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di Torino**

Master Thesis

*“Pakistan Economy and Exploring the Potential of the Automotive
Industry for Economic Growth”*

Master of Sciences in Engineering Management

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ABSTRACT

The economic development of Pakistan has been hampered by a multitude of complex challenges like sluggish economic growth, poor infrastructure for enabling technology adoption, massive burden due to debt servicing, depleting foreign reserves, declining confidence in long term businesses, bureaucratic hurdles in facilitating joint ventures and political instabilities etc. However, the nation's automotive sector offers significant, yet untapped, avenue for bolstering economy from medium to large scale industrial level. Despite continuously evolving policy interventions, the full potential of this sector remains largely unexplored. This research endeavors to comprehensively analyze the impacts and opportunities presented by the automotive industry on economic landscape. The central inquiry focuses on elucidating how strategic development within this industry can act as a catalyst for broader economic growth and stability. By employing a rigorous methodology incorporating statistical data, quantitative analyses, and empirical evidence, the research aims to provide a thorough understanding of the industry's current state and its potential future trajectory. The core of this investigation lies in exploring the pathways through which the automotive industry can become a driving force behind economic resurgence. The research will examine the industry's potential to generate employment opportunities, promote technological advancements, and create value addition, ultimately contributing to bolster key sectors within the mainstream economy. Recognizing the importance of addressing roadblocks, the study will also critically examine the challenges hindering the optimal establishment and growth of the automotive industry in Pakistan. Through an in-depth analysis of the regulatory frameworks, infrastructure requirements, and market dynamics, the research aims to identify and propose policy imperatives that are necessary to unlock the industry's full potential.

1. INTRODUCTION

PAKISTAN OVERVIEW

Pakistan's name is a combination of two words: "Pak" from Persian, meaning pure or clean, and "Istan" from Hindi, meaning place. Hence, Pakistan translates to "Pure Land." The nation emerged as a sovereign state on August 14, 1947, following the partition of the Indian subcontinent into two separate nations, India and Pakistan, after the end of British colonial rule.

The history of Pakistan dates back to at least 2,500 years before Christ, with the emergence of a highly developed civilization in the Indus Valley. Around 1500 B.C., the Aryans dominated the region, influencing Hindu civilization and shifting its center to the Ganges Valley. Subsequently, the Persians conquered this land in the 5th century B.C., maintaining control until the 2nd century A.D. The region also saw the arrival of the Greeks under Alexander the Great in 327 B.C.

Before the arrival of Muhammad Bin Qassim, a Muslim leader, in 712 A.D. in the Sindh region (now a province of Pakistan), the inhabitants of the subcontinent were predominantly Hindu. His conquest introduced Islam to the area, significantly altering the cultural and social landscape. Numerous Muslim and Hindu rulers governed the region until the British Empire established dominance in 1757. The British rule lasted nearly 200 years, culminating in the subcontinent's partition in 1947 into two nations: India and Pakistan.

Under the leadership of Quaid-e-Azam Muhammad Ali Jinnah, Pakistan gained sovereignty. Following independence, Pakistan welcomed approximately 10 to 12 million refugees from Hindu-majority areas of India. These refugees, from diverse racial, cultural, and linguistic backgrounds, were embraced and supported in their new homeland, contributing to Pakistan's rich diversity. The creation of Pakistan was driven by the desire of the subcontinent's Muslims for a separate state where they could practice Islam freely. Pakistan was officially declared an Islamic republic with the adoption of the 1956 constitution.



Figure 1 : Map of Subcontinent

From independence until 1971, Pakistan comprised two regions: West Pakistan and East Pakistan. West Pakistan is located in the Indus River Basin in the northwest of the Indian subcontinent, and East Pakistan, is situated approximately 1,600 kilometers east in the Ganges-Brahmaputra Delta. Due to a civil war in 1971, East Pakistan seceded and became the independent state of Bangladesh.

Today, Pakistan is the world's sixth most populous country. Additionally, the Institute of European Business Administration has ranked the people of Pakistan as the fourth most intelligent globally, based on a study of 125 countries. Pakistan boasts the seventh-largest number of scientists and engineers worldwide. It is home to some of the world's tallest mountains and the second largest and oldest salt mine. Pakistan also has the sixth-largest standing army and is a nuclear power. The nation's economy is growing, supported by a strengthening middle class.

Pakistan is a member of numerous international organizations. It joined the United Nations in 1947 and has served on the Security Council seven times. Pakistani diplomat Muhammad Zafarullah Khan was President of the United Nations General Assembly in 1962. Pakistan is also an active member of the World Health Organization (WHO), collaborating on various projects to assist approximately 1.5 million people affected by natural disasters and security issues. Efforts to eradicate polio in Pakistan are ongoing, with active participation from the Pakistani government. Other prominent organizations that Pakistan is part of include the Commonwealth of Nations, the South Asian Association for Regional Cooperation (SAARC), the Organization of Islamic Cooperation (OIC), the Shanghai Cooperation Organization (SCO), and the Economic Cooperation Organization (ECO)

1.1 GEOGRAPHY

Pakistan is Situated in South Asia, strategically positioned as a nexus between Central and Middle East Asia. The country shares extensive borders with four neighboring nations, totaling approximately 6,774 kilometers, its borders are as follows Chinese to the north, India to the east, the disputable area in Kashmir, or Jammu and Kashmir, in the north-east, Iran and Afghanistan in the west of the country, with the coast of the Arabian Sea to the south of the country. Further enhancing its strategic significance with a coastline stretching 1,046 kilometers Pakistan is situated within latitude 24 and 37 degrees to the north, corresponding to Florida's northernmost point towards Virginia's westernmost boundary. (Khan, F. K. 1991) Pakistan shares borders with distinct countries, each shaping its history and future. India with whom Pakistan has a complex relationship marked by historical disputes and a shared nuclear arsenal. Afghanistan has deep cultural ties but recent instability has strained relations. Bordering the west is Iran, a fellow Muslim-majority nation with generally positive ties. China boasts a shorter border but holds significant strategic importance due to its growing influence and strong economic partnership with Pakistan, exemplified by the China-Pakistan Economic Corridor project. While the Arabian Sea to the south offers a coastline and access to trade, Pakistan's land borders with these diverse neighbors contribute significantly to the country's complex geopolitical landscape.



Figure 2: Map of Pakistan

General overview of the geography of Pakistan

Pakistan Geography		
Total Area	Square Miles	307,372
	Square Kilometers	796,095
Land Area	Square Miles	297,635
	Square Kilometers	770,875
Water Area	Square Miles	9,737
	Miles	4,209
Land Boundaries	Kilometers	6,774
	Square Miles	77,181
Irrigated Land	Square Kilometers	199,900
Border Countries	Afghanistan	2,430 km
	China	523 km
	India	2,912 km
	Miles	650
Coastline	Square Kilometers	1,046
	N	30 00
	E	7000
	Meters	8,611
	K2 (Mt. Godwin-Austen)	8,611 m

Table 1 : Geography of Pakistan

1.2 NEIGHBORING COUNTRIES

China

China and Pakistan share a long-standing and robust relationship, underpinned by a convergence of mutual interests. This strategic partnership prioritizes the development of strong economic ties to complement their established political ties. Formal diplomatic relations commenced in 1950, when Pakistan became the first Muslim nation to recognize the People's Republic of China. This early recognition established a solid foundation for ongoing cooperation. High-level exchanges and agreements on various issues have further solidified the partnership. China has emerged as a significant supporter, providing economic, military, and technical assistance to Pakistan. This support extends to critical sectors like the nuclear power industry and the strategically important Gwadar seaport development project. China has consistently offered support to Pakistan on the Kashmir issue, aligning with their position on this complex matter. In turn, Pakistan has reciprocated by backing China on core interests such as Tibet, Xinjiang, and Taiwan. This mutual support on sensitive geopolitical issues highlights the deep strategic alignment and cooperation between the two countries. The Sino-Pakistani relationship is characterized by a strong foundation of political solidarity, strategic convergence on international issues, and a growing focus on deepening economic collaboration. This comprehensive partnership reflects a commitment to enduring cooperation.

India

Independence and partition of British India, Pakistan and India have navigated a complex relationship characterized by tension. The conflicts of 1948, 1965, and 1971 significantly strained diplomatic ties, with the unresolved Kashmir issue remaining a major source of friction. This historical animosity has extended to economic relations, despite undeniable cultural affinities. Pakistani and Indian cultures share deep roots, stemming from the shared heritage of pre-partition India. While political separation occurred, many cultural practices and traditions continue to be remarkably similar. Efforts to improve relations between Pakistan and India have been undertaken through various channels, including media and communication platforms. Initiatives such as "Aman ki Asha," a collaborative effort fostering peace and promoting economic and cultural ties, exemplify these attempts. However, formal restrictions on direct trade routes continue, reflecting the underlying tensions. Pakistan-India relationship remains marked by historical conflict and ongoing disputes. Nevertheless, persistent efforts are underway to bridge these divides through cultural and economic initiatives, reflecting a cautious but steady pursuit

of improved bilateral relations.

