban areas, where they may encounter new forms of underemployment.

- *Technological Infrastructure and Digital Inclusion*

Digital infrastructure is increasingly vital for youth employment. Countries lacking high-speed internet, affordable devices, and digital training systems face significant barriers to labor-market modernization.

✓ *In Developing ASEAN, Internet Penetration Varies Widely:*

- First, Singapore, Malaysia, and Thailand maintain high digital readiness
- Secondly, Other, comparatively smaller economies in ASEAN lag behind

Third, Rural regions across all developing countries in Asia remain underserved with unequal access to the most efficient ways of connectivity, especially in South Asia Moreover, digital exclusion limits youth exposure to online work, digital entrepreneurship, and modern employment platforms.

- *Spatial Inequality Linked to Unequal Infrastructure*

Geography and infrastructure substantially influence youth unemployment. Addressing geographic barriers through improved transportation, digital connectivity, and regional investment is essential for creating more inclusive labor markets.

➢ *Social, Psychological, and Health Implications of Youth Unemployment*

Youth unemployment has profound social, psychological, and health consequences that extend beyond economic deprivation. Joblessness affects identity, mental health, well-being, social relationships, and long-term life trajectories.

- *Mental Health Effects of Unemployment*

Prolonged unemployment is associated with higher rates of the following:

✓ Anxiety
✓ Depression

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- ✓ Stress
- ✓ Reduced self-esteem
- ✓ Social withdrawal

Morrell et al. (1998) and Kieselbach (2003) show strong correlations between unemployment and adverse psychological outcomes. Among youth, these effects are particularly severe because the transition to adulthood involves forming an identity, developing independence, and establishing one's self-worth.

In previous philosophical use, the workers' idleness could lead to a lack of motivation, termed as psychologically stagnated, indirectly harming their long-term health (Aristotle, translated, 1998, VIII.1; Aristotle, translated,2000,1.7)

Youth unemployment undermines this transition by generating uncertainty, discouragement, and loss of confidence. As a result, this can reduce labor productivity.

- *Social Exclusion*

Huegaerts et al. (2018) introduce the concept of embodiment, arguing that unemployment not only affects mental health but also shapes physical experiences, social relations, and the perception of belonging.

✓ *Young People who Remain Unemployed for Long Periods May Experience:*

- Reduced participation in community and social activities
- Feelings of shame and social stigma
- Deterioration in physical health due to stress
- Loss of social networks
- Unwillingness or fatigue to work

Such effects contribute to long-term social exclusion and reinforce intergenerational disadvantages. These effects are further magnified by class-based stratification, as discussed earlier, which results in low vertical intra-generational mobility.

- *Family Background, Income, and Intergenerational Inequality.*

✓ *Youth from Low-Income Households Face Additional Constraints Due to Limited Financial Resources, Which Restrict Access to:*

- Firstly, there is transportation
- Secondly , training programs
- Third, job networks
- Fourth digital devices
- Fifth, higher education
- Then, better health insurance
- Seventh, better insurance related to work safety
- And lastly, better utility for alternative goods, including leisure

Schioppa and Lupi (2002) emphasize the role of family wealth in shaping job search intensity and opportunities. Frasquilho et al. (2016) show that parental unemployment influences children's well-being, educational outcomes, and overall resilience.

These intergenerational dynamics suggest that youth unemployment is deeply embedded within family structures and socioeconomic inequalities, particularly in developing regions.

- *Long-Term Consequences in Relation to Health*

Scarring effects refer to the long-term negative impacts of early unemployment on future labor market outcomes.

✓ *Youth Experiencing Unemployment Early in their Careers Often Face:*

- Lower Lifetime Earnings
- Slower Career Advancement
- Reduced Job Stability
- Weaker Employment Networks
- Persistent Employment Gaps
- Lower Communicative Skills

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Blanchard and Summers' (1986) concept of hysteresis applies strongly to youth, as early-career unemployment can lock individuals into cycles of precarious employment.

Youth unemployment creates profound social and psychological consequences, shaping long-term well-being, identity, and labor-market trajectories. Socioeconomic inequalities, limited support systems, and fragile labor-market institutions worsen these effects.

External costs to society, if not internalized, might cause major welfare losses to the economy, which will ultimately result in market failure.

Keynesian economics shows that coerced positions in work or in the progression to work have long-term effects on labor productivity (Keynes, 1936).

➢ *Government Interventions and Labor Market Strategies*

Given the multifaceted nature of youth unemployment, policy responses must be equally multidimensional. The literature identifies numerous strategies ranging from education reform to macroeconomic stabilization that can improve youth employment outcomes.

From philosophical approaches to neo-temporary means, the government has always played a mediating role in achieving macroeconomic objectives. Whenever there is a change in the economic cycle, government intervention is required to change the trajectory or halt it, depending on the nation's situation.

While in Aristotle's published work (1998, III.9; VIII.1) the role of government is hypothesized to be responsible for enabling integration within civic and economic life, Keynesian theory further emphasizes components of intervention, such as stimuli through public investment and fiscal initiatives, to prevent cyclical employment (Keynes, 1936, pp. 378-381).

Thus, to avoid the cyclical concerns of youth unemployment, there needs to be sectoral adjustments

- *Active Labor Market Policies*

✓ *Active Labor Market Policies are Among the Most Widely Studied Youth Employment Interventions. They Include:*

- Job Search Assistance
- Apprenticeships
- On-The-Job Training
- Wage Subsidies
- Public Employment Services

Blanchflower and Oswald (1999), Šileika et al. (2004), and Maguire et al. (2013) highlight that an active labor-market policy-based program can significantly improve youth employment outcomes when well-designed and adequately funded.

✓ *However, in Developing Economies:*

- Coverage throughout the regions is limited
- Programs often lack employer engagement
- Monitoring and evaluation systems are weak
- Training quality varies widely
- Funding is insufficient

Improving the effectiveness of active labor market policies requires integrating programs with labor market needs, especially in high-growth sectors.

- *Education Curriculum Reform*

Reforming education systems is essential for addressing skill mismatch. Farzanegan and Gholipour (2021) argue that improving the quality and relevance of education enhances long-term employment prospects.

✓ *Reform Priorities Include:*

- Integrating digital skills and ICT literacy
- Strengthening STEM education and technical education
- Expanding work-based learning opportunities

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- Updating curricula to reflect industry needs
- Enhancing soft skills training
- Improving teacher quality
- More Cohesion with International Curricula

In South Asia and developing ASEAN, such reforms remain ongoing but unevenly implemented due to resource constraints.

- *Entrepreneurship Support and Informal-Formal Sector Merging*

Given the limited capacity of formal labor markets, many scholars highlight the importance of entrepreneurship and the development of the informal sector to the point where it merges with the formal economy.

Adamu (2016) and Fapohunda (2013) argue that supporting micro-enterprises and self-employment can expand opportunities for youth.

✓ *Necessary Interventions Include:*

- Access To Finance
- Training And Consulting Programs
- Business Incubation
- Regulatory Simplification
- Digital Entrepreneurship Training

Digital technologies have created new pathways for youth to participate in online retail and platform service work, even though regulation and worker protection remain challenges.

- *Sectoral Diversification and Sectoral Policies*

Macroeconomic conditions shape labor demand and job creation. Sato (2024) and Bouraima et al. (2025) emphasize that policies promoting economic stability, reducing inflation, and encouraging innovation contribute to favorable employment outcomes.

Sectoral diversification, moving from low-productivity agriculture to manufacturing and services, creates new employment avenues for youth. Developing ASEAN countries such as Vietnam and Indonesia have made significant progress in this area, while South Asian economies continue to grapple with agricultural dependency.

- *Integrated, Multi-Sectoral Policy Approaches*

✓ *The Most Effective Youth Employment Strategies Integrate Multiple Policy Domains, Including:*

- Education
- Labor Market Regulation
- Macroeconomic Management
- Infrastructure Development
- Innovation
- Social Protection

The literature underscores that isolated interventions are insufficient given the complex nature of youth unemployment. A coherent, long-term, and cross-sectoral approach is necessary to achieve sustainable improvements.

Youth unemployment is a deeply structural and multifaceted challenge, shaped by interlocking dynamics across education, labor markets, demographics, spatial inequality, macroeconomic conditions, technological transformation, and social institutions.

✓ *The Factors Revealed are:*

- Skill mismatch remains a core driver of youth unemployment, especially in developing regions where education systems lack alignment with labor market needs.
- Macroeconomic instability, including inflation and limited employment elasticity, constrains job creation.
- Demographic pressures, especially youth bulges and rural–urban migration, intensify labor market competition.
- Spatial inequality and infrastructure deficits restrict youth mobility and access to opportunities.
- Technological change presents both opportunities and threats, requiring strong digital skill development.
- Social and psychological effects of unemployment produce long-term scarring and reinforce intergenerational disadvantage.
- Policy responses must be integrated, evidence-based, and context-sensitive to address youth unemployment effectively.

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For developing economies in South Asia and ASEAN, the stakes are especially high. With large youth populations entering the workforce, failure to address structural weaknesses risks perpetuating cycles of poverty, inequality, and social instability. Conversely, successful policies that harness youth potential can drive productivity, innovation, and long-term development.

Among all discussed, skill mismatches are the most theorized driver of youth unemployment, though, for a long time, from ancient to modern, unemployment has been addressed by dividing labor; the dimensional problem with unemployment remains. Similarly, for youth unemployment, there are both cyclical and sectoral dimensions, and among all the factors, labor productivity intensifies the macroeconomic problem of youth unemployment. The elasticity of cyclical changes across sectors makes youth unemployment more intense than overall unemployment, as skills related to youth play a pivotal role in the economy.

Building on the extensive literature, this study identifies key economic, social, and institutional factors that potentially influence youth labor market outcomes. Prior research highlights the role of macroeconomic conditions, such as GDP growth, inflation, and foreign investment, as well as labor market characteristics, including total and gender-specific labor participation, youth inactivity, and existing employment levels (Chen, 2022; Mohd et al., 2020; O'Higgins, 2001; Franklin, 2014). Additionally, human capital factors such as government expenditure on education and access to infrastructure have been shown to affect youth employability and job opportunities (Becker, 1993; Lam et al., 2009; Okeke & Okoye, 2024). Guided by these theoretical insights and empirical findings, the present study selects a set of independent variables that capture both macroeconomic performance and labor market dynamics to empirically examine their effects on youth unemployment rates, forming the basis for the methodological framework outlined in the next chapter.

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CHAPTER THREE
METHODOLOGY

Youth unemployment, as discussed, is a complex and persistent challenge shaped by the interaction of macroeconomic conditions, human capital development, demographic dynamics, technological change, and structural inequalities. Skill mismatches, macroeconomic instability, demographic pressures, spatial inequality, technological transformation, and gender disparities are central drivers of youth unemployment, particularly in developing economies of South Asia and ASEAN. These regions face elevated risks because large youth cohorts are entering labor markets that often lack the structural capacity to generate sufficient, inclusive employment. Addressing such a multifaceted problem requires a rigorous methodological framework that captures both economic conditions and the structural evolution of youth unemployment over time. Accordingly, this study adopts a quantitative, macro-level analytical approach to examine the determinants of youth unemployment using multiple independent variables that reflect the interconnected factors identified in the literature.

Centuries of past literature have used mathematical understanding to figure out how the economy and its' drivers' work , as philosophy argues that mathematics used in social science can lead to uncertainty if the biases are not accounted for, as explained by Knight (1921). Thus, it can be presented against risk but not uncertainty.

The methodology is grounded in the understanding that youth unemployment is not a static phenomenon but one that evolves in response to economic cycles, policy interventions, demographic transitions, and technological change. Incorporating a time dimension allows the analysis to capture long-term trends, structural shifts, and delayed effects. This mathematical analysis examines the probability that theoretically selected independent macroeconomic variables affect youth unemployment.

The time variable, years, is included to capture temporal trends and changes in youth unemployment, as suggested by Blanchflower & Oswald (1999) and O'Higgins (2001), who argue that labor market dynamics evolve gradually.

Consumer Price Index represents price stability; it is included because inflation affects real wages, labor demand, and employment opportunities for youth (Keynes, 1936; Fung & Nga, 2022).

Current Gross Domestic Product Measures the size of the economy; a higher GDP is expected to generate more job opportunities for youth (Chen, 2022; Kalu et al., 2020).

The Equal Accessibility Index captures access to infrastructure and services that facilitate youth participation in the labor market (Franklin, 2014; Okeke & Okoye, 2024).

Net Foreign Direct Investment reflects external investment inflows and is included because FDI can stimulate economic growth and create employment, including for young workers (Msigwa & Kipesha, 2013; Dinika, 2024).

Annual inflation can influence labor market conditions, affecting employers' hiring decisions and youth employment opportunities (Knight, 1921; Shiferaw, 2023).

The wage-employed population reflects current employment levels; higher employment may indicate a more active labor market, potentially affecting youth unemployment (Clark & Summers, 1982).

Youth inactivity reflects disengagement from education and work; inactive youth are more likely to remain unemployed (O'Higgins, 2001; Šileika et al., 2004).

Per capita GDP growth is used to assess whether economic growth translates into employment opportunities, addressing the "jobless growth" issue (Mohd et al., 2020; Chen, 2022).

Annual growth in Gross Domestic Product (GDP) measures overall economic expansion; it is a key determinant of labor demand (Blanchard & Summers, 1986; Kalu et al., 2020).

Growth in Labor Productivity is included because productivity improvements influence labor demand and skill requirements, potentially impacting youth employment (Blaug, 1997; Moutinho et al., 2015).

Government Expenditure on Education represents investment in human capital; higher spending is expected to improve the skills and employability of youth (Becker, 1993; Lam et al., 2009; Farzanegan & Gholipour, 2021).

Total Labor Participation indicates overall labor market activity; higher participation may reduce youth unemployment if labor markets are inclusive (Franklin, 2018; Morrell et al., 1998).

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Female Labor Participation captures women's engagement in the labor force and is relevant for understanding gender-specific labor market dynamics affecting youth unemployment (Ayinla & Ogunmeru, 2018; Kalu et al., 2020).

Male Labor Participation reflects male labor supply; it is included to account for competition in labor markets, which can influence youth employment opportunities (Ayinla & Ogunmeru, 2018; Mohd et al., 2020).

The study aims to generate evidence-based insights to support effective, context-sensitive policies that transform youth potential into sustained economic growth and social stability in South Asia and the ASEAN region.

➢ *Thus, a Multivariate Regression Model Selected for Testing is as Follows:*

$$Y = \beta_0 + \beta_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + B_6 X_6 + \beta_7 X_7 + B_8 X_8 + B_9 X_9 + B_{10} X_{10} + B_{11} X_{11} + B_{12} X_{12} + \beta_{13} X_{13} + B_{14} X_{14} + B_{15} X_{15} + \in \quad (1)$$

➢ *Dependent Variable:*

Y = youth unemployment rate

Youth unemployment is selected as the dependent variable in the study as it serves as a key indicator of labor market performance and the economy's ability to absorb and utilize young entrants into productive employment. It reflects the combined effects of macroeconomic conditions, human capital development, and structural constraints affecting youth labor market outcomes (O'higgins, 2001).

➢ *Independent Variables:*

X_1 = GDP Rate (Change in Annual Economic Growth)

The selection of GDP annual rate as an independent variable is justified by its role in driving labor demand and employment elasticity, where robust economic expansion can absorb youth into the workforce, though jobless growth in capital-intensive sectors often exacerbates unemployment (Chen, 2022; Kalu et al., 2020). In addition, Short-term growth influences labor demand; inclusion helps measure whether expansions reduce youth unemployment (Fung & Nga, 2022; Shiferaw, 2023).

X_2= Total Government Spending on Education contributing to GDP

Total government spending on education (% of GDP) is included because of its critical impact on human capital formation and skill alignment, helping address pervasive mismatches that lead to educated unemployment in developing regions such as Asia and ASEAN (Dinika, 2024; Hasan & Sasana, 2020).

X_3= Annual Inflation rate

The annual inflation rate, measured by the consumer price index, is chosen for its effects on real wages, labor costs, and economic stability, which disproportionately affect youth in volatile markets (Shiferaw, 2023; Sato, 2024).

X_4= Labor Productivity Growth Rate

Changes in labor productivity rates reflect structural shifts and efficiency gains that can either create high-skill opportunities or marginalize low-skilled youth (Msigwa & Kipesha, 2013; Blaug, 1997; Chen, 2022).

X_5= Consumer Price Index

Inflation affects the cost of living and wage-setting; including CPI allows examination of how price fluctuations influence youth hiring decisions (Fung & Nga, 2022; Shiferaw, 2023).

X_6=Current GDP

Measures the size of the economy; higher GDP is associated with greater job creation opportunities for youth (Chen, 2022; Kalu et al., 2020).

X_7 = Equal Accessibility Index

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Accessibility to infrastructure, services, and opportunities can reduce barriers for youth entering the labor market, justifying its inclusion (Franklin, 2018; Okeke & Okoye, 2024).

X_8= Net Foreign Direct Investment

FDI can stimulate economic activity and create jobs, particularly for youth in developing countries, including capturing external investment effects (Bouraima et al., 2025; Mohammed Shuker & Hashim Sadik, 2024).

X_9= Percentage of Waged Employed among Total Population

Represents labor market absorption capacity; including this variable shows how existing employment levels correlate with youth unemployment (Blanchflower & Oswald, 1999; Msigwa & Kipesha, 2013).

X_{10}= Youth Inactivity Rate among Total Population

Captures discouraged or non-participating youth; its inclusion reflects structural barriers preventing youth from engaging in work (O'higgins, 2001; Maguire et al., 2013).

X_{11} = GDP Per Capita Annual Growth Rate

Indicates improvements in living standards and income, which shows how economic growth at the individual level affects youth employment opportunities (Chen, 2022; Kalu et al., 2020).

X_{12} = Total Labor Participation Rate

Reflects overall labor market activity as higher participation may indicate competition for jobs but also potential employment opportunities for youth (Hasan & Sasana, 2020).

X_{13}= Female Labor Participation Rate

Indicates the role of women in the workforce, as increasing female participation can influence youth unemployment patterns due to both household income effects and labor market dynamics in various employment sectors (Kalu et al., 2020; Msigwa & Kipesha, 2013).

X_{14}= Male Labor Participation Rate

Similarly, male labor participation affects youth employment through competition and labor demand in male-dominated sectors (Hasan & Sasana, 2020; Papell et al., 2000).

$$X_{15} = Year\ (time\ variable)$$

Finally, by explicitly incorporating the time dimension, the study enhances its ability to distinguish between short-term economic volatility and persistent structural unemployment, thereby improving the robustness and policy relevance of the empirical findings. It also accounts for hysteris in unemployment does not return back to its original state once impacted in the short run (O'higgins, 2001; Msigwa & Kipesha, 2013).

Building on the regional literature, youth unemployment across Bangladesh, the Philippines, Malaysia, Sri Lanka, Pakistan, Thailand, Indonesia, India, and Nepal reflects a common interaction of macroeconomic volatility, structural transformation, demographic pressure, and institutional constraints, with distinct country-level expressions. In Bangladesh and Nepal**,** rapid youth population growth, limited industrial diversification, and the predominance of low-productivity informal employment constrain labor absorption even during periods of GDP expansion, underscoring the relevance of GDP growth, inflation, and time effects in explaining persistent youth unemployment (Sato, 2024; Shiferaw, 2023; Mohammed Shuker & Hashim Sadik, 2024).

In India and Pakistan, accelerated expansion of tertiary education without parallel growth in high-skill employment has intensified educated youth unemployment and graduate underemployment. Weak education-to-work transitions, inadequate vocational training, and low employment elasticity of growth highlight the central role of government expenditure on education and labor productivity in shaping youth labor market outcomes (O'Higgins, 2001; Hasan & Sasana, 2020; Lam et al., 2009; Kalu et al., 2020).

Youth unemployment in the Philippines and Indonesia is closely associated with labor market segmentation, informality, and exposure to cyclical macroeconomic shocks. Dependence on services and overseas employment increases youth vulnerability to

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inflationary pressures and growth volatility, justifying the inclusion of GDP growth, inflation, and time to capture delayed and cyclical employment responses (Fung & Nga, 2022; Papell et al., 2000; Franklin, 2014).

Despite higher productivity and technological advancement, Malaysia and Thailand experience youth unemployment driven by skill polarization, graduate saturation, and technology-dominated structural change. Productivity gains increasingly favor capital-intensive sectors, limiting opportunities for less-skilled youth and reinforcing the ambiguous relationship between labor productivity and youth employment (Msigwa & Kipesha, 2013; QI, 2024; Gür, 2021).

In Sri Lanka**,** macroeconomic instability, inflationary surges, and fiscal constraints have disproportionately affected young workers, particularly women, amid declining public-sector absorption. This context highlights the importance of inflation and the female-to-male youth unemployment ratio in capturing gendered labor market vulnerabilities (Blanchflower & Oswald, 1999; Kalu et al., 2020; Sato, 2024).

These country-specific dynamics demonstrate that youth unemployment in South Asia and ASEAN is a dynamic and heterogeneous process shaped by growth patterns, human capital investment, productivity change, gender disparities, and macroeconomic instability over time. This heterogeneity provides a strong empirical rationale for the study's multivariate, time-augmented regression framework, enabling simultaneous assessment of economic, structural, and demographic drivers while accounting for long-run and cyclical fluctuations, and delayed impacts in youth labor-market adjustment.

- *The method of testing to be carried out is:*

✓ *Panel Data OLS regression*

- Check for a Balanced or Unbalanced data set
- Fixed Effect test
- Random Effect Test
- Pooled Ordinary Least Squares Test
- Hausman Test
- Fixed Effect Test (Robust Standard Error)
- Random Effect Test (Robust Standard Error)

✓ *Supporting Tests:*

- Heteroskedasticity Test (pooled)
- Heteroskedasticity Test (groupwise)
- Multicollinearity Test
- Autocorrelation Test

➢ *Data Type:*

- *Secondary*

Data Source: World Bank Open Data, Development Indicators (ILO modelled and World Bank, Human Development Index dataset)

The panel data regression is conducted for 9 countries: Bangladesh, the Philippines, India, Malaysia, Sri Lanka, Thailand, Nepal, Indonesia, and Pakistan. The two common criteria for the countries sampled from the complete list of countries are that the country is first a developing country and is located in Asia.

Each was assigned a unique identifier, "id", and observed over 29 years. In addition to the country variable "id", the dataset includes one dependent variable, the youth unemployment rate, "yur", and fifteen independent variables capturing key economic, social, and labor market determinants. The independent variables include: GDP per capita annual growth "lnGDPPC", current GDP, "GDPC", annual GDP growth, "lnGDP", total government expenditure on education as a share of GDP, "lnGexedu", inflation rate, "lninflation", Consumer Price Index , "CPI", labor productivity growth rate , "lnLPGR", waged employed population , "lmWASW", youth inactivity rate, "lnYIR", equal accessibility index, "EAI", net foreign direct investment, "FDINET", total labor participation rate, "lnTLPR", female labor participation rate, "lnFLPR" and male labor participation rate, "lnMLPR", and finally the year trend "Year". Variables expressed in percentages or growth rates were transformed using natural logarithms "ln" to normalize their distributions, stabilize variance, and interpret coefficients as elasticities. The sample consists of 150 observations across the nine countries.

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CHAPTER FOUR
RESULTS AND DISCUSSIONS

➢ *Findings*

Figure 1 -Panel Data Regression Results for Youth Unemployment Rate

Table 1 Dependent Variable: ln (yur) – Youth Unemployment Rate

Variables	Pooled OLS	Fixed Effects	Random Effects	FE Robust	RE Robust
Year	-0.0385* (0.0223)	-0.0177 (0.0118)	-0.0230 (0.0188)	-0.0177 (0.0196)	-0.0230 (0.0407)
CPI (Consumer Price Index)	0.00371 (0.00383)	0.00488** (0.00243)	0.000823 (0.00324)	0.00488 (0.00382)	0.000823 (0.00680)
GDPC (Current Gross Domestic Product)	5.81×10^{-13}*** (2.14×10^{-13})	6.24×10^{-13}*** (1.85×10^{-13})	8.03×10^{-13}*** (1.82×10^{-13})	6.24×10^{-13}*** (1.84×10^{-13})	8.03×10^{-13}*** (1.52×10^{-13})
EAI (Equal Accessibility Index)	0.492 (0.677)	-0.481 (0.464)	0.593 (0.570)	-0.481 (0.603)	0.593 (0.586)
FDINET ((NET Foreign Direct Investment)	8.58×10^{-12} (1.38×10^{-11})	-4.49×10^{-12} (7.29×10^{-12})	5.28×10^{-12} (1.16×10^{-11})	-4.49×10^{-12} (6.02×10^{-12})	5.28×10^{-12} (7.85×10^{-12})
ln(Inflation) Annual Inflation Rate	0.192*** (0.0724)	-0.132*** (0.0425)	0.110* (0.0619)	-0.132* (0.0673)	0.110 (0.0938)
ln(WASW) Waged Employed Population	-0.549*** (0.201)	-1.62*** (0.607)	-0.0504 (0.181)	-1.62 (0.920)	-0.0504 (0.234)
ln(YIR) Youth Inactivity Rate	8.65*** (2.74)	2.11 (1.76)	1.10 (2.51)	2.11 (2.04)	1.10 (2.46)
ln(GDPPC) Per Capita Gross Domestic Product Annual Growth		-0.0679 (0.187)	-0.752*** (0.274)	-0.0679 (0.149)	-0.752 (0.526)
ln(GDP) Gross Domestic Product Annual Growth	0.254 (0.447)	-0.0691 (0.277)	1.11*** (0.393)	-0.0691 (0.185)	1.11 (0.858)
ln(LPGR) Labor Productivity Growth Rate	-0.105 (0.0692)	0.0166 (0.0356)	-0.0559 (0.0586)	0.0166 (0.0500)	-0.0559 (0.0630)
ln(GEXEDU) Government Expenditure on Education (% of GDP)	-0.292* (0.165)	0.354*** (0.112)	-0.137 (0.141)	0.354*** (0.0903)	-0.137 (0.173)
ln(TLPR) Total Labor Participation Rate	1.60 (1.95)	-12.6*** (3.21)	-25.8*** (3.99)	-12.6** (4.56)	-25.8*** (3.09)
ln(FLPR) Female Labor Participation Rate	2.19*** (0.309)	5.65*** (0.763)	8.55*** (0.883)	5.65*** (0.957)	8.55*** (1.06)
ln(MLPR) Male Labor Participation Rate		9.63*** (1.74)	16.9*** (2.24)	9.63** (3.12)	16.9*** (2.38)
Observations	150	150	150	150	150
Countries	9	9	9	9	9
R^2 (Overall)	0.553	0.323	0.686	0.323	0.686
R^2 (Within)		0.605	0.298	0.605	0.298
Mean VIF Multicollinearity	13.4	13.4	13.4	13.4	13.4
Groupwise Heteroskedasticity (Modified Wald)		491***		491***	

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Pooled Heteroskedasticity (Breusch–Pagan)	29.4***	29.4***	29.4***	29.4***	29.4***
Autocorrelation (Wooldridge F)	2.09	2.09	2.09	2.09	2.09
Hausman Test		x^2= 0.000 (P =1)		x^2= 0.000 (P=1)	

*** denotes to 1 % significance, ** denotes to 5 % significance, and * denotes to 10 % significance

Year (time trend) The time trend coefficient is negative in pooled OLS (−0.0385, SE = 0.0223, p < 0.10) but becomes insignificant in FE (−0.0177, SE = 0.0118, p > 0.10), RE (−0.0230, SE = 0.0188, p > 0.10), and robust specifications.

Consumer Price Index (CPI) CPI shows a small positive association with youth unemployment, significant only in the fixed effects model (0.00488, SE = 0.00243, p < 0.05) but insignificant in pooled OLS and random effects.

Current GDP (GDPC) GDPC is strongly positively associated with youth unemployment in all models (5.81×10^{-13}, SE = 2.14×10^{-13}, p < 0.01 in pooled OLS; 6.24×10^{-13}, SE = 1.85×10^{-13}, p < 0.01 in FE; 8.03×10^{-13}, SE = 1.82×10^{-13}, p < 0.01 in RE).

Equal Accessibility Index (EAI**)** EAI is statistically insignificant across all models (0.492, SE = 0.677 in pooled OLS; −0.481, SE = 0.464 in FE; 0.593, SE = 0.570 in RE).

Net Foreign Direct Investment (FDINET) FDI is not significant in any model (8.58×10^{-12}, SE = 1.38×10^{-11} in pooled OLS; -4.49×10^{-12}, SE = 7.29×10^{-12} in FE; 5.28×10^{-12}, SE = 1.16×10^{-11} in RE).

Inflation (lnInflation) Annual inflation is positive and significant in pooled OLS (0.192, SE = 0.0724, p < 0.01), negative and significant in FE (−0.132, SE = 0.0425, p < 0.01), and weakly positive in RE (0.110, SE = 0.0619, p < 0.10).

Waged Employed Population (lnWASW) lnWASW has a negative effect in pooled OLS (−0.549, SE = 0.201, p < 0.01) and FE (−1.62, SE = 0.607, p < 0.01), but is insignificant in RE (−0.0504, SE = 0.181, p > 0.10).

Youth Inactivity Rate (lnYIR**)** lnYIR shows a strong positive association in pooled OLS (8.65, SE = 2.74, p < 0.01) but is insignificant in FE (2.11, SE = 1.76, p > 0.10) and RE (1.10, SE = 2.51, p > 0.10).