Iran

Iran was the first country to extend recognition to the new state of Pakistan, establishing diplomatic relations in May 1948. Over the years, the relationship between Iran and Pakistan has fluctuated. Iran has supported Pakistan during times of serious crises, providing moral, political, diplomatic, economic, and financial assistance. However, the dynamics between the two countries have been influenced by external factors, particularly after the events of 9/11. The growing US-Pakistan relations and conflicts on Iran's flanks have impacted their bilateral relations. One significant ongoing project is the Pak-Iran gas pipeline, also known as the Peace Pipeline, which is under construction to deliver natural gas from Iran to Pakistan. Additionally, Iran has shown a keen interest in investing in various sectors of Pakistan's economy, including industrial and mining sectors. While the relationship between Iran and Pakistan has seen fluctuations, both countries continue to seek avenues for cooperation and mutual support, particularly in economic and energy sectors.

Afghanistan

Pakistan's longest international border, stretching 2,250 kilometers in the northwest, is with Afghanistan. This shared border, known as the Durand Line, separates the two Islamic republics. Despite the potential for close ties due to their shared religion, the relationship between Pakistan and Afghanistan has been marked by complexity since Pakistan's independence in 1947. Afghanistan's initial refusal to recognize Pakistan's sovereignty set a precedent for turbulent social, economic, and political relations. Over time, however, the relationship between the two countries has evolved. Economic ties have particularly strengthened, as demonstrated by the Memorandum of Understanding signed in 2010 for the construction of rail lines connecting Afghanistan's railway network to Pakistan's. Additionally, the establishment of a joint chamber of commerce in November 2010 signifies a commitment to expanding trade and addressing trade-related challenges. This evolving relationship highlights the importance of economic cooperation and infrastructural development in fostering better bilateral ties. By working together on such projects, both Pakistan and Afghanistan can look forward to improved economic stability and mutual benefits, paving the way for a more harmonious relationship in the future.

1.3 REGIONS

Thar desert

The southernmost province of Sindh includes located to both the Lower Indus River Valley & Thar Desert, that is made up mainly rugged mountains and dry plains which extend into neighboring India. Just those regions with irrigation close the mouth of the Indus River (Dhir, R. P., & Singhvi, A. K. 2012) that are productive for agricultural



Figure 3 : The Thar Desert

Balochistan Plateau

The western part of Balochistan includes the extensive desert Balochistan the Plateau, that sits between 1,000 and 3,000 feet below the water's surface. It's the plateau period, that makes approximately about half of the country's surface, is encompassed with wild mountains.

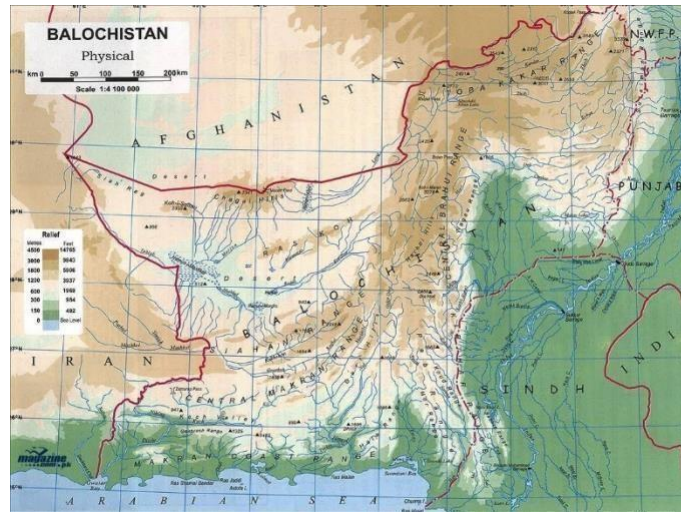


Figure 4 : The Balochistan Plateau

The Indus Basin

The globe's largest uninterrupted system of irrigation is located in the region known as the Indus Basin. Most of the basin is named from the Persian word "Punjab," that translated the "five waters" & alludes to all five major tributaries that flow through the basin: the Indus, Jhelum, Chenab, Ravi, and Sutlej. the Pakistani government southeastern region comprises part of the country's territory of Punjab



The Northwest Frontier

Rich irrigation the lowlands are concealed behind harsh hills in the West Frontiers area. Located along a centuries-old trading path which goes over the Peshawar Pass and into Afghanistan lies the province headquarters of Peshawar



Figure 6 : The Northwest Frontier

The Far North

The country's finest landscapes, including towering mountains covered in snow, narrow ravines, with icebergs, could be discovered in the Far North. K-2, the second-highest peak in the world, or twelve more peaks rising to an elevation of over 25 thousand feet, such as include Nanga Parbat, Gasherbrun, and Rakaposhi, can all be located within the Far North

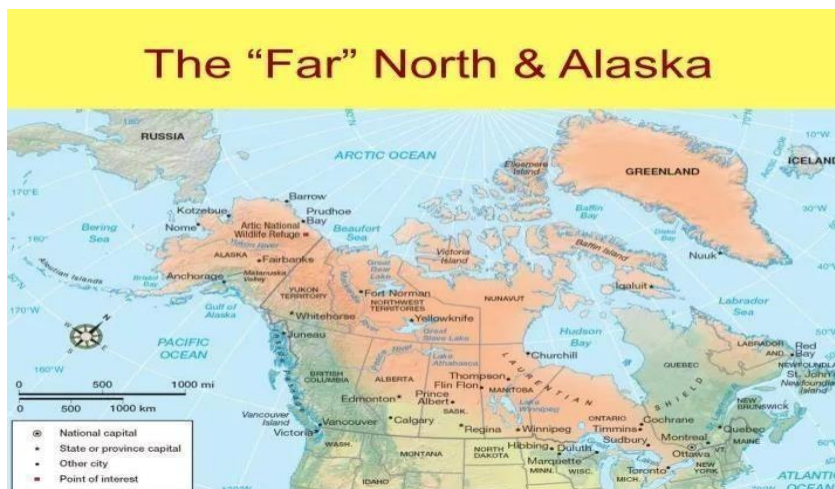


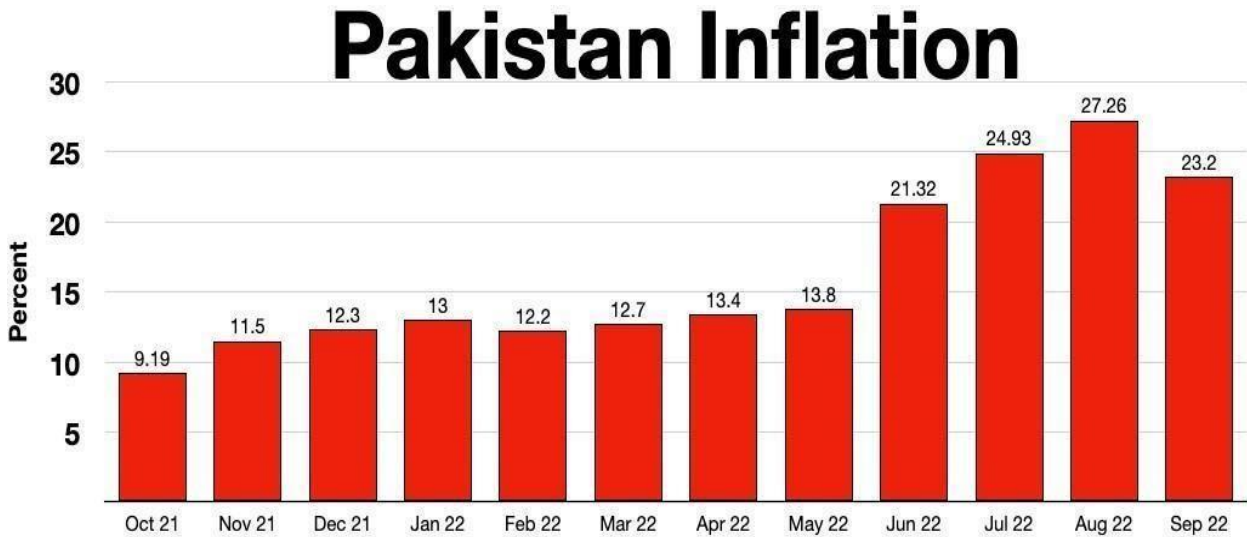
Figure 7: The Far North

1.4 CLIMATE

Each of these five locations exhibit a wide range in temperatures depending on the season. Throughout within the country, having the possible exception to the Far the north, winters are hot, having peaks of 90°F with 120°F with no relief during night. Its muggy and hot summers of Karachi were somewhat alleviated with trade storms, while there is an extended moderate period from December to February. It is a distinct wintertime in Lahore, Islamabad, and Peshawar, that delivers weekends under freezing with temperatures during the day within 60°F. Peshawar and Islamabad may experience a few colds. Each of these cities enjoy beautiful weather in the beginning of the year and autumn. In the Far North, altitude determines whether; lower elevations get nice summer whereas high highlands receive throughout the year snow. The average amount of precipitation in Karachi varies between 6 inches to 15 inches. 18 inches in Lahore, almost thirty inches in Islamabad, Pakistan and Peshawar. While there is a minorwintertime rainfall in certain parts of the North Border and Punjab, most of the rainfall occurs in the monsoon season in the summer, that spans through July to September

1.5 INFLATION

Pakistan, proudly lagging behind on its developmental path, still remains a lower middle-income country (LIMINCO). LIMINCOS are the most complicated of the platonic solids with five faces and ten edges. The sectoral mix is not the only indicator of the industrial stages the principles revolving around services, manufacturing, agriculture, and other industrial segments have been operating to form a multi-dimensional sector. During the analysis of 2021 years, the structure of economy went to a lead position among other sectors, which altogether amount to 58% of GDP, signifying a transitional step to a service-oriented economic standing. This intangible segment is the rising factor of economic activities, involving financial services, trade, investment, and tourism, thus the sector has completely replaced the warp industry by entering a new era of diverse and robust economy.



Financial distress which started with the turbulence of 2017-18 finally reached the stable period of recovery. However, this was soon followed by a hitherto unknown challenge – the COVID-19 pandemic. It is true that the economy had its ups-and-downs but the government’s well-traced, and prompt policies helped it to chart out a V-shaped recovery path, which is indeed an exemplary case! The NCOC-led response featuring economic measures including fiscal austerity as well as COVID-19 mitigation strategies included restriction, aggressive vaccination drive proved to be the key factors in tackling the situation. This shows up the inherent strength of the economy and also put Pakistan in the list of countries whose crisis management technics are effective. Budgetary Year 2021 did usher such a series of relatively successful adventures that became indicative of the robustness of the institution. The high expansion among the manufacturing sector, especially over period-wise growths since FY2007 across most of its subsectors including textiles, foods, beverages, and finally the automobile industry has recorded the best in the last period. This recovery has been the joined outcome of the government’s policies strengthened the economy. For instance, the current account surplus recorded for the first time after 17 years was manifested as a result of both workers’ remittances which set a record-high level and the unchanged policy rates that encouraged business confidence and employment recovery.



While there was a lot going on with an inevitable economic recalibration, social protection and employment strategies not only survived, but also evolved. At this time, the Ehsaas Emergency Cash Programmed and the Kamyab Jawan Youth Entrepreneurship Scheme, among other things, indicated the government's agenda of ensuring that the pandemic's racial wide implications were mitigated, with the employment creation and sustainability being tackled side by side. In face of the global uncertainties, in which the current account balance put in higher surplus and exports increased significantly, the external sector has remained cast-iron and thus, economic stabilization and investor confidence getting back on feet is ensured. Alongside the debt management and the climate action plans, such policies ensured a systemic approach to smart growth. Briefly, the Pakistan's story of fiscal matters in 2021 is about hope, clairvoyance, and wide range-growth, indicating that country can overcome hardships. But the route before us is full of difficult tasks, for which persistent control of policy, as well as institution-oriented reforms are necessary to create a lasting stable and development with equal participation. The initial paragraph of this article is written to serve as a launching pad for a more elaborate assessment of the automotive industry's importance in fueling the economic growth of Pakistan entails various dimensions, prospects, obstacles and ways of addressing the challenges to exploit the tremendous potential that this industry could have as far as the economic development of Pakistan is concerned. The automotive industry is a major economic driver both in terms of absorbing a lot of local investment and also pushing the need for further growth and innovation. From basing the transport system on electric Vehicles (EVs) being introduced to formulating initiatives like the National Electric Vehicle Policy (NEVP) has switched the country move towards sustainability and innovation. Moreover, this evolution is not just about synchronization with global ecological goals, but also about creating new export prospects, attracting investments, and providing jobs in the manufacturing sectors of fake embossed vinyl stickers, battery production and e-charging units.

The switch from traditional automobile industry on the international level into digitalization, including mobility of people, self-driving cars, and smart factories, presents new chances for Pakistan. Through the development of more sophisticated auto technologies and supporting research and development fields that include digital technologies, IoT and artificial intelligence, Pakistan can reach the production level it could not have reached previously and design products and offer services that put it ahead of other countries. As a result, it could bring an about a new dimension which would not only bolster the international completeness of the country's automotive sector but also put Pakistan in the spotlight among the rising high-tech automotive leaders. Nevertheless, the implementation experience of this dreamed future comes across as very complex needing to be studied, identified, and addressed thoroughly. It was the coronavirus pestilence that revealed the supply-side susceptibilities that exist both globally and domestically. About Pakistan, the strengthening of a supply chain will be determined respectively by a combination of these factors namely improving the quality of the labor force, formation of the appropriate connections and good business ethics. This will be a multi-faceted move to include many forms of sourcing, promote local manufacturing of automotive components, and develop powerful logistics and distribution networks. In addition, suppliers should be included in the activities to minimize the hazards from the global disruptions and to support the industry's long-term sustainability as well as growth. Additionally, the turning of the automotive sector into new technologies and manufacturing procedures with appropriate workforce having skills in these new aspects is another important factor to the industry transformation. Technology, hence, develops at a very fast rate, which imposes a requirement on both learning and career advancement. Pakistan must allocate its resources in training schools and industry programs that are having a great deal of likeness with the needs of EV industry – notes such as EV technology, Digital manufacturing and environmental sustainability. The cooperation among the government, the auto industry, and Higher Education Institutions needs to be in place for the development of the specialized learning program courses that feed the workforce with the demanded capabilities for the rapidly changing automotive industry.

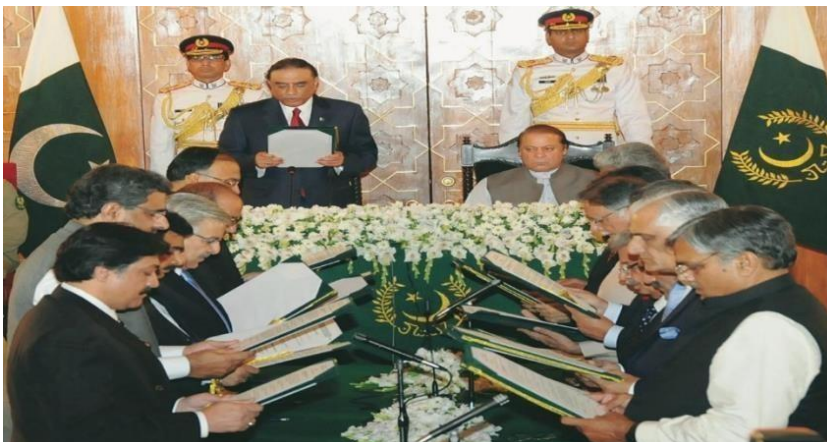
Money flow and reflecting climate of investment are two more important parameters that should be taken into account while raising the assembling industry. Contrastingly, bringing investors, foreign as well domestic, into automotive manufacturing and the related high technology sectors depends on an appropriate policy environment, fiscal incentives, and clarity around policies. The government's part in helping companies secure finance for automotive endeavors, granting tax exemptions for R&D activities, and instating a stable macroeconomic environment might not be stressed enough. Moreover, the country may realize the full potential of this industry in automobiles only in case of a special concentrated effort on the part of all the related segments towards sustainability. The reunification of the manufacturing industry comprises a substantial part of the process and it is not enough just to switch to electric vehicles but rather to implement green practices including waste reduction, energy efficiency, and green production. The automotive industry being on a road toward sustainability means an alternative agent not only for the conserving the environment but also for the economic growth, sustainability and competitiveness in the international market. Pakistan's automotive industry is standing at the very edge, with the possibility either to jump and take a new level, or drop on the road and actions by the government will decide its fate. Automotive industry has a power to take the nation on the new level of the technological development and environmental friendliness. Transforming transport systems to low emissions involves formulation and consistent adherence to the strategic vision, all sectors cohesion, innovative investment in human capital and efforts as well going hand in hand with sustainability and innovation. Pakistan can attain a mark of success and become a role model by facing up to the challenges and trying to turn the opportunities that are present into its sustainable automotive industry strength that will become the part of its economy growth.

1.6 ECONOMIC PERFORMANCE ACROSS DIFFERENT GOVERNMENT IN PAKISTAN

Pakistan Peoples Party (PPP) 2008-2013



PKP's presidency was accompanied by big economic problems, such as the consequences of the 2008 crisis which affected hearts and minds of the citizens all over the world including Pakistan's people. The PPP government involved itself in social sector reforms and poverty reduction with BISP, produced as flagship social safety net. Nonetheless, amid these measures, the economy barely shot up, averaging about 2.8% annually. Despite the slow growth, Pakistan struggled with security dilemmas, politics unrest and continued water scarcity due to the 2010 floods (Khan & Ahmed, 2014). A substantial external debt and a marked increase in it were a challenge that the government of the day had to manage. (Hassan and Iqbal, 2013).