GDP per Capita Annual Growth (lnGDPPC**)** lnGDPPC is insignificant in pooled OLS and FE, but significantly negative in RE (−0.752, SE = 0.274, p < 0.01).

GDP Annual Growth (lnGDP) lnGDP is insignificant in FE (−0.0691, SE = 0.277, p > 0.10) but positive and significant in RE (1.11, SE = 0.393, p < 0.01).

Labor Productivity Growth Rate (lnLPGR) lnLPGR is insignificant across all models (−0.105, SE = 0.0692 in pooled OLS; 0.0166, SE = 0.0356 in FE; −0.0559, SE = 0.0586 in RE).

Government Expenditure on Education (% of GDP, lnGEXEDU**)** lnGEXEDU is negative in pooled OLS (−0.292, SE = 0.165, p < 0.10), positive and significant in FE (0.354, SE = 0.112, p < 0.01), and insignificant in RE (−0.137, SE = 0.141, p > 0.10).

Total Labor Participation Rate (lnTLPR) lnTLPR is highly negative and significant in FE (−12.6, SE = 3.21, p < 0.01) and RE (−25.8, SE = 3.99, p < 0.01), but insignificant in pooled OLS.

Female Labor Participation Rate (lnFLPR) lnFLPR is positive and significant across all models (2.19, SE = 0.309 in pooled OLS, p < 0.01; 5.65, SE = 0.763 in FE, p < 0.01; 8.55, SE = 0.883 in RE, p < 0.01).

Male Labor Participation Rate (lnMLPR) lnMLPR is positive and significant in FE (9.63, SE = 1.74, p < 0.01) and RE (16.9, SE = 2.24, p < 0.01).

Mean VIF: 13.4, indicating multicollinearity in low to moderate significance as there are many interrelated variables , such as total labor participation and gendered labor participation , however as in panel regressions , it does not bias the model

Groupwise Heteroskedasticity (Modified Wald -x^2): 491, p < 0.001, indicating significant heteroskedasticity.

Pooled Heteroskedasticity (Breusch–Pagan)x^2): 29.4, p < 0.001, confirming heteroskedasticity in pooled OLS.

Autocorrelation (Wooldridge F): 2.09, indicating mild autocorrelation in the panel data.

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The Hausman Test suggests that the random effects model may be preferred as the null hypothesis cannot be rejected due to having negative values among the variables.

However, in our data set, Fixed effects show a moderate to high R-squared within countries; thus, fixed effects are preferred to handle youth unemployment, since probability is zero and not negative.

➢ *Discussions*

The panel regression results for nine developing Asian countries show that youth unemployment is predominantly structural**,** consistent with prior empirical and theoretical evidence. The Hausman test indicates no difference between the Fixed Effects (FE) and Random Effects (RE) models. This aligns with youth labor-market analysis emphasizing heterogeneity across the countries (Clark & Summers, 1982; O'Higgins, 2001). However, due to differences in structure, there are distinct systems for responding to Youth unemployment across countries. Overall, the model explains 68.6% of the impact on youth unemployment, using random effects. On the other hand, using fixed effects, the impact is high across countries, with an over 60% impact. Thus, within countries, it is systematic, and in pooled ordinary least squares regression, the impact averages over 55%. Since systematic factors affect youth unemployment, fixed effects are recommended to strengthen policy direction. Furthermore, short-run macroeconomic factors have random significance, whereas long-run and integrated factors are more systematically significant.

Moreover, youth unemployment in the nine developing Asian countries appears primarily structural, driven by labor-market participation dynamics and employment structure rather than short-term macroeconomic fluctuations. Economic growth shows a positive association with youth unemployment, suggesting jobless or skill-biased growth where expansion does not proportionately absorb young workers (Chen, 2022; Kalu et al., 2020). Labor-market variables, particularly participation rates and wage employment, exhibit stronger effects, reflecting supply pressures and competition in entry-level jobs (Maguire et al., 2013; Sever & İğdeli, 2018). Overall, the findings support structural unemployment theories emphasizing labor-market mismatches and institutional factors in developing economies (Blanchard & Summers, 1986; O'Higgins, 2001).

The time trend shows a weak and inconsistent decline in youth unemployment, suggesting that temporal changes alone do not systematically explain labor market outcomes (Blanchard & Summers, 1986).

Consumer Price Index (CPI) shows a small positive effect within countries, indicating that rising prices may constrain hiring capacity (Shiferaw, 2023). Current GDP (GDPC) has a positive association with youth unemployment, suggesting jobless or skill-biased growth in developing Asian economies (Chen, 2022; Kalu et al., 2020). The Equal Accessibility Index (EAI) shows that infrastructure accessibility alone does not guarantee employment opportunities (Franklin, 2018).

Foreign Direct Investment (FDINET) shows that foreign capital inflows do not necessarily translate into youth employment, often due to skill mismatches (Mohd et al., 2020). Inflation (ln Inflation) shows mixed effects, reflecting the complex interaction between macroeconomic stability and employment outcomes (Fung & Nga, 2022). The waged employed population (lnWASW) negatively affects youth unemployment, highlighting the importance of expanding formal employment opportunities (Maguire et al., 2013). Youth inactivity rate (lnYIR) shows a positive association, indicating that disengagement from education or work increases unemployment risks among youth (Kieselbach, 2003).

GDP per capita growth (lnGDPPC) negatively influences youth unemployment across countries, suggesting that higher income levels improve employment prospects (Sen, 1999). GDP annual growth (lnGDP) shows mixed results, reflecting transitional adjustments in rapidly growing economies (Hasan & Sasana, 2020). Labor productivity growth (lnLPGR) remains insignificant, implying productivity improvements do not directly translate into employment gains (Moutinho et al., 2015) as it is interdependent sectorally. Government education expenditure (lnGEXEDU) shows mixed effects, reflecting potential education–employment mismatches (Lam et al., 2009; Bardak, 2014).

Total labor participation rate (lnTLPR) strongly reduces youth unemployment, indicating that broader labor market engagement supports employment absorption (Ayinla & Ogunmeru, 2018). Female labor participation (lnFLPR) positively correlates with youth unemployment, suggesting increased labor supply pressure in developing labor markets (Sever & İğdeli, 2018). Similarly, male labor participation (lnMLPR) also shows a positive association, reflecting labor supply expansion relative to available jobs (Fapohunda, 2013).

Government expenditure on education is positively and significantly associated with youth unemployment, indicating that increased public spending does not automatically improve youth labor market outcomes. This supports the skill-mismatch and quality-of-education arguments advanced by Mohd et al. (2020), Lam et al. (2009), Farzanegan and Gholipour (2021), and Bardak (2014), which emphasize that expanding education without labor market relevance can not always be better at reducing youth unemployment, but can also increase it if there is misallocation in skill investment.

There is evidence of slight heteroskedasticity and, common in macro-panel youth unemployment studies (Msigwa & Kipesha, 2013), as confirmed by the Modified Wald test, groupwise heteroskedasticity, and the Breusch-Pagan test due to structural

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differences**.** The use of robust standard errors adjusts these violations without altering statistical inference, confirming the robustness of the results. However, the multicollinearity is negligible compared to the number of closely related variables used, and moreover no presence of serial autocorrelation.

Youth unemployment hints at being endogenous, while modestly correlated factors such as GDP rate and Inflation rate are driven by labor market factors however due to having lower value in the R squared of the within random effects , and negligible autocorrelation, endogeneity is not impacting the model.

The findings reinforce the consensus that youth unemployment in developing Asia is primarily a structural phenomenon, shaped by persistent labor-market barriers, education–employment mismatch, labor-market frictions**,** and limited productivity-enhancing job creation rather than short-term macroeconomic fluctuations. The mixed role of inflation and GDP growth in fixed and often strong effects of labor dynamics closely mirrors the empirical framework and conclusions of Fung and Nga (2022)**,** whose ASEAN panel analysis similarly finds that youth unemployment responds more to structural and productivity-related factors than to cyclical dynamics such as inflation or GDP in the short run. The structural and labor market-related factors complement persistent economic conditions whether downturns or recovery, and stagflation or sustained inflation.

This interpretation is further supported by Maguire et al.(2013) and Hasan and Sasana(2020)**,** who argue that without labor-market alignment and productivity-driven growth, economic expansion alone is insufficient to absorb young workers into these developing economies of Asia.

Within the fixed and random effects panel framework, youth unemployment across Bangladesh, Nepal, India, Pakistan, Sri Lanka, the Philippines, Indonesia, Malaysia, and Thailand appears primarily structural rather than cyclical. Economic growth shows a positive association with youth unemployment, suggesting jobless or skill-biased growth, particularly in lower-income South Asian economies such as Bangladesh, Nepal, and Pakistan, where expanding youth cohorts exceed the capacity of the formal sectors to absorb them (Chen, 2022; Kalu et al., 2020). The positive relationship between education expenditure and youth unemployment also indicates the presence of educated youth unemployment, especially in India and Pakistan, where rapid educational expansion has not been matched by sufficient high-skill job creation (Lam et al., 2009; Bardak, 2014). Meanwhile, stronger labor participation and wage employment significantly reduce youth unemployment, which is more evident in relatively diversified ASEAN economies such as Malaysia, Thailand, Indonesia, and the Philippines (Maguire et al., 2013). Overall, the results suggest that youth unemployment across South Asia and ASEAN is structurally embedded and driven mainly by labor-market mismatches rather than short-term macroeconomic fluctuations (Blanchard & Summers, 1986; O'Higgins, 2001). So, looking back at the research question.

How do macroeconomic variables influence youth unemployment in developing countries of Asia?

The findings suggest that Macroeconomic variables influence youth unemployment in developing Asian countries, including South Asia and ASEAN, primarily through structural and labor-market mechanisms. Economic growth often shows skill-biased patterns, particularly in lower-income South Asian economies such as Bangladesh, Nepal, and Pakistan. At the same time, labor productivity and formal wage employment reduce youth unemployment, especially in more industrially diversified ASEAN economies like Malaysia, Thailand, Indonesia, and the Philippines. Inflation has a limited overall effect but can influence unemployment in the short run. Government education spending may increase youth unemployment where educational expansion exceeds high-skill job creation. Overall, youth unemployment is driven more by structural factors, as shown by the existing heterogeneity between countries or groups of countries by region. Key determinants are labor-market participation and education–employment alignment rather than short-term macroeconomic fluctuations.

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CHAPTER FIVE
RECOMMENDATION AND LIMITATIONS

➢ *Policy Recommendation*

Since youth unemployment in developing Asia is embedded in long-run structural dynamics, and given the significant impact of labor participation and productivity, policies should be tailored to increase the efficiency of allocating labor to the market. For instance, in countries such as Bangladesh and Nepal in South Asia, both the quality of education and the structure of the job market need to be ensured. For instance, primary and secondary education should be well integrated with the skills needed in the market, whether through specialization or a mix of vocational skills. Tertiary education aims to solidify these skills further and align them with a variety of firms in the labor market. For these efficient proportions of investments should be provided to both the industries that are expandable, profitable, or growing, and labor's training-based education, on the other hand, as these countries need an equitable way of fixing misallocation of resources in the job market, as both voluntary and involuntary unemployment are predominant in these South Asian regions. Such adjustments could further amplify the impact of economic growth. Further, India and Pakistan, in South Asia, have focused on labor productivity for decades but have at times experienced stagnation in youth employability. For them, policies should identify areas of misutilization and inefficiency that are creating uneven employability among youth. This way, their structural expansions can make use of their economic growth. Third, but not least, Sri Lanka is constrained by long-run macroeconomic conditions, such as a persistent economic recession and inflation. Finally, Asean countries such as Indonesia, Malaysia, and Thailand are ahead in their structural conditions and proper expansion; for them, it is more about identifying areas for labor productivity gains through an integrated, skill-based education system, where they can use these gains to reduce youth unemployment. Voluntary Unemployment might occur in ASEAN regions due to a mismatch in wage rates the workers are willing to work for and what the employers are willing to pay. In addition to those, demographic factors across all developing countries of Asia are embedded within the economic structure, and sustained structural interventions, coupled with efficient productivity enhancements, are the solution for reducing youth unemployment in developing Asia.

In addition to structural reforms and productivity-enhancing interventions, more calibrated fiscal and monetary policies can support youth employment outcomes in South Asia and ASEAN economies. For instance, expansionary fiscal policy, particularly through targeted public investment in education, skill development, and labor-intensive sectors, can strengthen labor demand for youth while addressing the skill mismatches and misallocation highlighted in this study (Blanchard & Summers, 1986; O'Higgins, 2001; Fung & Nga, 2022). For countries such as Bangladesh, Nepal, and Indonesia, fiscally supported vocational and technical training programs can reinforce the positive role of labor productivity identified in the empirical results. For instance, social support schemes, tax cuts for prospective firms, and government-backed training programs. On the monetary side, accommodative credit conditions that facilitate firm expansion, especially among small and medium enterprises, can complement structural adjustments, such as strengthening micro financing to lower bad debts, and encourage enterprises by lowering interest rates for them, as persistent monetary tightening may constrain youth employability during periods of adjustment (Chen, 2022; Shiferaw, 2023).

For South Asia as a whole, coordinated fiscal expansion focused on education, labor market integration, and productivity-based public investment and private support is essential to translate economic growth into employment gains for youth (O'Higgins, 2001; Sato,2024). For instance, tax cuts for integrated labor industries and their firms, as well as spending on productivity-based public and private sector education.

Monetary policy in the region should remain supportive of labor-absorbing sectors to prevent cyclical pressures from reinforcing structural youth unemployment through lower interest loans and access to capital (Blanchard & Summers, 1986; Chen, 2022).

For ASEAN economies such as Indonesia, Malaysia, and Thailand, where structural capacity is relatively stronger, fiscal policy should prioritize skill-intensive education-based systems and innovation-linked training to sustain productivity-driven employment growth (Hasan & Sasana, 2020; Fung & Nga, 2022). In these countries, supportive monetary conditions that enhance private sector investment can further ensure that productivity gains are effectively transmitted to lower youth unemployment (Fung & Nga, 2022). Therefore, these countries should identify their innovative sectors as well as innovative skill training-based education, where the support should be tailored.

Overall, macroeconomic, fiscal, and monetary policies should be implemented in coordination with structural and productivity-themed reforms to ensure that economic growth translates into sustained reductions in youth unemployment across developing Asia.

➢ *Limitations*

This study primarily works with data limitations, which are present in the data set of developing Asian countries from the World Bank open source, limiting the research to a modest 175 observations across 9 countries in a span of 29 years, with limitations in accessibility to other data sources accessible to professional researchers. Secondly, the research question works with the scope of developing countries only in Asia; further research could potentially work with developing countries beyond Asia. Third, this study

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examines how youth unemployment is an issue in developing countries; however, there is much room for further research, taking into account the developed world and a comparative analysis between developed and developing countries of the world. Lastly, researchers and studies might cover the same youth unemployment model in a variety of different methods, such as Dynamic Fixed Methods, as well as use distinct independent variables.