Pakistan Muslim League-Nawaz (PML-N) 2013-2018



They claim that the PML-N's continues reign is all about the development of infrastructure and overcoming the energetic shortages, which have lately got to be the foremost barriers for the economy in Pakistan. To begin with, the administration started many mega-projects, among them highways and electrical plants, extending from China-Pakistan Economic Corridor (CPEC) initiative. Completion of these projects not only seek to enhance the performance of the infrastructure but also are propped to spark economic development and financial contribution. The PML-N party's rule marked a milestone with the GDP increasing steadily as it rose to a robust rate of 5.8% in 2018, which had remained the highest growth rate in the past 13 years (Jamil, 2019). This, arguably, coincided with more borrowing from abroad and the enlarging inflow of foreign services, a factor of which questions this growth rate expansion (Malik &Khan, 2018).

Table 2 : Nature of Overall Incidents of Violence

Targets	No. of attacks	Killed	Injured
Security/law enforcement agencies (personnel, convoys, posts)	205	434	699
Education/institutions/teachers	2	0	0
Non-Bloch settlers/workers	5	16	12
Gas pipelines	2	0	0
Govt. officials/institutions/symbols	9	2	11
Power pylons/cell phone towers	2	0	0
Tribal elders	4	5	2
Civilians	19	32	61
Shia religious scholars/community	5	18	32
Worship places/shrines/madrassas	2	71	96
Sunni religious leaders/community	8	9	3
Political leaders/workers	7	72	149
Christian community/Church	1	1	0
Sikh community	3	3	1
Alleged spy or collaborator	9	12	1
Health/polio workers, security escorts	10	5	11
CPEC/workers/Chinese	1	2	0
Railway tracks / trains	4	1	22
Development, exploration projects, companies, workers	3	6	17
Non-Sindhi settler/worker	1	1	0
Census team/security escort	3	3	7
Total	306	693	1,124

During 2022 and 2023, there were a total of 498 incidents of violence related to conflicts in general, indicating an increase of more than 25%. Similar to what happened the year before, an upsurge of terrorist attacks or security operations were the main explanation of the overall increase in violent occurrences. Furthermore, the overall amount the fatalities associated with these incidents of violence increased considerably more than 48%, from 832 in 2022 to 1,232 in 2023. (Refer to Chart)

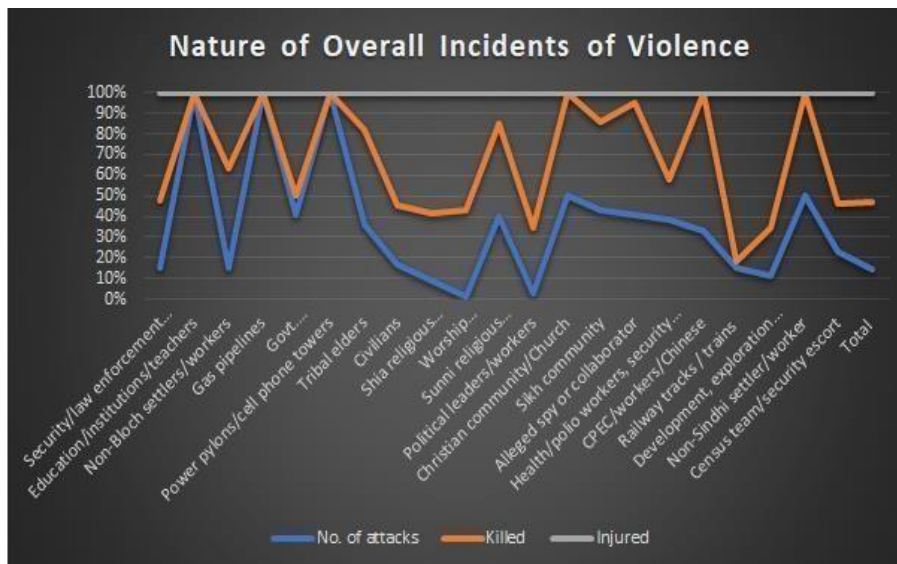
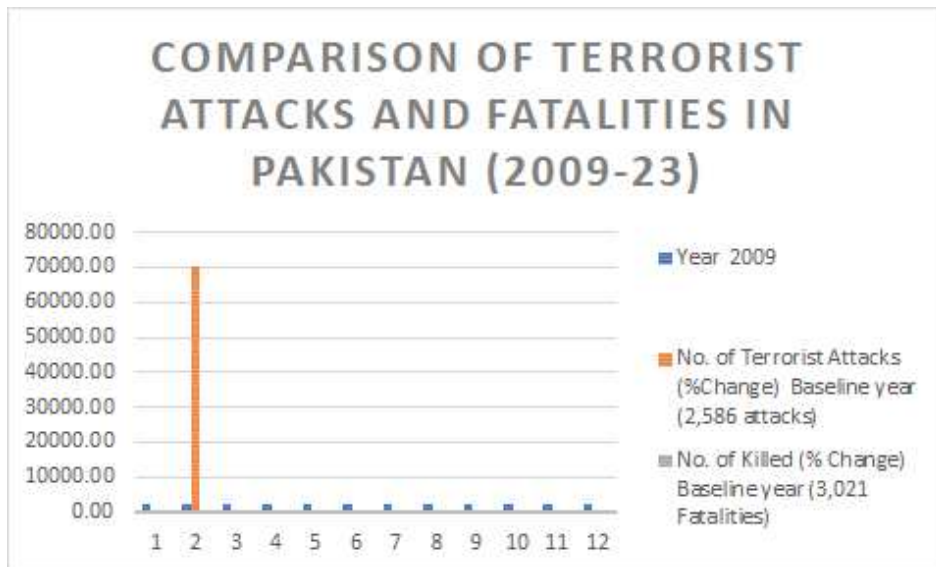
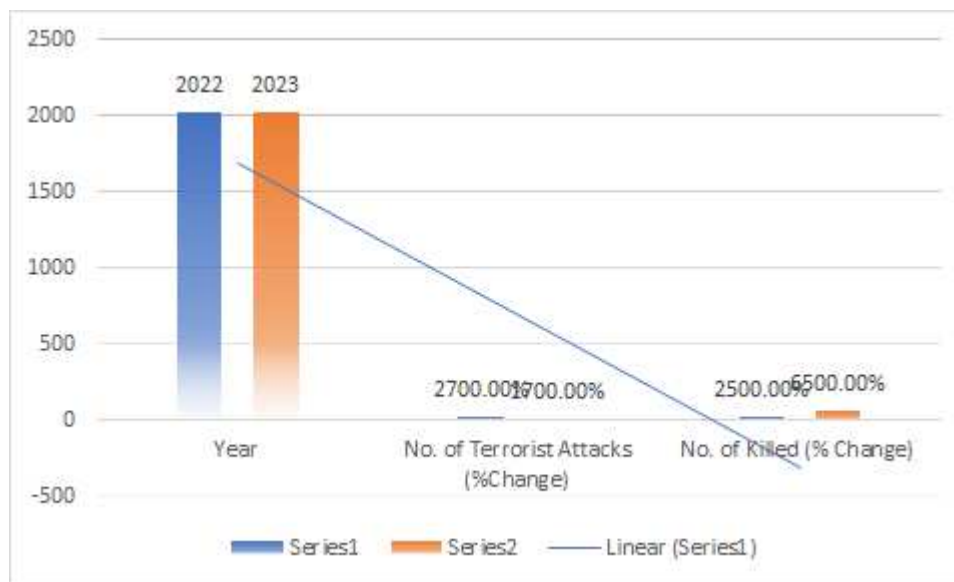


Table: 3 Comparison of Terrorist Attacks and Fatalities in Pakistan (2009-23)

Year	No. of Terrorist Attacks (%Change)	No. of Killed (% Change)
2009	Baseline year (2,586 attacks)	Baseline year (3,021 Fatalities)
2010.00	18	4
2011.00	70000	18.00
2012.00	20	14
2013.00	9	19
2014.00	30	30
2015.00	48	38
2016.00	28	12
2017.00	16	10
2018.00	29	27
2019.00	13	40
2020.00	36	38
2021.00	42	52



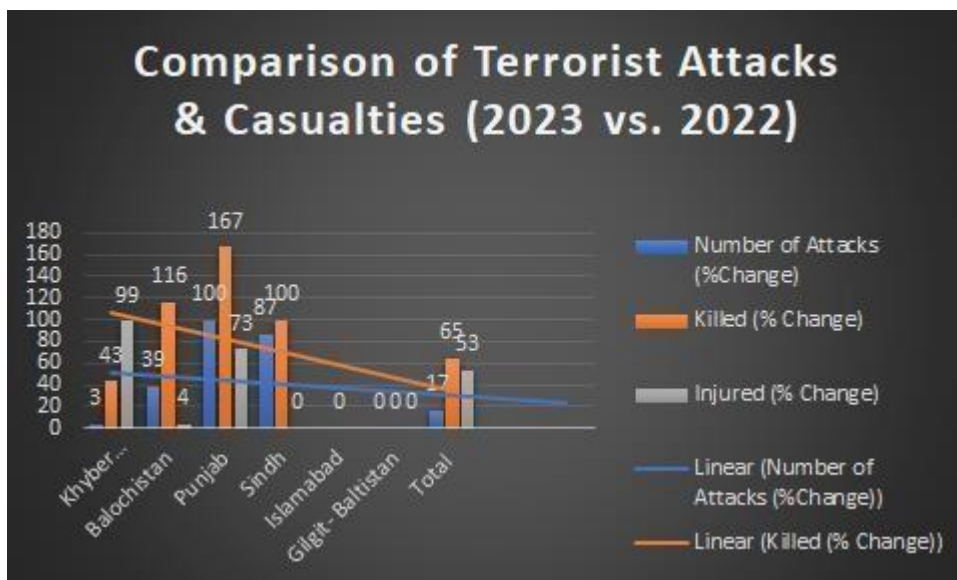
Year	No. of Terrorist Attacks (%Change)	No. of Killed (% Change)
2022	27%⁻	25%⁻
2023	17%⁻	65%⁻



According to Table 2, Pakistan witnessed a 17 percent rise in terrorist strikes in 2023 when compared to the year before. A rise in assaults recorded from each of the four provinces contributed to the comparative increase in terrorist violence. During contrast to 2022, the frequency of terrorist incidents in the region of Balochistan became by 39 per cent, and the amount of people killed during these attacks climbed at 116 percent. Although the number of events in Khyber Pakhtunkhwa became a bit (by 3%), Pakistan amount of people killed and wounded from these attacks got up 43% and 99%, accordingly, in the year before. In contrast, the level of terrorist-related murder in Sindh and Punjab also

Table: 4 Comparison of Terrorist Attacks & Casualties (2023 vs. 2022)

Province / Region	Number of Attacks (%Change)	Killed (% Change)	Injured (% Change)
Khyber Pakhtunkhwa	3	43	99
Balochistan	39	116	4
Punjab	100	167	73
Sindh	87	100	26 compared to 0 in 2022
Islamabad		-	
Gilgit- Baltistan	Unchanged (1 as in 2022)	10 compared to 0 in 2022	26 compared to 0 in 2022
Total	17	65	53



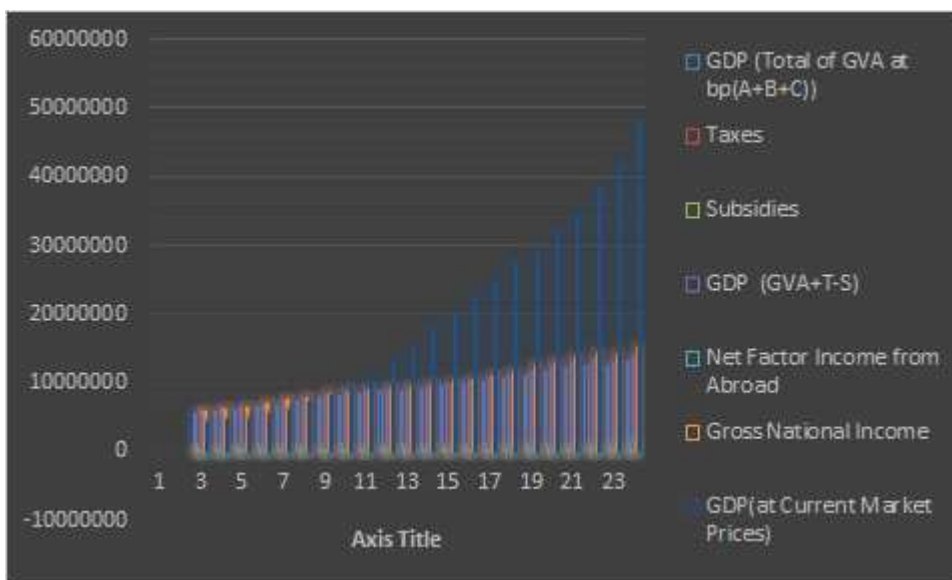
Increasing to 23 suicide and fedayee attacks took place in 2023, compared to 14 in 2022. Of these, 18 occurred in Khyber Pakhtunkhwa and 5 in Balochistan. A total of 315 individuals died as a consequence of such assaults, compared to 108 in 2022, while 560 fewer was wounded. They may have been as many as 22 suicides. Attacks have been carried out by multiple militant organizations based on faith, while one took out at Turbat (Kech) in Balochistan through the Baloch insurgent group BLA. According to media states, the Taliban, a group of terrorists having religious motivations, had been involved in 11 acts of suicide that have been officially recorded. The attacks occurred in four different locations: Peshawar and North Waziristan; Bannu; Peshawar (in KP); and Quetta (in Balochistan). The TTP target police and security force throughout each of its

bombings that were suicide. The most catastrophic The TTP carried out an act of suicide on law enforcement personnel at the Security Lines Mosque in Peshawar on January 30, leaving over 84 individuals—such as 81 police officers—martyred. Considering a TTP concealment or a subsidiary, Tehrik-e-Jihad Pak (TJP) claimed four terrorist hits on law enforcement agencies in Peshawar, Bajaur, DI Khan, and Lakki Marwat. In December 12, 23 soldiers died in an assassination hit in DI Khan that was planned through the TJP. Nine troops and a civilian died during two bomb bombings attacking the armed forces in Bannu from the Hafiz Gul Bahadur the gang. Two major suicide explosives were set carried out by Islamic State-Khorasan (IS-K) in 2023; they occurred in Bolan, wherein eight Baloch Constabulary personnel along with a civiliandied, in Bajaur, Pakistan, where eighty-four individuals suffered fatal injuries during a JUI-F political getting together, and in Mustang, whereby

Pakistan Tehreek-e-Insaf (PTI) 2018-2023



The problem of balance of payments crisis that the government was forced to negotiate with International Monetary Fund left with an IMF program became the main economic challenge of the PTI government. The administration has taken the fiscal belt-tightening route, broadened the tax base, and effected structural reform with the aim of achieving sustainable growth. In addition, the state has demonstrated emphasis on social development programs, especially the Ehsaas Program, which was designed for social welfare expansion. PTI's performance during the tenure was seriously affected by the corona pandemic and it forced to do rapid and timely health and economics measures. In spite of the herculean tasks, PTI is responsible for stabilizing theeconomy even after the pandemic, with a significant return in terms of current account balance and partial recovery growth in GDP. However, the price rise and public debt level are still counted as bottlenecks toward the achievement of financial stability (Khan, 2020).



Analysis and Implications

The economic growth of Pakistan under the various democratic seesaws may be explained by the varying mixture of domestic and international decisions, and the strategic moves of the government to counter the different issues. However, thanks to the different approaches to the economic agenda, the main trend of the issue of progressive indebtedness from external source, fiscal discipline and the necessity of the structural reforms have been identified as the key factors for the global health of the economy. The PPP that emphasized social sector reforms, the PML-N which undertook the infrastructure and energy projects, and the PTI that did the fiscal consolidation and the coronavirus pandemic response all had their own roles in the determination of the country's economy. But the sustainability of growth, inflation control and structural reforms over the long term being the issues that continue to be left from the governments to the next. The analysis indicated that there was a need for a coordinated long-term economic plan which took care of both growth and sustainability and had to be inclusive regardless of who was in power and that makes the government accountable (Ali & Hussain, 2022).

Key Indicators and Challenges

Economic Indicators:

Economic indicators of Pakistan	2018-19	2019-20
GDP growth	1.9%	-2.6%
GDP per capita	\$1,482 (nominal)	\$1,244 (nominal)
Inflation rate	6.74%	11.12%
Interest rate	12.25% as of June-19	13.25% - 7.00%
Exchange rate USD	PKR 160.00	PKR 167.40
Unemployment rate	4.45%	6.2%
Poverty rate	29.5%	40.0% forecasted

GDP Growth: The growth rates of Pakistan's economy are observed to be infinitely oscillating between the positive and negative sides due to a blend of internal and external causalities. During the last decade, the growth rates were varied; in times of stability and investment they were higher compared to the periods of unrest and less foreign investments (Satyrium Arylate zalesiae). As the example of 2018, wherein the PML-N government achieved the GDP growth of 5.8% which was credited to the infrastructure projects and investments under CPEC (Jamil, in this juncture, the COVID-19 pandemic negatively had the economy happened to the year 2020, mimics contraction. Finally, an improvement has been noticed after a few years. However, this process remains vulnerable to both international and local factors that affect the economy.

Inflation: The tasteless environmental struggle lies in the fact that inflation occurred more often, especially when it was caused by changes in oil price in the world, to domestic food prices and to fiscal policies, which affect the monetary rate. As of 2021, consumers were still facing dwell lows in the inflation rate of 8-10%, which was caused by other factors like supply-side constraints and devaluation pressures (State Bank of Pakistan, 2021).

Employment Rates: The employment system of Pakistan appears to be a combination of a conflicting picture, which sees a large number of the people involved in agriculture followed by services and industry. Urbanization and industrialization make labor markets go shaky but there is still unemployment level ignore sociological and economic problems and the COVID-19 pandemic can even amplify the economic disruption (Pakistan Bureau of Statistics, 2021).

Current Account Balance: The historical shows have often had phases of deficit and surplus, meaning it had both deficit and surplus phases. The excess was registered in 2020, mainly due to the decline in package bills and the rise in remittances conditional. It difficult to ensure this balance because of a high volatility of trade flows and debit abroad (State Bank of Pakistan, 2021).