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CHAPTER SIX
CONCLUSION

In conclusion, youth unemployment persists as a challenging and multifaceted issue throughout developing Asia. The panel regression results for nine developing Asian countries, Bangladesh, the Philippines, India, Malaysia, Sri Lanka, Nepal, Pakistan, Indonesia, and Thailand, indicate that youth unemployment is mostly structural**,** consistent with prior empirical evidence. Unobserved country-specific factors, such as labor market institutions and education systems, are correlated with the regressors. Macroeconomic variables influence youth unemployment in developing Asian countries, including South Asia and ASEAN, primarily through structured labor-market mechanisms. Economic growth often shows jobless and skill-biased patterns, particularly in lower-income South Asian economies such as Bangladesh, Nepal, and Pakistan, while labor productivity and formal wage employment reduce youth unemployment, especially in more industrially diversified ASEAN economies like Malaysia, Thailand, Indonesia, and the Philippines. Inflation has a limited overall effect but can influence unemployment in the short run. Moreover, government education must meet skilled employment vacancies, suggesting that it needs to be sustained in the long run through vocational training and job-specific skill education. Overall, youth unemployment is driven more by workforce productivity, labor market structure, and educational alignment. Youth Unemployment is found to be more macroeconomically systematic across successive periods. Fiscal and monetary policies should be implemented in coordination with structural and productivity-focused reforms to ensure that economic growth translates into sustained reductions in youth unemployment across developing Asia. Post-study analysis of this research can lead to more comparative analyses involving more countries across Asia and the world, in both developed and developing regions, to solidify the model of youth unemployment and reduce its economic consequences.

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APPENDIX

APPENDIX A-

Figure (Appendix A) – 1

Raw Panel Data used for Statistical Analysis, before logarithmic adjustments, and Stata use.

Country	ID	t	Year	RGDP	YUR	Gexedu	FLPR	MLPR	TLPR	IPgr	CPI	GDP%	GDPC	GDPPC%	YIR	EAI	WASW%	Inflation%	FDI(net)
Ban	1	1	1995	6.6E+10	6.523		20.698	71.897	46.381	3.502888	42.53447	5.121278	3.79E+10	3.185894	53.721	0.539	32.26849	10.29781	1896372
Ban	1	2	1996	6.89E+10	6.656		21.423	72.005	46.803	1.498955	43.54557	4.522919	4.64E+10	2.629545	53.292	0.539	32.51701	2.377129	1.4E+07
Ban	1	3	1997	7.2E+10	7.41	1.95247	22.074	72.094	47.169	1.380022	45.85592	4.489896	4.82E+10	2.571024	52.917	0.539	32.77255	5.305601	1.4E+08
Ban	1	4	1998	7.58E+10	8.187		22.607	72.157	47.453	2.115855	49.70884	5.177027	5E+10	3.209952	52.622	0.539	33.04155	8.402238	1.9E+08
Ban	1	5	1999	7.93E+10	8.971	2.13282	23.043	72.17	47.663	1.736299	52.74441	4.670156	5.13E+10	2.700692	52.401	0.539	33.30376	6.106696	1.8E+08
Ban	1	6	2000	8.35E+10	9.746	2.12508	23.394	72.155	47.787	2.297422	53.90914	5.293295	5.34E+10	3.386714	52.265	0.539	33.57591	2.208256	2.8E+08
Ban	1	7	2001	8.77E+10	8.823	2.17193	23.525	72.065	47.776	1.320713	54.99119	5.077288	5.4E+10	3.340279	52.264	0.539	33.88589	2.007174	7.9E+07
Ban	1	8	2002	9.11E+10	7.782	2.01715	23.445	71.861	47.645	2.140579	56.82381	3.833124	5.47E+10	2.242861	52.387	0.539	34.20783	3.332565	5E+07
Ban	1	9	2003	9.54E+10	6.606	2.06939	23.292	71.582	47.443	3.290465	60.04499	4.739567	6.02E+10	3.226325	52.581	0.539	34.53949	5.668708	2.7E+08
Ban	1	10	2004	1E+11	7.758	1.94014	23.103	71.257	47.202	5.018656	64.60092	5.239533	6.51E+10	3.816357	52.815	0.539	34.88945	7.587536	4.4E+08
Ban	1	11	2005	1.07E+11	8.79		22.9	70.897	46.933	6.219569	69.1531	6.535945	6.95E+10	5.201314	53.076	0.539	35.27777	7.046618	8.1E+08
Ban	1	12	2006	1.14E+11	7.255	2.13129	22.64	70.495	46.615	6.512002	73.83149	6.671905	7.18E+10	5.440429	53.385	0.527	35.64686	6.765261	4.5E+08
Ban	1	13	2007	1.22E+11	8.024	2.20222	25.419	67.648	46.586	3.883037	80.55531	7.058599	7.96E+10	5.913203	53.414	0.505	36.13043	9.106985	5.2E+08
Ban	1	14	2008	1.3E+11	8.797	2.05457	28.313	64.694	46.556	3.399863	87.7263	6.01379	9.16E+10	4.960572	53.444	0.505	36.63849	8.901945	1.1E+09
Ban	1	15	2009	1.36E+11	9.556	1.93942	31.298	61.647	46.52	2.801244	92.48412	5.045125	1.02E+11	4.070764	53.48	0.559	37.14476	5.423472	7.2E+08
Ban	1	16	2010	1.44E+11	6.289		34.348	58.521	46.474	3.661267	100	5.571788	1.15E+11	4.650463	53.526	0.559	37.66221	8.126676	1.2E+09
Ban	1	17	2011	1.53E+11	7.429	2.1327	35.357	56.811	46.121	5.241434	111.3952	6.464379	1.29E+11	5.501503	53.879	0.559	37.90084	11.39517	9.7E+08
Ban	1	18	2012	1.63E+11	8.538	2.046671	36.218	55.192	45.74	2.843767	118.3212	6.521459	1.33E+11	5.50548	54.26	0.559	38.14398	6.217504	1.3E+09
Ban	1	19	2013	1.73E+11	9.674	1.96616	36.939	53.645	45.324	5.107486	127.2312	6.013606	1.5E+11	5.023418	54.676	0.553	38.38084	7.530406	2.1E+09
Ban	1	20	2014	1.83E+11	10.121	2.098717	32.462	53.293	42.917	5.657105	136.1268	6.061059	1.73E+11	5.099055	57.083	0.492	38.61038	6.991639	2.5E+09
Ban	1	21	2015	1.95E+11	10.56	1.872254	27.937	52.91	40.47	6.055017	144.5589	6.55264	1.95E+11	5.604495	59.53	0.472	38.85381	6.19428	2.8E+09
Ban	1	22	2016	2.09E+11	10.956	2.2212	23.488	52.486	38.04	6.478246	152.5291	7.113478	2.65E+11	6.161816	61.96	0.472	39.09764	5.513526	2.3E+09
Ban	1	23	2017	2.23E+11	12.101	1.8504	26.638	54.411	40.47	1.323697	161.2265	6.59025	2.94E+11	5.687103	59.53	0.378	39.3431	5.70207	1.7E+09
Ban	1	24	2018	2.39E+11	11.829	1.655891	31.411	54.301	42.639	5.882575	170.1642	7.319413	3.21E+11	6.441975	57.284	0.337	39.36696	5.543621	2.4E+09
Ban	1	25	2019	2.58E+11	11.594	1.681388	35.765	54.027	44.59		179.6798	7.881915	3.51E+11	6.972644	55.266	0.337	39.40954	5.591996	1.9E+09
Ban	1	26	2020	2.67E+11	13.29	1.765281	40.461	54.338	47.082		189.9055	3.448018	3.74E+11	2.586478	52.727	0.337	38.53053	5.691075	1.5E+09
Ban	1	27	2021	2.85E+11	12.441	1.83118	46.018	55.201	50.359		200.437	6.938679	4.16E+11	6.070694	49.283	0.301	38.34302	5.545654	1.6E+09
Ban	1	28	2022	3.06E+11	10.985	1.711837	50.362	55.296	52.699		215.8646	7.099829	4.6E+11	6.008475	47.301	0.299	38.36261	7.696954	1.6E+09
Ban	1	29	2023	3.23E+11	10.895	1.775227	48.848	54.436	51.526		237.1996	5.775112	4.37E+11	4.490704	48.127	0.29	38.12605	9.883503	1.4E+09
PHL	2	1	1995	1.19E+11	9.233	2.66399	34.523	53.508	44.235	-6.55595	46.61408	4.625225	8.46E+10	2.36064	55.624	0.493	50.1965	6.831996	1.1E+09
PHL	2	2	1996	1.26E+11	9.162	2.94357	34.111	53.187	43.873	5.269651	50.099	5.860348	9.46E+10	3.449579	56.006	0.493	50.38837	7.476104	1.3E+09
PHL	2	3	1997	1.33E+11	9.182	3.07757	33.785	52.93	43.585	-7.0813	52.89966	5.186412	9.41E+10	2.74056	56.307	0.493	50.60421	5.590259	1.1E+09
PHL	2	4	1998	1.32E+11	9.355	3.69746	34.159	53.18	43.907	-7.05751	57.78491	-0.51409	7.45E+10	-2.98475	55.967	0.493	50.6461	9.234934	2.1E+09
PHL	2	5	1999	1.37E+11	9.468		34.07	53.092	43.829	-0.82891	61.21678	3.346451	8.56E+10	0.738331	56.079	0.493	50.35052	5.939049	1.1E+09
PHL	2	6	2000	1.43E+11	9.531	3.1644	33.839	52.907	43.625	-5.50697	63.65145	4.382505	8.37E+10	1.92828	56.32	0.493	51.46929	3.977125	2.1E+09
PHL	2	7	2001	1.47E+11	9.415	2.92464	33.744	52.82	43.54	0.357802	67.05394	3.049231	7.89E+10	0.80081	56.423	0.493	51.57168	5.345502	3.4E+08
PHL	2	8	2002	1.53E+11	9.166	2.89222	33.551	52.668	43.368	0.581381	68.87967	3.716255	8.43E+10	1.63441	56.608	0.493	51.26871	2.722772	1.5E+09
PHL	2	9	2003	1.6E+11	8.923	2.93518	33.19	52.392	43.051	3.172049	70.45643	5.086911	8.7E+10	3.024477	56.949	0.493	52.18672	2.289157	1.9E+08
PHL	2	10	2004	1.71E+11	9.061	2.46983	32.899	54.063	43.768	3.795337	73.85892	6.569229	9.5E+10	4.518295	56.232	0.493	54.22413	4.829211	1.1E+08
PHL	2	11	2005	1.79E+11	9.247	2.32807	33.435	52.802	43.383	7.673031	78.6722	4.942505	1.07E+11	3.009221	56.617	0.493	52.62577	6.516854	8.7E+08
PHL	2	12	2006	1.89E+11	10.018	2.42579	32.935	52.072	42.76	6.870609	82.98755	5.316417	1.28E+11	3.559722	57.24	0.493	53.2325	5.485232	1.6E+09
PHL	2	13	2007	2.01E+11	8.742	2.48518	32.245	51.2	41.973	9.608937	85.39419	6.519292	1.56E+11	4.687505	58.027	0.493	54.24203	2.9	2.45E+09
PHL	2	14	2008	2.1E+11	9.844	2.58283	31.51	50.921	41.472	1.511425	92.44813	4.344487	1.82E+11	2.516571	58.528	0.493	54.5711	8.260447	6.3E+08
PHL	2	15	2009	2.13E+11	10.149	2.53777	32.181	51.009	41.843	9.373743	96.34855	1.448323	1.76E+11	0.36296	58.156	0.493	55.49538	4.219031	1.7E+08
PHL	2	16	2010	2.29E+11	9.736		32.012	50.346	41.432	13.08474	100	7.3345	2.08E+11	5.158694	58.568	0.493	56.68588	3.789836	1.64E+09
PHL	2	17	2011	2.37E+11	9.477		33.186	52.538	43.141	-1.00946	104.7184	3.858233	2.34E+11	1.837605	56.859	0.493	57.44772	4.718417	3.42E+08
PHL	2	18	2012	2.54E+11	9.361		32.722	51.952	42.626	2.234148	107.8882	6.896952	2.62E+11	4.840765	57.375	0.493	59.36755	3.026964	9.58E+08
PHL	2	19	2013	2.71E+11	9.165		31.892	51.17	41.83	1.411718	110.6746	6.750531	2.84E+11	4.762666	58.169	0.465	60.56236	2.582688	9E+07
PHL	2	20	2014	2.88E+11	9.465	2.664542	32.679	51.831	42.556	11.62827	114.6565	6.347987	2.97E+11	4.615141	57.444	0.465	60.06965	3.597823	1.01E+09
PHL	2	21	2015	3.06E+11	8.509	2.830523	31.27	49.129	40.461	7.425969	115.4295	6.34831	3.06E+11	4.787251	59.54	0.469	61.51097	0.674193	1E+08
PHL	2	22	2016	3.28E+11	7.634	3.301281	30.276	49.196	39.973	1.699684	116.8766	7.149457	3.19E+11	5.721215	60.027	0.463	61.87022	1.253699	5.9E+09
PHL	2	23	2017	3.51E+11	7.379	3.963841	27.565	46.26	37.103	0.980768	120.2114	6.930988	3.28E+11	5.56223	62.897	0.455	62.83539	2.853188	7E+09
PHL	2	24	2018	3.73E+11	6.605	3.855028	27.324	43.83	35.7	-3.45809	126.5938	6.341486	3.47E+11	5.034291	64.3	0.455	64.11809	5.309347	5.8E+09
PHL	2	25	2019	3.96E+11	6.696	3.407486	27.174	42.185	34.753		129.622	6.118526	3.77E+11	4.835775	65.247	0.438	64.48444	2.392065	5.3E+09
PHL	2	26	2020	3.59E+11	6.987	3.85829	23.334	36.815	30.127		132.7241	-9.51829	3.62E+11	-10.5489	69.874	0.397	63.22676	2.393162	3.3E+09
PHL	2	27	2021	3.79E+11	8.434	3.872498	23.692	38.53	31.171		137.9364	5.714733	3.94E+11	4.761639	68.828	0.397	63.56815	3.92718	9.7E+09
PHL	2	28	2022	4.08E+11	6.813	3.579601	25.25	39.705	32.539		145.9659	7.580982	4.04E+11	6.765954	67.46	0.424	62.90939	5.821158	5.6E+09
PHL	2	29	2023	4.3E+11	6.991	3.623686	25.114	39.279	32.261		154.6917	5.51895	4.37E+11	4.667697	67.832	0.424	63.20441	5.978025	5.4E+09