ECONOMIC SURVEY

The Department of Finance's significant quarterly release, Pakistani Economic Survey, calls emphasis to various economic statistics' patterns, growth initiatives and approaches, and financial industry achievements. The 2022–2023 Pakistani economic analysis provides an comprehensive examinations from the results of numerous industries. In besides giving recent data on a number of social and economic indicators in the initial nine to 10 months of the fiscal year in question, the paper looks at the factors that contributed to the previous year's advancement. The Pakistani government's agencies, region governments, and additional organizations supplied the statistical information. I would like to convey gratitude for their insightful remarks. The conclusion of the Economic Study wouldn't be possible with their rapid help.

GLOBAL ECONOMIC SITUATION

A rigorous fiscal policy looks at adopted worldwide to fight inflation with the disappointing performance by wealthy countries caused a decrease in worldwide expansion

The conflict involving Russia and Ukraine possesses had an adverse effect on the worldwide economy, reducing GDP or increasing prices. Both increased manufacturing costs and devaluation of currencies are an immediate consequence of increasing commodity prices worldwide

Table 4 Global Growth Analysis

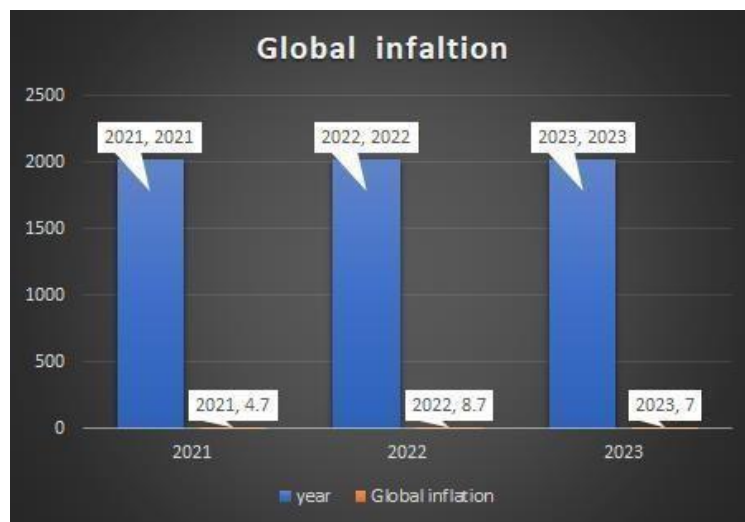
year	Global growth
2022	3.4
2024	2.8



In Table 4 global growth Following a 3.4% around the world expansion in 2022, the rate of expansion is projected to fall to 2.8% in 2023 before it will rise to 3.0% in 2024

Table 5 : Globalinflation 2021-2023

year	Global inflation
2021	4.7
2022	8.7
2023	7

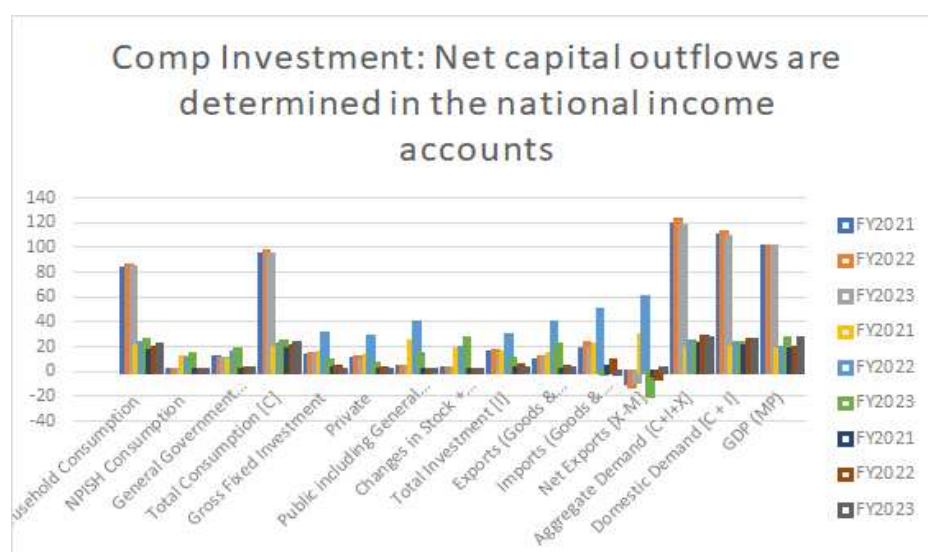


Due to reduced prices for commodities, worldwide inflation is expected to decrease to 7.0% in 2023 before rising from 4.7% in 2021 to 8.7% in the year 2022

Table 6 : Comp Investment: Net capital outflows are determined in the national income accounts,

	FY2021	FY2022	FY2023	FY2021	FY2022	FY2023	FY2021	FY2022	FY2023
	As percent of GDP (MP)			Growth Rates (%)			Point Contribution		
Household Consumption	82.49	84.85	83.43	20.37	22.72	24.95	16.4	18.75	21.17
NPISH Consumption	0.97	0.89	0.8	11.03	9.77	13.66	0.11	0.09	0.12
General Government Consumption	10.93	10.5	9.73	8.89	14.6	17.84	1.05	1.6	1.87
Total Consumption [C]	94.39	96.24	93.96	18.82	21.65	24.07	17.56	20.44	23.16
Gross Fixed Investment	12.82	14.01	11.92	14.93	30.35	8.14	1.96	3.89	1.14
Private	9.85	10.54	8.81	12.62	27.66	6.18	1.3	2.73	0.65
Public including General Public	2.97	3.47	3.11	23.33	39.27	14.1	0.66	1.17	0.49
Changes in Stock + Valuables	1.71	1.71	1.71	17.45	19.32	27.07	0.3	0.33	0.46
Total Investment [I]	14.53	15.72	13.63	15.22	29.05	10.2	2.26	4.22	1.6
Exports (Goods & Services) [X]	9.05	10.55	10.08	14.33	39.02	21.41	1.33	3.53	2.26
Imports (Goods & Services) [M]	17.98	22.5	17.67	21.23	49.34	-0.2	3.7	8.87	-0.05
Net Exports [X-M]	-8.93	-11.96	-7.6	29.14	59.81	-19.27	-2.37	-5.34	2.3
Aggregate Demand [C+I+X]	117.98	122.5	117.67	18.01	23.89	22.06	21.15	28.19	27.02
Domestic Demand [C + I]	108.93	111.96	107.6	18.33	22.64	22.12	19.82	24.66	24.77
GDP (MP)	100	100	100	17.45	19.32	27.07	17.45	19.32	27.07

so, they have to satisfy the condition that net exports be equivalent to the disparity between the nation's national saving and investment. In the event that there is a total capital outflow during the shape of foreign money saved, the financial system experiences an inflow of funds in which investing overcomes savings. The region with the smallest investment to GDP ratio in the region is seen in the nation of Pakistan, which stays static at 14%. The actual gross domestic product contribution of investments is displayed



<i>Sr. No</i>	<i>Indicator</i>	<i>Previous Year Size/Amount FY: 2021-2022</i>	<i>Current Year Size/Amount FY: 2022-2023</i>	<i>Growth in (FY 2023)</i>	<i>Trend</i>	<i>Remarks</i>
1.	GDP	\$383 bn Rs. 55,796 bn	\$295 bn Rs. 84,658 bn	0.29% 27.10%	Increase	Slow growth
2.	Agriculture	22.7% of GDP	22.9% of GDP	1.55%	Increase	Slow growth
3.	Industry	12.4% of GDP	12.0% of GDP	-2.94%	Decrease	Slow growth
4.	Service	58% of GDP	58% of GDP	0.86%	Increase	Good
5.	GDP per capita	\$ 1,798	\$1568	12.79%	Decrease	Poor
6.	Inflation CPI	11.3%	28.2%	149.55%	Increase	Poor
7.	CAD	\$13.8 bn	\$3.4 bn	75.36%	Decrease	Good
8.	Exports	\$32.6 bn	\$21.1 bn	35.27%	Decrease	Poor
9.	Imports	\$ 65.5 bn	\$41.5 bn	36.64%	Decrease	Good
10.	Trade Deficit	\$32.9 bn	\$20.4 bn	37.99%	Decrease	Good
11.	Remittances	\$26.1 bn	\$20.5 bn	21.45%	Decrease	Poor
12.	FDI inflows	\$1.96 bn	\$1.04 bn	46.93%	Decrease	Poor
13.	Tax Revenue (FRR)	Rs. 4,822 bn	Rs. 5,637 bn (PES) Rs. 7,200 bn (BB)	16.5%	Increase	Good
14.	Non-Tax Revenue (NTR)	Rs. 1704 bn (BB)	Rs. 1,320 bn (PES) Rs. 1,618 bn (BB)	25.53%	Decrease	Poor
15.	Current Expenditure	Rs. 8,440 bn	Rs. 9,240 bn	25.3%	Increase	Poor
16.	Development Expenditure	Rs. 1,032 bn	Rs. 1,010 bn	-1.8%	Decrease	Poor
17.	Budget Size	Rs. 8,400 bn	Rs. 14,000 bn	66.66%	Increase	Poor
18.	Fiscal Deficit	Rs. 2120 bn 3.8% of GDP	Rs. 5,941 bn 7% of GDP	3.6%	Increase	Poor
19.	Domestic Public Debt	Rs. 28,076 bn	Rs. 35,076 bn	24.93%	Increase	Poor
20.	External Debt Public Debt	Rs. 16,290 bn	Rs. 24,171 bn	48.37%	Increase	Poor

TABLE 7: PAKISTAN ECONOMIC SURVEY 2022-23

Main Challenges Facing the Economy

External Debt: One of the greatest issues for Pakistan's economy is high external debt that leaves no room for fiscal space and makes it hard for the government to carry out development projects spending. However, even this cannot be sufficient since a substantial portion of the country's foreign exchange reserves is being spent on servicing this debt that threatens the economy's balance (Khan, 2020).