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IND	3	1	1995	5.96E+11	20.285		26.178	65.803	46.776	6.397566	37.74521	7.574492	3.6E+11	5.430703	53.224	0.824	13.98101	10.22489	2E+09
IND	3	2	1996	6.41E+11	20.162		26.586	66.274	47.232	6.512234	41.13366	7.549522	3.93E+11	5.422261	52.767	0.824	14.27477	8.977152	2.2E+09
IND	3	3	1997	6.67E+11	20.262	3.36136	26.998	66.741	47.688	3.779452	44.08058	4.049821	4.16E+11	2.023745	52.311	0.824	14.52457	7.164252	3.5E+09
IND	3	4	1998	7.08E+11	20.317	3.57256	27.414	67.206	48.143	4.827102	49.91281	6.184416	4.21E+11	4.148495	51.857	0.824	14.76559	13.23084	2.6E+09
IND	3	5	1999	7.71E+11	20.265	4.41539	27.835	67.667	48.595	5.641392	52.24365	8.845756	4.59E+11	6.795042	51.405	0.824	15.04059	4.66982	2.1E+09
IND	3	6	2000	8.01E+11	20.273	4.32479	28.259	68.124	49.045	3.353054	54.33832	3.840991	4.68E+11	1.90763	50.955	0.824	15.3041	4.009436	3.1E+09
IND	3	7	2001	8.39E+11	20.513		27.86	67.019	48.283	1.194798	56.39193	4.823966	4.85E+11	2.881347	51.716	0.779	15.3621	3.779293	4.1E+09
IND	3	8	2002	8.71E+11	20.918		27.466	65.894	47.512	1.779744	58.81517	3.803975	5.15E+11	1.940705	52.488	0.779	15.42097	4.297152	3.9E+09
IND	3	9	2003	9.4E+11	20.957	3.61341	27.074	64.752	46.731	3.858941	61.0536	7.860381	6.08E+11	6.0058	53.269	0.779	15.51076	3.805859	2.4E+09
IND	3	10	2004	1.01E+12	21.047	3.35254	26.686	63.592	45.939	4.55459	63.35364	7.922937	7.09E+11	6.099965	54.06	0.779	15.64477	3.767252	3.6E+09
IND	3	11	2005	1.09E+12	21.119	3.18875	26.302	62.416	45.139	8.47531	66.04385	7.923431	8.2E+11	6.177029	54.861	0.779	15.79065	4.246344	4.6E+09
IND	3	12	2006	1.18E+12	21.468	3.14285	24.762	60.448	43.373	9.565968	69.8721	8.060733	9.4E+11	6.383677	56.627	0.763	15.97222	5.796523	6E+09
IND	3	13	2007	1.27E+12	21.861		23.283	58.444	41.62	10.07162	74.32496	7.660815	1.22E+12	6.0516	58.38	0.763	16.15443	6.372881	8.2E+09
IND	3	14	2008	1.31E+12	22.479		21.867	56.413	39.885	6.031709	80.53055	3.086698	1.2E+12	1.614135	60.115	0.763	16.27204	8.349267	2.4E+10
IND	3	15	2009	1.42E+12	22.925	3.27825	20.514	54.359	38.171	4.706612	89.29417	7.861889	1.34E+12	6.31341	61.829	0.765	16.42055	10.88235	1.9E+10
IND	3	16	2010	1.54E+12	23.348	3.37769	19.225	52.291	36.482	9.787264	100	8.497585	1.68E+12	6.930798	63.518	0.732	16.57496	11.98939	1.1E+10
IND	3	17	2011	1.62E+12	23.657	3.79618	18.163	50.798	35.205	5.206228	108.9118	5.241316	1.82E+12	3.760742	64.795	0.732	17.77006	8.911793	2.4E+10
IND	3	18	2012	1.7E+12	24.184	4.084798	17.148	49.304	33.949	4.254238	119.2355	5.456388	1.83E+12	4.017267	66.051	0.738	18.94528	9.478997	1.5E+10
IND	3	19	2013	1.81E+12	24.548	3.84467	16.636	48.843	33.475	4.681524	131.1804	6.386106	1.86E+12	4.9777	66.513	0.722	19.42509	10.01788	2.6E+10
IND	3	20	2014	1.95E+12	24.749	3.89878	16.083	48.237	32.906	5.280931	139.9244	7.410228	2.04E+12	6.063981	67.075	0.68	19.92264	6.665657	2.3E+10
IND	3	21	2015	2.1E+12	24.959	4.114992	15.494	47.475	32.24	5.681695	146.7905	7.996254	2.1E+12	6.715667	67.742	0.586	20.45996	4.906973	3.6E+10
IND	3	22	2016	2.28E+12	25.2	4.256516	14.915	46.669	31.552	6.867698	154.054	8.256306	2.29E+12	6.973947	68.432	0.599	21.02904	4.948216	3.9E+10
IND	3	23	2017	2.43E+12	25.568	4.306397	14.336	45.816	30.836	5.051726	159.1812	6.795383	2.65E+12	5.561185	69.151	0.58	21.61802	3.328173	2.9E+10
IND	3	24	2018	2.59E+12	26.001	4.376933	13.73	44.917	30.082	5.884306	165.4511	6.453851	2.7E+12	5.29212	69.911	0.6	22.21496	3.938826	3.1E+10
IND	3	25	2019	2.69E+12	22.947	3.897324	13.098	43.981	29.294		171.6216	3.871437	2.84E+12	2.796758	70.704	0.444	22.77443	3.729506	3.7E+10
IND	3	26	2020	2.53E+12	24.666	4.040142	12.489	43.12	28.554		182.9888	5.77772	2.67E+12	6.69047	71.446	0.505	22.79817	6.623437	5.3E+10
IND	3	27	2021	2.78E+12	20.824	4.635141	13.245	43.168	28.936		192.3787	9.689592	3.17E+12	8.790934	71.064	0.539	23.3459	5.131407	2.7E+10
IND	3	28	2022	2.99E+12	17.769	4.120728	14.019	43.775	29.62		205.2662	7.609365	3.35E+12	6.762386	70.536	0.533	23.13044	6.699034	3.5E+10
IND	3	29	2023	3.27E+12			14.918	44.545	30.449		216.862	9.190755	3.64E+12	8.230531	69.864	0.522	23.87341	5.649143	1.4E+10
MAS	4	1	1995	1.17E+11	10.212	4.34255	36.577	54.017	45.47	8.026097	69.01064	9.829085	8.87E+10	7.073159	54.258	0.506	69.32424	3.450575	4.2E+09
MAS	4	2	1996	1.29E+11	8.239	4.91385	36.369	53.746	45.241	0.411617	71.41812	10.0027	1.01E+11	7.261941	55.016	0.506	69.69358	3.488559	5.1E+09
MAS	4	3	1997	1.39E+11	8.176	4.62038	36.161	53.476	45.01	4.848695	73.31964	7.322742	1E+11	4.686114	55.501	0.506	70.03207	2.662515	5.1E+09
MAS	4	4	1998	1.28E+11	10.383		35.954	53.205	44.778	7.59985	77.18383	7.35942	7.22E+10	9.60704	54.342	0.506	70.16186	5.270342	2.2E+09
MAS	4	5	1999	1.36E+11	11.153	5.68679	35.747	52.933	44.546	3.145858	79.30219	6.137612	7.91E+10	3.635889	54.721	0.506	70.21941	2.744561	2.5E+09
MAS	4	6	2000	1.48E+11	9.88	5.97161	35.541	52.662	44.329	3.578622	80.51927	8.858868	9.38E+10	6.336036	55.368	0.516	70.4982	1.53474	1.8E+09
MAS	4	7	2001	1.49E+11	11.617	7.48447	35.335	52.39	44.132	0.72903	81.66006	0.517675	9.28E+10	1.86948	55.099	0.516	70.686	1.416785	2.9E+08
MAS	4	8	2002	1.57E+11	11.38	7.65793	35.13	52.119	43.937	3.20063	83.13637	5.390988	1.01E+11	2.872626	55.365	0.516	70.89945	1.807872	1.3E+09
MAS	4	9	2003	1.66E+11	11.672	7.50288	34.926	51.847	43.732	1.701608	84.04228	5.788499	1.1E+11	3.314667	55.69	0.516	71.12595	1.089676	1.1E+09
MAS	4	10	2004	1.77E+11	11.532	5.92389	34.722	51.575	43.518	5.131115	85.23675	6.783438	1.25E+11	4.343213	56.134	0.516	71.38521	1.421271	2.6E+09
MAS	4	11	2005	1.87E+11	11.473		34.518	51.303	43.292	4.809906	87.77261	5.332139	1.44E+11	2.970371	56.445	0.516	71.65413	2.975071	9.9E+08
MAS	4	12	2006	1.97E+11	10.807	4.48576	34.316	51.031	43.055	3.089262	90.94053	5.584847	1.63E+11	3.259407	56.8	0.516	71.94482	3.609236	5.3E+07
MAS	4	13	2007	2.1E+11	10.617	4.37254	34.113	50.759	42.81	3.729403	92.78421	6.298786	1.94E+11	4.013304	57.244	0.516	72.26149	2.027353	2.74E+09
MAS	4	14	2008	2.2E+11	10.617	3.95852	33.912	50.487	42.562	3.784677	97.8324	4.83177	2.31E+11	2.658065	57.546	0.524	72.5523	5.440782	7.83E+09
MAS	4	15	2009	2.17E+11	11.341	5.97418	33.71	50.214	42.313	3.59266	98.40306	1.51353	2.02E+11	3.45603	57.167	0.524	72.64617	0.583308	6.63E+09
MAS	4	16	2010	2.33E+11	11.104	4.96645	33.51	49.942	42.075	1.2765	100	7.424847	2.55E+11	5.434241	57.769	0.523	72.74449	1.622852	4.46E+09
MAS	4	17	2011	2.45E+11	9.82	5.76294	33.31	49.67	41.863	1.360789	103.1745	5.293913	2.98E+11	3.465974	58.137	0.523	72.85877	3.174471	2.99E+09
MAS	4	18	2012	2.58E+11	10.337	5.73903	33.915	50.097	42.419	1.663695	104.8909	5.473454	3.14E+11	3.692766	57.581	0.523	72.9429	1.663571	8E+09
MAS	4	19	2013	2.71E+11	10.135	5.4812	34.525	50.523	42.979	0.28386	107.0988	4.693723	3.23E+11	2.919233	57.021	0.519	73.05254	2.105012	2.11E+09
MAS	4	20	2014	2.87E+11	9.769	5.02936	35.14	50.95	43.538	3.265261	110.4649	6.006722	3.38E+11	4.204478	56.462	0.519	73.19624	3.142991	5.44E+09
MAS	4	21	2015	3.01E+11	10.978	4.70381	34.47	50.23	42.878	3.473166	112.7895	5.091532	3.01E+11	3.285786	57.122	0.519	73.35053	2.10439	6.85E+08
MAS	4	22	2016	3.15E+11	10.835	4.345984	35.33	49.94	43.151	3.817476	115.1475	4.449781	3.01E+11	2.620046	56.849	0.519	73.51659	2.090567	3.4E+09
MAS	4	23	2017	3.33E+11	11.276	4.184885	35.62	49.76	43.206	3.794776	119.6051	5.812722	3.19E+11	3.961866	56.794	0.509	73.69382	3.871201	3.8E+09
MAS	4	24	2018	3.49E+11	11.394	4.131948	35.91	50.99	44.007	2.235988	120.6632	4.843087	3.59E+11	3.074018	55.993	0.6	73.85232	0.884709	2.5E+09
MAS	4	25	2019	3.65E+11	10.974	3.97954	37.65	53.17	45.979		121.4631	4.413187	3.65E+11	2.759501	54.021	0.6	74.02446	0.662892	1.6E+09
MAS	4	26	2020	3.45E+11	12.366	4.518887	34.88	50.15	43.047		120.08	5.45685	3.37E+11	6.70934	56.953	0.635	74.03995	1.1387	7.6E+08
MAS	4	27	2021	3.56E+11	11.582	4.261094	42.57	54.22	48.764		123.0545	3.31535	3.74E+11	2.131462	51.236	0.611	74.19193	2.477102	7.5E+09
MAS	4	28	2022	3.88E+11	12.269	3.499338	37.58	53.85	46.18		127.2121	9.031737	4.08E+11	7.733576	55.34	0.606	74.29003	3.378699	3.2E+09
MAS	4	29	2023	4.02E+11	12.28	3.627255	37.399	53.395	45.812		130.3783	3.537064	4E+11	2.267238	55.673	0.641	74.38362	2.488866	46861438

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SRI	5	1	1995	2.95E+10	33.776	2.9576	34.8	51.386	43.172	4.003344	23.62197	5.500085	1.3E+10	3.768417	56.818	0.531	55.72044	7.674849	5.6E+07
SRI	5	2	1996	3.07E+10	32.611	3.3436	33.757	53.857	43.894	0.425573	27.38632	3.799967	1.39E+10	1.823393	56.097	0.531	55.84045	15.93583	1.2E+08
SRI	5	3	1997	3.26E+10	31.52		33.251	54.246	43.834	5.058256	30.00821	6.4054	1.51E+10	4.404303	56.159	0.531	56.00372	9.573696	4.3E+08
SRI	5	4	1998	3.41E+10	25.722	3.05142	41.525	56.642	49.142	-2.93457	32.81825	4.698423	1.58E+10	2.740237	50.848	0.531	52.28871	9.364243	1.9E+08
SRI	5	5	1999	3.56E+10	26.254		35.612	58.918	47.353	3.717557	34.35799	4.30054	1.57E+10	2.380613	52.641	0.531	54.10564	4.691706	1.8E+08
SRI	5	6	2000	3.78E+10	23.791		30.879	55.889	43.48	2.186734	36.48003	6.000033	1.66E+10	4.086274	56.517	0.531	52.89055	6.176276	1.7E+08
SRI	5	7	2001	3.72E+10	24.994		30.217	54.762	42.584	-0.3771	41.64504	-1.54541	1.57E+10	-3.08905	57.413	0.531	55.26344	14.15846	1.7E+08
SRI	5	8	2002	3.86E+10	28.537		29.579	53.644	41.693	-0.54859	45.62257	3.964676	1.65E+10	2.886539	58.304	0.531	54.54091	9.551032	1.9E+08
SRI	5	9	2003	4.09E+10	27.587		28.964	52.537	40.809	4.497598	48.50347	5.940269	1.89E+10	5.166253	59.188	0.531	54.53403	6.314638	2E+08
SRI	5	10	2004	4.32E+10	28.302		28.367	51.439	39.931	3.950826	52.17806	5.445061	2.07E+10	4.730721	60.067	0.531	56.07802	7.575926	2.3E+08
SRI	5	11	2005	4.59E+10	27.7		27.78	50.352	39.059	4.927044	58.25142	6.241748	2.44E+10	5.564254	60.938	0.531	55.93229	11.63969	2.3E+08
SRI	5	12	2006	4.94E+10	22.121		27.196	49.283	38.194	2.864507	64.08832	7.668292	2.83E+10	6.949423	61.804	0.574	52.24242	10.02018	4.5E+08
SRI	5	13	2007	5.27E+10	21.467		26.606	48.231	37.335	7.752264	74.24126	6.796826	3.24E+10	6.066518	62.663	0.574	53.1216	15.84211	5.5E+08
SRI	5	14	2008	5.59E+10	18.731		26.002	47.196	36.483	-2.44501	90.99342	5.950088	4.07E+10	5.24733	63.516	0.574	52.6521	22.5645	6.9E+08
SRI	5	15	2009	5.79E+10	21.155	2.0559	25.379	46.178	35.637	4.165431	94.14631	3.538912	4.21E+10	2.905116	64.363	0.574	54.22945	3.464963	3.8E+08
SRI	5	16	2010	6.25E+10	18.684	1.66178	24.729	45.176	34.797	6.544363	100	8.015967	5.86E+10	7.381429	65.203	0.546	54.63093	6.217649	4.4E+08
SRI	5	17	2011	6.79E+10	16.758	1.74292	23.29	44.522	33.745	10.04679	106.7168	8.669483	6.78E+10	7.997269	66.255	0.578	55.0915	6.716768	9E+08
SRI	5	18	2012	7.38E+10	16.795	1.45342	22.732	44.338	33.399	10.6457	114.7663	8.632181	7.04E+10	7.809029	66.601	0.578	56.41817	7.542914	8.8E+08
SRI	5	19	2013	7.68E+10	17.939	1.56459	23.17	42.756	32.883	0.811169	122.6949	4.051746	7.7E+10	7.006027	67.117	0.581	56.28636	6.90845	8.7E+08
SRI	5	20	2014	8.17E+10	18.781	1.85859	22.179	40.582	31.346	4.701711	126.5954	6.377979	8.25E+10	5.389869	68.654	0.581	57.02133	3.179002	8.3E+08
SRI	5	21	2015	8.51E+10	19.232	2.10998	24.749	42.046	33.401	3.251075	131.3659	4.205955	8.51E+10	3.251852	66.599	0.552	56.14672	3.768368	6.3E+08
SRI	5	22	2016	8.94E+10	20.07	3.22929	22.906	42.046	32.514	2.948507	136.5666	5.053625	8.8E+10	3.869796	67.486	0.582	57.82285	3.958888	6.6E+08
SRI	5	23	2017	9.52E+10	17.391	2.59317	23.792	41.625	32.77	0.143857	147.0879	6.460681	9.44E+10	5.249829	67.23	0.582	57.67456	7.704138	1.3E+09
SRI	5	24	2018	9.74E+10	20.496	1.98781	20.527	39.096	29.896	3.093295	150.2282	2.310084	9.45E+10	1.285567	70.104	0.582	57.80321	2.135038	1.5E+09
SRI	5	25	2019	9.71E+10	20.425		21.541	39.271	30.499		155.5289	0.22048	8.9E+10	0.82915	69.501	0.622	57.91984	3.528394	6.7E+08
SRI	5	26	2020	9.27E+10	25.449	1.557924	19.447	38.166	28.913		165.1	4.62452	8.43E+10	5.12926	71.087	0.606	57.45291	6.153945	4.2E+08
SRI	5	27	2021	9.66E+10	25.371	1.506506	17.639	34.524	26.181		176.6815	4.207476	8.86E+10	3.092782	73.819	0.583	57.25726	7.014781	5.7E+08
SRI	5	28	2022	8.95E+10	21.732	1.203972	17.58	32.521	25.14		264.5294	-7.34919	7.41E+10	-7.45362	74.86	0.615	58.03364	49.7211	8.7E+08
SRI	5	29	2023	8.74E+10	26.262	1.827746	17.28	32.78	25.123		308.2857	-2.32985	8.37E+10	-1.69163	74.484	0.637	57.91153	16.54117	6.6E+08
VNM	6	1	1995	6.68E+10	3.981		71.676	69.069	70.364	6.348568	40.16572	9.54048	2.07E+10	7.722838	29.611	0.618	20.79836		
VNM	6	2	1996	7.31E+10	3.968		70.7	68.4	69.542	7.231763	42.44513	9.340017	2.47E+10	7.686226	30.458	0.618	21.28348	5.675	2.4E+09
VNM	6	3	1997	7.9E+10	5.987		66.9	65.5	66.194	7.665976	43.80741	8.152084	2.68E+10	6.5924	33.806	0.618	23.00871	3.209526	2.2E+09
VNM	6	4	1998	8.36E+10	4.761		64.2	62.3	63.24	2.299036	46.99055	5.764455	2.72E+10	4.257662	36.76	0.585	25.77918	7.266198	1.7E+09
VNM	6	5	1999	8.76E+10	4.783		61.7	58.8	60.234	1.780744	48.92519	4.773587	2.87E+10	3.416948	39.766	0.585	22.84124	4.117102	1.4E+09
VNM	6	6	2000	9.35E+10	4.732		57.2	55.3	56.239	6.131566	48.08841	6.787316	3.12E+10	5.58793	43.761	0.585	23.20068	-1.71034	1.3E+09
VNM	6	7	2001	9.93E+10	5.593		62	59.6	60.787	3.120033	47.88089	6.192893	3.27E+10	5.082401	39.213	0.585	25.62336	0.43154	1.3E+09
VNM	6	8	2002	1.06E+11	4.418		59.2	58.1	58.644	3.354473	49.71512	6.320821	3.51E+10	5.237177	41.356	0.585	25.16654	3.830828	1.4E+09
VNM	6	9	2003	1.13E+11	4.719		56.9	57.1	57.001	3.914642	51.32323	6.899063	3.96E+10	5.835561	42.999	0.585	26.66473	3.234648	1.5E+09
VNM	6	10	2004	1.21E+11	4.57		55.4	56.83	56.122	4.497739	55.30332	7.536411	4.54E+10	6.498787	43.878	0.585	30.27072	7.754947	1.6E+09
VNM	6	11	2005	1.31E+11	4.964		55.206	56.875	56.049	4.539941	59.88496	7.547248	5.76E+10	6.553397	43.951	0.585	30.78497	8.284572	1.9E+09
VNM	6	12	2006	1.4E+11	5.402		55.013	56.919	55.972	4.04593	64.32724	6.977955	6.64E+10	5.572397	44.028	0.585	31.29474	7.418017	2.3E+09
VNM	6	13	2007	1.5E+11	5.885		54.819	56.964	55.89	4.220232	69.69499	7.129504	7.74E+10	5.252312	44.109	0.585	31.80127	8.344449	6.5E+09
VNM	6	14	2008	1.58E+11	5.184		56.159	59.226	57.682	2.812623	85.8053	5.661771	9.91E+10	3.748386	42.317	0.585	32.72007	23.11545	9.3E+09
VNM	6	15	2009	1.67E+11	4.433		57.491	61.45	59.455	2.56601	91.56883	5.397898	1.06E+11	3.832375	40.545	0.585	33.58971	6.716983	6.9E+09
VNM	6	16	2010	1.77E+11	3.432		55.394	60.803	58.086	3.591926	100	6.423245	1.47E+11	5.212277	41.914	0.588	33.83383	9.207466	7.1E+09
VNM	6	17	2011	1.89E+11	3.226		52.271	60.216	56.238	3.489983	118.6777	6.413169	1.73E+11	5.194498	43.762	0.588	34.66593	18.67773	6.5E+09
VNM	6	18	2012	1.99E+11	3.63		51.242	58.531	54.892	5.731851	129.4711	5.504545	1.96E+11	4.276305	45.107	0.588	34.76752	9.094703	7.2E+09
VNM	6	19	2013	2.1E+11	4.559		53.643	61.077	57.379	3.863986	138.0067	5.553511	2.14E+11	4.314989	42.621	0.554	34.85585	6.592675	6.9E+09
VNM	6	20	2014	2.24E+11	4.666		54.135	60.797	57.494	4.87416	143.6437	6.422243	2.33E+11	5.137841	42.506	0.554	35.66074	4.084554	8.1E+09
VNM	6	21	2015	2.39E+11	6.267		55.064	62.554	58.852	6.900181	144.5504	6.987154	2.39E+11	5.668965	41.148	0.554	39.33621	0.631201	1.1E+10
VNM	6	22	2016	2.55E+11	6.763		53.194	59.878	56.576	5.423561	148.4073	6.690009	2.57E+11	5.354271	43.424	0.554	41.24382	2.668248	1.2E+10
VNM	6	23	2017	2.73E+11	7.124		52.848	59.906	56.414	6.124155	153.6317	6.94019	2.81E+11	5.617879	43.586	0.514	42.84888	3.520257	1.4E+10
VNM	6	24	2018	2.93E+11	4.648		51.7	58.55	55.153	6.360316	159.0696	7.465007	3.1E+11	6.280958	44.847	0.514	43.94434	3.539628	1.5E+10
VNM	6	25	2019	3.15E+11	5.624		54.208	60.249	57.249		163.5169	7.359263	3.34E+11	6.324649	42.751	0.544	44.34732	2.795824	1.6E+10
VNM	6	26	2020	3.24E+11	6.546		49.98	55.504	52.761		168.7837	2.865413	3.47E+11	1.915814	47.239	0.55	44.14912	3.220934	1.5E+10
VNM	6	27	2021	3.32E+11	6.907		43.334	47.908	45.637		171.8804	2.553729	3.66E+11	1.666516	54.375	0.517	44.77855	1.834716	1.5E+10
VNM	6	28	2022	3.61E+11	5.952		41.942	46.003	43.987		177.3058	8.5375	4.13E+11	7.725699	56.016	0.577	45.34771	3.156507	1.5E+10
VNM	6	29	2023	3.79E+11	6.345		40.065	42.418	41.25		183.0734	5.065024	4.34E+11	4.36195	56.468	0.535	45.71568	3.252893	2E+10