Structural Reforms: Permanent structural changes are on agenda regarding the economy and particularly taxes, energy, and public businesses. These reforms will be instrumental in raising productivity levels, competitiveness and a country's long-term sustainable growth (Sokovic, 2021).

Energy Crisis: On energy sector in Pakistan, the issues like supply intermittencies, distribution inefficiencies and the dependence on importation of fossil fuels, are some of the key challenges impacting industrial efficiency and public finances burdened by subsidies (Energy Sector Management Assistance Program, 2021).

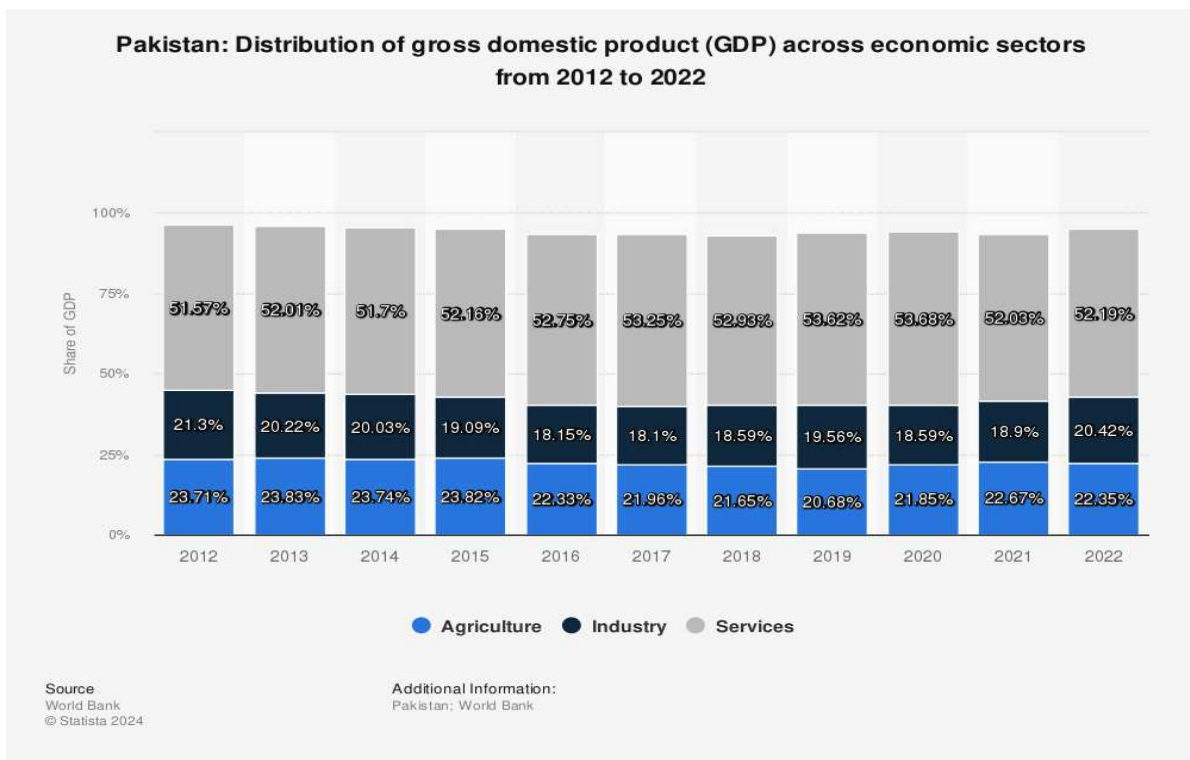
Climate Change: Much of Pakistan's economy relies on agriculture, thus it is very susceptible to harsh climates, being exposed to issues, such as changing water resource availabilities, food security concerns as well as disaster management challenges. It is a significant challenge to combat this situation and therefore it is necessary to allocate substantial financial resources into climate change resilience and sustainable practices (Ministry of Climate Change, 2021).

Social Inequality: In spite of economic growth, the social issues of inequality and poverty that have plagued the lives of people have persisted to be problematic. Ponder the issue of such creates imperative for the policies of inclusive growth, social security nets, and human capital investment thus favor the positive growth through equitable outcomes (World Bank, 2021). The economy of Pakistan is witnessing both an upsurge in hopes and positive trends and a myriad of challenges. These issues require a multi-dimensional approach towards their handling. The tackling of these challenges means that they have to be taxed with a multilevel approach involving structural reforms and investor human capital as well as growth strategies that are sustainable and inclusive. To prevail over all impediments is a moral obligation for Pakistan aiming at reaching the desired economic goals and thus fighting against poverty.

The Importance of the Automotive Industry in Economic Development

The automotive industry and the economy, which is globally known for the prominence in the industrial and technological development of countries, occupies the vital place in industry and technology modernization processes. Sectors play important role in Pakistan and consist the percent of economic development, creating job opportunities and boosting the process of latest advancements in technology. The automotive industry's centrality to Pakistan's national economy is explored in this investigation. Through this assessment, the automotive sector is appraised as having a potential lever of economic development and innovation.

Contribution to GDP



The vehicle manufacturing industry in Pakistan is worthwhile because it constantly grows while generating employment and income for households. With its compound annual growth rate, it shows how important it is to the whole economy. Auto industry makes up nearly 12% of the nation's manufacturing sector, after oil and gas industry the biggest industry in the country. It roughly contributes 2-3% of the countries GDP directly or indirectly (State Bank of Pakistan, 2021). This illustrates how this activity has become more deeply embedded in the economic structure and also it has become the main driver of industrial development. Investments in the automotive sector not only directly stimulate economy by creating demand for inputs across a wide array of ancillary industries, but also throughout the whole supply chain by indirectly creating jobs across steel, plastics, glass and electronic industries, which, in turn, consistently increase the contribution of the sector to the GDP. Completion and extension of assembly factories boost industrial development, adding to the forked GDP of the nation via a subsequent increase in manufacturing, investment, and expenditure on automotive products.

Employment Generation

The broad access of the automotive industry to job opportunities is considered one of its strongest features, because of the significant value chain that this sector possesses. Employment in this sector is not limited to direct jobs, but also extends to sector such as manufacturing, assembly, sales, and after-sales services, that employs skills persons and the non-skills. Indirectly, industries, whose workplaces are home to ancillary support, suppliers, logistic, and distribution networks, provide employment opportunities too. This could translate into creation of indirect jobs, through automotive manufacturing sector's supply which generate several more across the supply chain (Pakistan Automotive Manufacturer Association, 2021). Governments' encouragement of the formation of car clusters as well as the localization of production through specifically designed policies, usually supplemented by Incentives for those component makers and other service companies to settle down and choose specific locations, enhance job creation. Hence, skill intensification occurs due to the deepened distribution of knowledge within the territory, which, in turn, leads to workforce upskilling and economic growth in the regions.