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THA	7	1	1995	2.14E+11	2.369	3.14498	57.794	66.542	62.21	5.836121	62.90721	8.120315	1.69E+11	6.588331	37.79	0.612	35.15857	5.818182	-1.2E+09
THA	7	2	1996	2.26E+11	2.527	3.49961	56.63	64.44	60.573	5.103235	66.55904	5.651944	1.83E+11	4.202878	39.427	0.612	37.20595	5.805106	-1.4E+09
THA	7	3	1997	2.19E+11	2.241	4.57719	55.32	63.04	59.221	-4.43802	70.30352	-2.75358	1.5E+11	-4.04196	40.779	0.624	37.16884	5.625797	-3.3E+09
THA	7	4	1998	2.03E+11	7.666	4.6257	51.4	61.86	56.693	-3.28618	75.92409	-7.63404	1.14E+11	-8.83217	43.307	0.657	36.00237	7.994729	-7.2E+09
THA	7	5	1999	2.12E+11	8.068	4.83267	48.63	57.93	53.344	2.669296	76.14027	4.572308	1.27E+11	3.269057	46.656	0.657	37.76756	0.284726	-5.8E+09
THA	7	6	2000	2.21E+11	6.818	5.25346	48.78	57.81	53.36	2.35275	77.3524	4.455247	1.26E+11	3.280235	46.64	0.657	37.69002	1.591969	-3.4E+09
THA	7	7	2001	2.29E+11	7.873	4.81787	47.73	60.44	54.177	0.83107	78.61085	3.444249	1.2E+11	2.398732	45.823	0.732	40.00135	1.626909	-4.6E+09
THA	7	8	2002	2.43E+11	5.758	3.86492	46.272	59.112	52.787	3.076239	79.15901	6.149036	1.34E+11	5.13275	47.213	0.732	39.57711	0.697309	-3.2E+09
THA	7	9	2003	2.61E+11	5.189	3.72561	44.82	57.77	51.391	4.718729	80.58732	7.189243	1.52E+11	6.194936	48.609	0.732	40.14487	1.80435	-4.6E+09
THA	7	10	2004	2.77E+11	4.596	4.03089	45.24	59	52.22	3.571528	82.81084	6.289342	1.73E+11	5.341162	47.78	0.711	43.45603	2.759149	-5.8E+09
THA	7	11	2005	2.89E+11	4.81	3.93859	45.48	57.58	51.619	2.627549	86.57076	4.187638	1.89E+11	3.295376	48.381	0.711	43.30602	4.540369	-7.7E+09
THA	7	12	2006	3.03E+11	4.842	4.05038	40.38	57.02	48.823	3.706046	90.58546	4.967811	2.22E+11	4.100118	51.177	0.699	43.27121	4.637474	-7.9E+09
THA	7	13	2007	3.19E+11	4.548	3.60315	41.95	56.72	49.443	3.797535	92.61597	5.435152	2.63E+11	4.594989	50.557	0.68	40.41456	2.241541	-7.1E+09
THA	7	14	2008	3.25E+11	4.874	3.5085	40.53	57.1	48.935	-0.38486	97.68066	1.725699	2.91E+11	0.94728	51.065	0.717	42.82071	5.468489	-6.2E+09
THA	7	15	2009	3.23E+11	5.729	3.86194	40.79	56.54	48.777	-2.50541	96.85456	-0.69062	2.82E+11	-1.42136	51.223	0.717	44.22906	-0.84572	-4.2E+08
THA	7	16	2010	3.47E+11	2.598	3.50844	38.853	54.273	46.676	6.578005	100	7.513391	3.41E+11	6.794799	53.324	0.719	44.545	3.247588	-6.6E+09
THA	7	17	2011	3.5E+11	2.947	4.80555	39.59	55.95	47.897	-0.28209	103.8088	0.840132	3.71E+11	0.215046	52.103	0.719	42.32684	3.808791	4.7E+09
THA	7	18	2012	3.75E+11	2.758	3.596918	38.84	55.77	47.444	5.931898	106.9385	7.242796	3.98E+11	6.580383	52.556	0.719	41.67035	3.0149	1.36E+09
THA	7	19	2013	3.85E+11	1.231	3.824399	34.876	52.973	44.083	2.777112	109.275	2.687496	4.2E+11	2.086153	55.917	0.678	41.8798	2.184886	-3.8E+09
THA	7	20	2014	3.89E+11	3.113	3.919178	34.946	50.812	43.028	3.185682	111.3459	0.984469	4.07E+11	0.450537	56.972	0.556	47.35781	1.895142	7.66E+08
THA	7	21	2015	4.01E+11	3.094	3.863976	34.454	49.53	42.143	3.299379	110.3433	3.134047	4.01E+11	2.659718	57.857	0.556	48.42281	-0.90042	-3.9E+09
THA	7	22	2016	4.15E+11	3.714	3.767617	34.33	48.691	41.664	4.242167	110.5509	3.435158	4.13E+11	2.969442	58.336	0.548	49.06166	0.18815	9.91E+09
THA	7	23	2017	4.32E+11	4.373	3.465322	33.518	47.997	40.921	4.676702	111.2868	4.177681	4.56E+11	3.737978	59.079	0.59	49.40315	0.665632	5.9E+09
THA	7	24	2018	4.51E+11	4.011	3.197694	33.97	49.112	41.721	3.009966	112.4708	4.22287	5.07E+11	3.907626	58.279	0.604	48.53425	1.063898	3.38E+09
THA	7	25	2019	4.6E+11	4.19	3.022214	33.37	47.285	40.5		113.2656	2.114558	5.44E+11	1.905835	59.5	0.604	49.71691	0.706729	4.63E+09
THA	7	26	2020	4.32E+11	5.199	3.153142	33.178	47.004	40.267		112.3075	-6.05004	5E+11	-6.20637	59.733	0.613	49.47688	-0.84594	2.27E+10
THA	7	27	2021	4.39E+11	5.858	2.982124	32.435	46.113	39.451		113.6893	1.552166	5.06E+11	1.430622	60.549	0.613	47.30266	1.230395	3.93E+09
THA	7	28	2022	4.5E+11	5.208	2.61187	32.955	45.295	39.286		111.8581	2.580379	4.96E+11	2.568943	60.714	0.613	47.96307	-1.61068	-4.2E+09
THA	7	29	2023	4.59E+11	4.547	2.521222	34.468	46.477	40.613		121.3415	2.017751	5.16E+11	2.064552	60.875	0.613	47.89971	8.478052	3.36E+09
NEP	8	1	1995	1.06E+10	18.813		17.743	50.133	34.318	0.357692	40.06542	3.468452	4.4E+09	1.012793	65.555	0.742	14.22503	7.62297	
NEP	8	2	1996	1.12E+10	18.768		17.666	50.061	34.221	2.873142	43.75964	5.328284	4.52E+09	3.029115	65.655	0.742	14.45543	9.220467	-1.9E+07
NEP	8	3	1997	1.18E+10	18.897		17.662	49.958	34.143	2.615861	45.51439	5.048613	4.92E+09	2.887868	65.736	0.742	14.68993	4.009989	-2.3E+07
NEP	8	4	1998	1.21E+10	18.913	2.89288	17.737	49.822	34.088	0.861143	50.63224	3.016389	4.86E+09	1.011368	65.795	0.742	14.89479	11.24447	-1.2E+07
NEP	8	5	1999	1.26E+10	18.943	2.89331	17.86	49.663	34.043	2.157513	54.40491	4.412573	5.03E+09	2.487321	65.844	0.742	15.10888	7.451113	-4351069
NEP	8	6	2000	1.34E+10	18.895	2.97515	18.002	49.489	33.997	4.275652	55.75351	6.2	5.49E+09	4.37721	65.894	0.742	15.36535	2.47882	484826.7
NEP	8	7	2001	1.41E+10	18.82	3.70838	18.18	49.291	33.955	2.748935	57.25233	4.799892	6.01E+09	3.118511	65.94	0.742	15.62522	2.688304	
NEP	8	8	2002	1.41E+10	18.999	3.15284	18.362	49.094	33.876	-1.57017	58.98673	0.120143	6.05E+09	-1.39074	66.02	0.742	15.7801	3.029399	5952541
NEP	8	9	2003	1.47E+10	19.123	3.11435	18.539	48.899	33.756	2.105331	62.35311	3.945038	6.33E+09	2.489263	66.139	0.742	15.94497	5.707009	-1.5E+07
NEP	8	10	2004	1.53E+10	19.166	3.17194	18.735	48.678	33.632	2.879935	64.12507	4.682603	7.27E+09	3.363248	66.262	0.742	16.13752	2.841811	417346.4
NEP	8	11	2005	1.59E+10	19.081	3.36464	18.925	48.335	33.446	1.734523	68.50887	3.479181	8.13E+09	2.327545	66.448	0.742	16.31557	6.836333	-2451785
NEP	8	12	2006	1.64E+10	19.159	3.60536	19.097	47.834	33.179	1.266153	73.24992	3.364615	9.04E+09	2.368661	66.718	0.775	16.50067	6.920336	6647984
NEP	8	13	2007	1.7E+10	19.268	3.51721	19.276	47.247	32.883	1.469245	74.91212	3.41156	1.03E+10	2.550455	67.017	0.828	16.68686	2.269219	-5741706
NEP	8	14	2008	1.8E+10	19.217	3.80517	19.522	46.595	32.608	4.434575	82.33428	6.104639	1.25E+10	5.312315	67.296	0.84	16.93488	9.90783	-995124
NEP	8	15	2009	1.88E+10	19.212	4.66376	19.847	45.902	32.376	3.117993	91.46913	4.533079	1.29E+10	3.829096	67.532	0.84	17.19034	11.09482	-3.8E+07
NEP	8	16	2010	1.97E+10	19.189	3.63172	20.231	45.195	32.189	3.389201	100	4.816415	1.6E+10	4.168865	67.722	0.828	17.47194	9.326504	-8.8E+07
NEP	8	17	2011	2.04E+10	19.307	3.84262	20.58	44.341	31.974	2.803852	109.2271	3.421809	2.16E+10	2.960358	67.947	0.828	17.7419	9.227075	-9.4E+07
NEP	8	18	2012	2.13E+10	19.316	3.528989	20.76	43.313	31.631	4.061546	119.5597	4.670142	2.17E+10	4.402446	68.306	0.828	18.03262	9.45981	-9.2E+07
NEP	8	19	2013	2.21E+10	19.403	3.202686	20.783	42.221	31.171	3.513706	130.3681	3.525153	2.22E+10	3.318474	68.787	0.799	18.3094	9.040163	-7.4E+07
NEP	8	20	2014	2.34E+10	19.342	3.485994	20.799	41.184	30.732	4.864287	141.2723	6.011483	2.27E+10	5.695912	69.242	0.783	18.60779	8.364155	-3E+07
NEP	8	21	2015	2.44E+10	19.404	3.294254	20.907	40.297	30.418	1.968369	152.3889	3.976053	2.44E+10	3.410803	69.567	0.777	18.8935	7.868909	-5.2E+07
NEP	8	22	2016	2.45E+10	19.586	3.477112	20.886	39.454	30.043	-2.19584	165.7844	0.433114	2.45E+10	-0.04051	69.95	0.697	19.1048	8.790343	-1.1E+08
NEP	8	23	2017	2.67E+10	19.571	3.528924	20.601	38.607	29.51	5.000615	170.3883	8.977279	2.9E+10	8.760206	70.49	0.813	19.39753	2.77704	-2E+08
NEP	8	24	2018	2.87E+10	19.559	3.664406	20.212	37.834	28.956	3.266929	177.8967	7.622376	3.31E+10	7.360097	71.046	0.805	19.75726	4.406594	-6.8E+07
NEP	8	25	2019	3.06E+10	19.557	3.485681	19.817	37.555	28.596		187.7987	6.657055	3.42E+10	5.401922	71.37	0.787	20.1237	5.56616	-1.9E+08
NEP	8	26	2020	2.99E+10	24.041	4.211067	19.815	37.136	28.316		197.2945	-2.36962	3.34E+10	-4.23183	71.651	0.746	20.03187	5.056358	-1.3E+08
NEP	8	27	2021	3.13E+10	22.619	3.956122	20.058	37.312	28.525		205.4363	4.83815	3.69E+10	3.02972	71.57	0.746	20.44922	4.126767	-2E+08
NEP	8	28	2022	3.31E+10	20.836	3.617784	19.445	36.441	27.818		221.1937	5.631315	4.12E+10	4.776657	71.461	0.77	20.70194	7.670206	-6.6E+07
NEP	8	29	2023	3.37E+10	20.649	3.681258	19.338	36.24	27.659		236.9336	1.982548	4.1E+10	2.054059	71.448	0.741	20.91311	7.115873	-7.5E+07
IDN	9	1	1995	3.81E+11	13.991	1.00435	43.203	61.677	52.55	10.67228	19.38786	8.220007	2.02E+11	6.435419	47.45	0.306	33.66248	9.420303	-3.7E+09
IDN	9	2	1996	4.11E+11	14.932	1.07855	42.909	61.111	52.127	0.300093	20.93371	7.818187	2.27E+11	6.058596	47.872	0.306	34.11726	7.973281	-5.6E+09
IDN	9	3	1997	4.3E+11	14.943	1.07208	41.183	59.87	50.657	2.623719	22.23707	4.699879	2.16E+11	3.010908	49.343	0.306	35.34581	6.226152	-4.5E+09
IDN	9	4	1998	3.74E+11	16.745		40.78	59.496	50.28	-14.108	35.23487	-13.1267	9.54E+10	-14.4892	49.72	0.542	32.7469	58.45104	2.41E+08
IDN	9	5	1999	3.76E+11	19.278		41.817	61.078	51.605	-0.95316	42.45021	0.791126	1.4E+11	-0.71261	48.395	0.687	32.97473	20.47783	1.87E+09
IDN	9	6	2000	3.95E+11	19.147		42.783	60.506	51.8	3.234037	44.01604	4.920068	1.65E+11	3.427864	48.2	0.687	32.72596	3.68862	4.55E+09
IDN	9	7	2001	4.09E+11	19.035	2.46003	40.516	60.44	50.664	2.549284	49.07793	3.643466	1.6E+11	2.214813	49.336	0.687	35.85107	11.50012	2.98E+09
IDN	9	8	2002	4.28E+11	21.434	2.64569	40.296	59.437	50.054	3.57477	54.91827	4.499475	1.96E+11	3.092309	49.946	0.703	36.037	11.90012	-1.5E+08
IDN	9	9	2003	4.48E+11	21.436	3.218	39.221	58.92	49.274	3.512726	58.62926	4.780369	2.35E+11	3.402446	50.725	0.703	34.41803	6.757313	5.97E+08
IDN	9	10	2004	4.71E+11	23.617	2.74847	40.234	60.163	50.414	4.074434	62.18458	5.030874	2.57E+11	3.704367	49.586	0.703	35.79036	6.064062	1.51E+09
IDN	9	11	2005	4.98E+11	26.301	2.87282	38.133	56.685	47.618	5.605553	68.68486	5.692571	2.86E+11	4.344356	52.382	0.656	38.09284	10.4532	-5.3E+09
IDN	9	12	2006	5.25E+11	24.616		39.45	57.395	48.632	3.976736	77.68853	5.500952	3.65E+11	4.112019	51.368	0.656	38.63901	13.10867	-2.2E+09
IDN	9	13	2007	5.58E+11	22.861	3.04425	40.374	60.289	50.571	1.747473	82.66569	6.345022	4.32E+11	4.949584	49.429	0.656	38.3427	6.406561	-2.3E+09
IDN	9	14	2008	5.92E+11	19.644	2.9019	38.948	59.288	49.368	3.506351	91.11964	6.013704	5.1E+11	4.647218	50.632	0.656	38.82563	10.22667	-3.4E+09
IDN	9	15	2009	6.19E+11	19.106	3.52513	38.506	57.136	48.053	2.558698	95.11652	4.628871	5.4E+11	3.3116	51.947	0.656	38.9829	4.386413	-2.6E+09
IDN	9	16	2010	6.58E+11	17.691	2.81228	37.842	55.955	47.127	3.236119	100	6.223854	7.55E+11	4.893262	52.873	0.656	40.05307	5.134206	-1.1E+10
IDN	9	17	2011	6.98E+11	18.393	3.18944	37.223	55.844	46.77	4.989092	105.356	6.169784	8.93E+11	4.822943	53.23	0.656	42.77808	5.356048	-1.2E+10
IDN	9	18	2012	7.41E+11	15.672	3.40748	38.234	57.417	48.069	5.19476	109.8648	6.030051	9.18E+11	4.675404	51.93	0.656	45.41829	4.279514	-1.4E+10
IDN	9	19	2013	7.82E+11	15.977	3.35904	37.239	56.39	47.058	3.989772	116.9098	5.557264	9.13E+11	4.256039	52.942	0.6	45.8471	6.412495	-1.2E+10
IDN	9	20	2014	8.21E+11	15.977	3.28801	36.254	55.029	45.88	3.556473	124.3861	5.006668	8.91E+11	3.779686	54.12	0.6	46.20344	6.394929	-1.5E+10
IDN	9	21	2015	8.61E+11	17.224	3.5836	36.95	55.19	46.302	4.958186	132.301	4.876322	8.61E+11	3.705834	53.697	0.603	48.50063	6.363121	-1.1E+10
IDN	9	22	2016	9.04E+11	15.997	1.210235	36.909	55.158	46.265	1.131065	136.9657	5.033069	9.32E+11	3.910543	53.735	0.603	48.37845	3.525805	-1.6E+10
IDN	9	23	2017	9.5E+11	14.553	1.053244	37.789	54.671	46.443	2.438066	142.1824	5.069786	1.02E+12	4.001099	53.557	0.62	48.31366	3.808799	-1.9E+10
IDN	9	24	2018	9.99E+11	16.369	0.994436	38.199	56.553	47.608	3.127402	146.7299	5.174292	1.04E+12	4.1593	52.392	0.602	47.53125	3.198348	-1.3E+10
IDN	9	25	2019	1.05E+12	13.577	0.964399	39.981	55.801	48.091		151.1767	5.019288	1.12E+12	4.041304	51.909	0.605	47.5775	3.030585	-2.1E+10
IDN	9	26	2020	1.03E+12	14.773	1.015932	38.857	54.891	47.077		154.079	-2.06551	1.06E+12	-2.89423	52.923	0.615	46.50542	1.919835	-1.4E+10
IDN	9	27	2021	1.07E+12	13.8	1.032218	37.875	51.292	44.754		156.4828	3.702886	1.19E+12	2.974762	55.246	0.615	46.87467	1.560079	-1.7E+10
IDN	9	28	2022	1.12E+12	14.055	0.863943	37.974	52.244	45.29		163.0699	5.307197	1.32E+12	4.524476	54.71	0.575	46.55516	4.209465	-1.8E+10
IDN	9	29	2023	1.18E+12	13.124	1.275171	38.266	53.755	46.207		169.0535	5.049023	1.37E+12	4.16753	55.217	0.575	45.95437	3.669387	-1.4E+10
PAK	10	1	1995	1.38E+11	0.974	2.79531	10.844	65.821	39.066	3.57034	30.58593	4.962609	6.06E+10	1.972286	60.934	0.413	33.69035	12.34358	-7.2E+08
PAK	10	2	1996	1.45E+11	0.965	2.81057	12.452	66.363	40.128	2.811074	33.75886	4.846581	6.33E+10	1.838808	59.872	0.413	33.69036	10.37381	-9.2E+08
PAK	10	3	1997	1.47E+11	0.958	3.0223	14.205	66.777	41.195	-3.56256	37.59909	1.014396	6.24E+10	-1.80254	58.805	0.413	35.99624	11.37549	-7.4E+08
PAK	10	4	1998	1.5E+11	0.955		14.254	64.919	40.264	-2.72611	39.94077	2.550234	6.22E+10	-0.24273	59.736	0.413	34.80815	6.228004	-4.6E+08
PAK	10	5	1999	1.56E+11	0.948	2.61149	12.26	67.069	40.398	1.067289	41.59537	3.660133	6.3E+10	0.876624	59.602	0.413	34.80781	4.142637	-5.1E+08
PAK	10	6	2000	1.63E+11	0.939	1.83782	10.38	69.057	40.516	4.863396	43.4117	4.260088	9.95E+10	1.356198	59.484	0.413	35.13757	4.366665	-3E+08
PAK	10	7	2001	1.68E+11	0.939		12.583	69.776	41.965	-0.89315	44.77841	3.65135	9.71E+10	0.793239	58.035	0.413	35.13608	3.148261	-3.5E+08
PAK	10	8	2002	1.73E+11	0.82		14.991	70.393	43.426	-0.88146	46.25178	2.594817	9.79E+10	0.110981	56.574	0.413	39.42064	3.290345	-8E+08
PAK	10	9	2003	1.82E+11	0.99		15.546	70.057	43.505	3.266989	47.59962	5.401311	1.12E+11	2.949226	56.495	0.413	39.42175	2.914135	-5.2E+08

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APPENDIX B-

➢ *Data Source Links*

- *World Bank Open Data 360*

✓ Annual GDP rate https://data360.worldbank.org/en/indicator/WB_WDI_NY_GDP_MKTP_KD_ZG
✓ Youth Unemployment rate
✓ https://data360.worldbank.org/en/indicator/WB_HCP_UNE_2EAP_MF_Y
✓ Government Expenditure on Education (% of total GDP)
✓ https://data360.worldbank.org/en/indicator/WB_GS_SE_XPD_GD_ZS
✓ Labor Productivity Growth Rate
✓ https://data360.worldbank.org/en/indicator/WB_GS_SE_XPD_GD_ZS
✓ Inflation (Consumer Price Index)
✓ https://data360.worldbank.org/en/indicator/IMF_WEO_PCPI
✓ World Bank Development Indicators
✓ https://databank.worldbank.org/source/world-development-indicators

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APPENDIX -C

➢ *Raw Analysis from Stata*

```
  ___  ____  ____  ____  ____ ®
 /__    /   ____/   /   ____/      StataNow 19.5
___/   /   /___/   /   /___/       BE—Basic Edition

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Notes:
      1. Unicode is supported; see help unicode_advice.
```

Fig 1 Fixed Effects Test

```
R-squared:                                      Obs per group:
     Within  = 0.6054                                        min =        12
     Between = 0.2559                                        avg =      16.7
     Overall = 0.3231                                        max =        20

                                                F(8, 8)           =         .
corr(u_i, Xb) = -0.6036                         Prob > F          =         .

                                  (Std. err. adjusted for 9 clusters in id)
------------------------------------------------------------------------------
             |               Robust
      ln_yur | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
        year |  -.0177083   .0195637    -0.91   0.392    -.0628222    .0274057
         cpi |   .0048799   .0038208     1.28   0.237     -.003931    .0136907
        gdpc |   6.24e-13   1.84e-13     3.40   0.009     2.01e-13    1.05e-12
         eai |  -.4808305   .6034635    -0.80   0.449    -1.87242     .9107588
      fdinet |  -4.49e-12   6.02e-12    -0.75   0.477    -1.84e-11    9.39e-12
    ln_gexedu |   .3537361   .0902572     3.92   0.004     .1456026    .5618695
     ln_tlpr |  -12.62218   4.560471    -2.77   0.024    -23.13864    -2.10571
     ln_flpr |   5.649861   .9574704     5.90   0.000      3.44193    7.857791
     ln_mlpr |   9.630021   3.118941     3.09   0.015      2.43773    16.82231
      ln_gdp |  -.0690861   .1853785    -0.37   0.719    -.4965696    .3583973
    ln_gdppc |  -.0679087   .1492361    -0.46   0.661    -.4120478    .2762303
      ln_yir |   2.109514   2.044862     1.03   0.332    -2.605947    6.824975
     ln_wasw |  -1.623525   .9199296    -1.76   0.116    -3.744887    .4978363
ln_inflation |   -.132462   .0673402    -1.97   0.085    -.2877488    .0228248
     ln_lpgr |   .0165806   .0499595     0.33   0.749    -.0986262    .1317874
       _cons |   24.73247   35.86257     0.69   0.510    -57.96677    107.4317
------------------------------------------------------------------------------
```

Fig 2 Pooled OLS Test

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Source	SS	df	MS	Number of obs	=	150
				F(14, 135)	=	11.95
Model	46.9888829	14	3.35634878	Prob > F	=	0.0000
Residual	37.9271162	135	.280941602	R-squared	=	0.5534
				Adj R-squared	=	0.5070
Total	84.9159991	149	.569906034	Root MSE	=	.53004

ln_yur	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
year	-.0384593	.0222569	-1.73	0.086	-.0824766	.005558
ln_lpgr	-.1046524	.0692381	-1.51	0.133	-.241584	.0322793
ln_inflation	.1918555	.0724082	2.65	0.009	.0486545	.3350565
ln_wasw	-.5491796	.2008126	-2.73	0.007	-.9463252	-.1520341
ln_yir	8.650517	2.735912	3.16	0.002	3.239726	14.06131
ln_gdppc	-.0384327	.3059651	-0.13	0.900	-.6435375	.5666722
ln_gdp	.2544723	.4467334	0.57	0.570	-.6290288	1.137973
ln_tlpr	1.604818	1.953715	0.82	0.413	-2.259029	5.468665
ln_flpr	2.189336	.3090291	7.08	0.000	1.578172	2.800501
ln_gexedu	-.2920567	.1653106	-1.77	0.080	-.6189903	.0348769
fdinet	8.58e-12	1.38e-11	0.62	0.535	-1.87e-11	3.59e-11
eai	.492486	.6772024	0.73	0.468	-.8468119	1.831784
gdpc	5.81e-13	2.14e-13	2.72	0.007	1.58e-13	1.00e-12
cpi	.0037066	.0038288	0.97	0.335	-.0038656	.0112789
_cons	32.26803	40.33165	0.80	0.425	-47.49555	112.0316

Fig 3 Multicollinearity Test

```
. vif
```

Variable	VIF	1/VIF
ln_yir	55.18	0.018124
ln_tlpr	54.99	0.018185
year	12.62	0.079209
ln_gdppc	11.67	0.085697
ln_gdp	10.60	0.094312
cpi	10.36	0.096489
gdpc	6.48	0.154423
ln_flpr	6.23	0.160477
fdinet	5.53	0.180702
ln_wasw	4.98	0.200933
eai	4.38	0.228175
ln_gexedu	2.23	0.448064
ln_inflation	1.51	0.661236
ln_lpgr	1.29	0.775584
Mean VIF	13.43	

Fig 4 Heteroskedasticity Test

```
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of ln_yur

H0: Constant variance

    chi2(1) =  29.41
Prob > chi2 = 0.0000
```

Fig 5 Group-Wise Heteroskedasticity Test and Autocorrelation Test

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```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (9)  =        491.49
Prob > chi2 =        0.0000


. xtserial ln_yur year cpi gdpc eai fdinet ln_gexedu ln_tlpr ln_flpr ln_mlpr ln_gdp ln_gdppc ln_yir ln_wasw ln_inflation ln_lpgr

Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
   F(  1,      8) =     2.094
         Prob > F =     0.1859
```

Fig 6 Logarithmic Form Codes

```
. gen ln_lpgr = ln(lpgr)
(84 missing values generated)
```

```
Panel variable: id (strongly balanced)
 Time variable: year, 1995 to 2023
         Delta: 1 unit

. gen ln_yur = ln(yur)
(6 missing values generated)

. gen ln_gexedu = ln(gexedu)
(71 missing values generated)

. gen ln_mlpr = ln(mlpr)

. gen ln_flpr = ln(flpr)

. gen ln_tlpr = ln(tlpr)

. gen ln_gdp = ln(gdp)
(20 missing values generated)

. gen ln_gdppc = ln(gdppc)
(29 missing values generated)

. gen ln_yir = ln(yir)

. gen ln_wasw = ln(wasw)

. gen ln_inflation = ln(inflation)
```

Fig 7 Random Effects Test

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```
R-squared:                                      Obs per group:
     Within  = 0.2982                                        min =         12
     Between = 0.8668                                        avg =       16.7
     Overall = 0.6863                                        max =         20

                                                Wald chi2(13)     =          .
corr(u_i, X) = 0 (assumed)                      Prob > chi2       =          .
```

ln_yur	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
year	-.0229901	.0188335	-1.22	0.222	-.0599031	.0139229
cpi	.0008226	.0032433	0.25	0.800	-.0055341	.0071793
gdpc	8.03e-13	1.82e-13	4.41	0.000	4.47e-13	1.16e-12
eai	.5927619	.5697826	1.04	0.298	-.5239915	1.709515
fdinet	5.28e-12	1.16e-11	0.45	0.649	-1.75e-11	2.80e-11
ln_gexedu	-.1373197	.1405582	-0.98	0.329	-.4128086	.1381693
ln_tlpr	-25.78318	3.988179	-6.46	0.000	-33.59987	-17.9665
ln_flpr	8.551281	.8832243	9.68	0.000	6.820193	10.28237
ln_mlpr	16.91877	2.244794	7.54	0.000	12.51905	21.31848
ln_gdp	1.110854	.3925721	2.83	0.005	.3414269	1.880281
ln_gdppc	-.7515556	.2742036	-2.74	0.006	-1.288985	-.2141263
ln_yir	1.104871	2.509648	0.44	0.660	-3.813949	6.023691
ln_wasw	-.0504046	.1814143	-0.28	0.781	-.40597	.3051608
ln_inflation	.1103941	.0618575	1.78	0.074	-.0108445	.2316326
ln_lpgr	-.0559091	.0585975	-0.95	0.340	-.170758	.0589398
_cons	43.01092	33.9548	1.27	0.205	-23.53928	109.5611

Fig 8 Hausman Test

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) Std. err.
year	-.0177083	-.0177083	0	0
cpi	.0048799	.0048799	0	0
gdpc	6.24e-13	6.24e-13	0	0
eai	-.4808305	-.4808305	0	0
fdinet	-4.49e-12	-4.49e-12	0	0
ln_gexedu	.3537361	.3537361	0	0
ln_tlpr	-12.62218	-12.62218	0	0
ln_flpr	5.649861	5.649861	0	0
ln_mlpr	9.630021	9.630021	0	0
ln_gdp	-.0690861	-.0690861	0	0
ln_gdppc	-.0679087	-.0679087	0	0
ln_yir	2.109514	2.109514	0	0
ln_wasw	-1.623525	-1.623525	0	0
ln_inflation	-.132462	-.132462	0	0
ln_lpgr	.0165806	.0165806	0	0

```
                b = Consistent under H0 and Ha; obtained from xtreg.
     B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic

    chi2(0) = (b-B)'[(V_b-V_B)^(-1)](b-B)
            = 0.00
```

Fig 9 Robust Standard Error Fixed Effects Test

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```
R-squared:                                      Obs per group:
     Within  = 0.6054                                        min =        12
     Between = 0.2559                                        avg =      16.7
     Overall = 0.3231                                        max =        20

                                                F(8, 8)           =         .
corr(u_i, Xb) = -0.6036                         Prob > F          =         .

                                    (Std. err. adjusted for 9 clusters in id)
------------------------------------------------------------------------------
             |               Robust
      ln_yur | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
        year |  -.0177083   .0195637    -0.91   0.392    -.0628222    .0274057
         cpi |   .0048799   .0038208     1.28   0.237     -.003931    .0136907
        gdpc |   6.24e-13   1.84e-13     3.40   0.009     2.01e-13    1.05e-12
         eai |  -.4808305   .6034635    -0.80   0.449     -1.87242    .9107588
      fdinet |  -4.49e-12   6.02e-12    -0.75   0.477    -1.84e-11    9.39e-12
   ln_gexedu |   .3537361   .0902572     3.92   0.004     .1456026    .5618695
     ln_tlpr |  -12.62218   4.560471    -2.77   0.024    -23.13864   -2.10571
     ln_flpr |   5.649861   .9574704     5.90   0.000      3.44193    7.857791
     ln_mlpr |   9.630021   3.118941     3.09   0.015      2.43773    16.82231
      ln_gdp |  -.0690861   .1853785    -0.37   0.719    -.4965696    .3583973
    ln_gdppc |  -.0679087   .1492361    -0.46   0.661    -.4120478    .2762303
      ln_yir |   2.109514   2.044862     1.03   0.332    -2.605947    6.824975
     ln_wasw |  -1.623525   .9199296    -1.76   0.116    -3.744887    .4978363
ln_inflation |   -.132462   .0673402    -1.97   0.085    -.2877488    .0228248
     ln_lpgr |   .0165806   .0499595     0.33   0.749    -.0986262    .1317874
       _cons |   24.73247   35.86257     0.69   0.510    -57.96677    107.4317
------------------------------------------------------------------------------
```

Fig 9 Robust Standard Error Random Effects Test

```
R-squared:                                      Obs per group:
     Within  = 0.2982                                        min =        12
     Between = 0.8668                                        avg =      16.7
     Overall = 0.6863                                        max =        20

                                                Wald chi2(9)      =         .
corr(u_i, X) = 0 (assumed)                      Prob > chi2       =         .

                                    (Std. err. adjusted for 9 clusters in id)
------------------------------------------------------------------------------
             |               Robust
      ln_yur | Coefficient  std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
        year |  -.0229901   .0407242    -0.56   0.572     -.102808    .0568278
         cpi |   .0008226   .0068041     0.12   0.904    -.0125132    .0141583
        gdpc |   8.03e-13   1.52e-13     5.27   0.000     5.04e-13    1.10e-12
         eai |   .5927619   .5862424     1.01   0.312    -.5562521    1.741776
      fdinet |   5.28e-12   7.85e-12     0.67   0.501    -1.01e-11    2.07e-11
   ln_gexedu |  -.1373197   .1725478    -0.80   0.426    -.4755071    .2008677
     ln_tlpr |  -25.78318   3.094078    -8.33   0.000    -31.84747   -19.7189
     ln_flpr |   8.551281   1.059343     8.07   0.000     6.475007    10.62755
     ln_mlpr |   16.91877   2.381835     7.10   0.000     12.25046    21.58708
      ln_gdp |   1.110854   .8576239     1.30   0.195    -.5700577    2.791766
    ln_gdppc |  -.7515556   .5261528    -1.43   0.153    -1.782796     .279685
      ln_yir |   1.104871   2.464066     0.45   0.654    -3.724609    5.934351
     ln_wasw |  -.0504046   .2343802    -0.22   0.830    -.5097814    .4089722
ln_inflation |   .1103941   .0937924     1.18   0.239    -.0734357    .2942238
     ln_lpgr |  -.0559091   .0630208    -0.89   0.375    -.1794276    .0676094
       _cons |   43.01092   68.20586     0.63   0.528    -90.67012     176.692
------------------------------------------------------------------------------
```