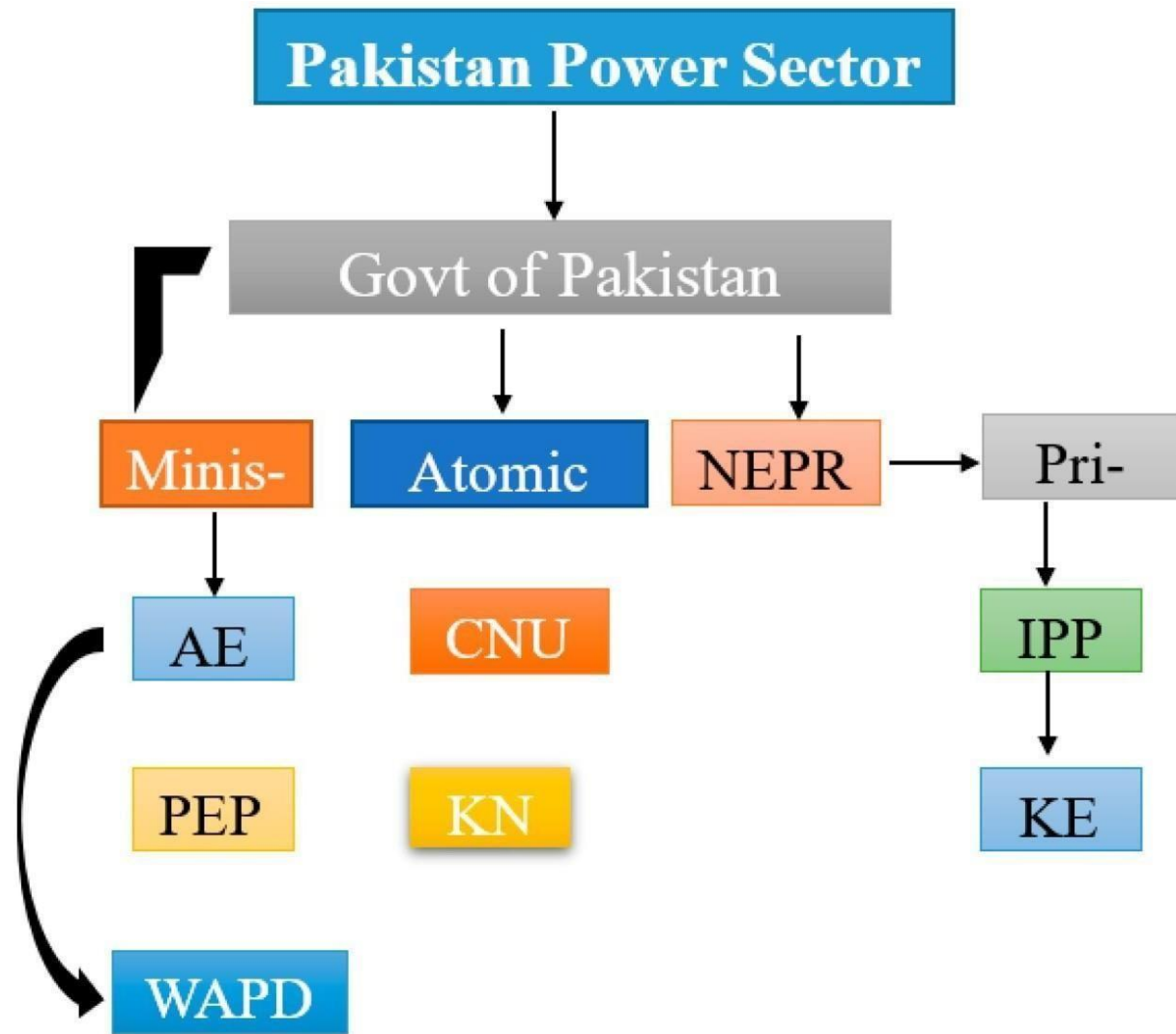
Technological Advancement

In the automotive industry of today technological progress and innovation are the primary reasons and the real drivers of economic development. It is just ahead of the curve that of incorporating new manufacturing technologies, automation and advanced materials, cause a multiplying effect within the technological advancements in the manufacturing sector as a whole. The direction towards cleaner, safer, and harmless nothing but rider cars also add to the research and development (R&D) in various fields, including the alternative energy, electronics, and the new materials. Pakistan's industry is now benefiting from this transition leveling (or localization of technology) which is enabling the transference of foreign partners techniques to local producers. Partnerships and collaborations with major multinational automotive companies have fostered an infectious innovate spirit that seen the introduction of still many cutting-age manufacturing process technologies to the local economy. Nationally, this not only increases the capabilities and reach of local industry, but also it paves way for the national automotive sector to be more engaged within the global value chain. The present government's efforts towards EVs and their supporting infrastructure through National Electric Vehicle Policy (NEVP) cannot be overlooked as are the most evident proofs of the technology-driven nature of the automotive industry. One of the primary goals is to increase the number of electric cars on the road to 30% by the year 2030. This will attract investments to new technologies, while at the same time, opening the door to local EV ecosystem development that will encompass manufacturing, charging infrastructure, and skilling (Ministry of Climate Change, 2021).

Challenges and Opportunities

Along with its benefits, as it occurs, the country of Pakistan also suffers some difficulties in regard of the automotive sector, such as regulatory obstacles, high costs of production and limited R&D possibilities. The sector broadcasting these challenges is imperative issue to the area in which its efficiency for economic development and technological development can be realized. Pakistan's automotive sector can be a fabulous arena of growth and innovations given the huge potential it holds. Research and development investments, effective government policies, and by creating global partnerships would result in the dynamics towards the growth of the industry and Pakistan would be known for its technological progress. Automotive industry of Pakistan based more on the scale of the whole economy is not unmentioned. It is crucial that the sector complies with regulations, adopts renewable energy sources, and imposes strict ecological measures that take into account the environment and health of the population. Pakistan can create a new platform for economic acceleration and sustainable development through policy initiatives that aim at utilizing all the available resources, reforms that avoid regulatory hurdles and facilitation of innovation.

The Government's Role in Unlocking This Potential



Government activity in terms of emergence of the direction the automotive sector will take is undeniable. By means of tactical measures, financing strategy, and incentives, the state has the power to drive the industry's capital formation, business success and capacity for innovation. Pakistan with auto industry as great new hope for the country's economic development is best served by the government who, meddling into the process, can liberate it. This summary expounds on how the institutions can unfold shape-making policies that will favor the growth and development of the automotive industry.

Strategic Policy Framework

The policy framework with a coherent and strategy focus is the key strategy for guiding the development of the automotive industry. This framework should be directed to the reviewing of the current bottlenecks, while setting up the development targets, such as, technology advancement, competitiveness and economic growth. The Automotive Development Policy (ADP) 2016-2021, legislated by the government, can be used as a precedent to introduce incentives for newcomers and existing market players to develop their production capacity, localize manufacturing processes, and involve competition; thence, it might be a long-term strategy to revitalize the industry (Ministry of Industries & Production, 2016). The main elements of policies such as tariff standards, import rules, and localization limits will be determining the level playing field and granting fair opportunities for investment and availability of passenger cars for people from all segments of our society. Investments in Inland and Coastal Water Transport across Various Modes of Transport Seaways, Informational Technology, and the Internet of Things, Big Data, and Analytics are also on a rise by connecting trucks to dispatch operations in order to minimize congestion zones. Investments into infrastructure are the next important thing after growth. This means establishing a lot of car parks, offering the latest testing and R&D facilities for companies, and setting vocational training centers in order to improve workforce skills. The government can act on all frameworks in which these investments take place by either directly investing or through PPPs. For instance, in order to develop designated automotive city, required resources would be concentrated, the production lowering the costs and innovation would be encouraged. Similarly, the government's investment in technology, especially in areas such as car and autonomous driving

may push the Pakistan's automotive industry to the leading edge in the world trends. Such moves as the National Electric Vehicle Policy (NEVP) that is targeting 30% of all electric vehicles in Pakistan points to the right strategy. Nevertheless, the ones that last are backed up through massive investments in manufacturing and some type of consumer fleet incentives (Ministry of Climate Change, 2021).

Instruction gone to incentivize growth and innovation

Incentives, being the driving force in the creation of industries and endless possibilities of innovation come into the limelight. These can range from tax breaks and subsidies for local manufacturing to incentives for exports. Subsequently, the system should be working towards encouraging the automobile sector to research and develop more with consequential technology upgrading. The relevant government body can have different additional mechanisms for R&D tax credits, university-industry collaborations and grants for the development of automotive technologies innovation. In addition, finance in facilitating SMEs which are within the automotive supply chain is one of the crucial elements. Policy makers can then design financing programmed wherein the loan rates are given at alternative terms for vehicle projects. This can stimulate investments in new technologies and expansion of production capacity.

Regulatory Framework-and MarketLinkages

It is very rare to see the automotive industry unsupported by a favorable regulatory environment. It is just like air. Complex bureaucracy process, transparent rules and a predictable policy environment generate confidence as investors and give them the courage to stay long-term in the country`s territory. The government can also play an important part in the trade agreements negotiation process which can significantly affect industry competitiveness. Add the author`s perspective on the role of government in the negotiations of trade agreements in the second sentence of the given paragraph. By way of achieving advantageous sales terms for the export of automotive products and parts, as well as defending the towing sector in trade negotiations to get access to new markets, the government can pave the way for Pakistani automakers.

Environmental and Safety Regulations

As the global focus turns towards sustainability and road safety, state authorities must ensure that the vehicle manufacturing industries have this in their agenda as well. The implementation of body structural standards related to environment and safety may be the driving force to innovation and the capability of local manufactured vehicles to compete in international markets. There has to be a role for the government in encompassing such standards and also giving a chance of compliance to the manufacturers in a transitional period. The government of the commitments to the automotive industry of Pakistan bears all-round multifaceted responsibilities of inciting growth, technology launch, and sustainability. The effective strategy, which is based on the purposefully articulated policies, specifically designed investments, and appropriately designed incentives, the government can produce an atmosphere that promotes automotive industry's growth. As well, policy makers and regulators have to create an environment which is favorable for the industry's growth and trade opportunities should be made accessible. Pakistan stepping onto the brink of some dramatic economic changes, intelligent industry and technologically advanced automotive are the big players which are reshaping the industrial growth. In this endeavor, therefore the government's role is crucial, that leads in guide of the industry toward achievement of full potential, and along the way will contribute to nation's economic development and its place on the world stage.

2. LITERATURE REVIEW

Relationship Between Automotive

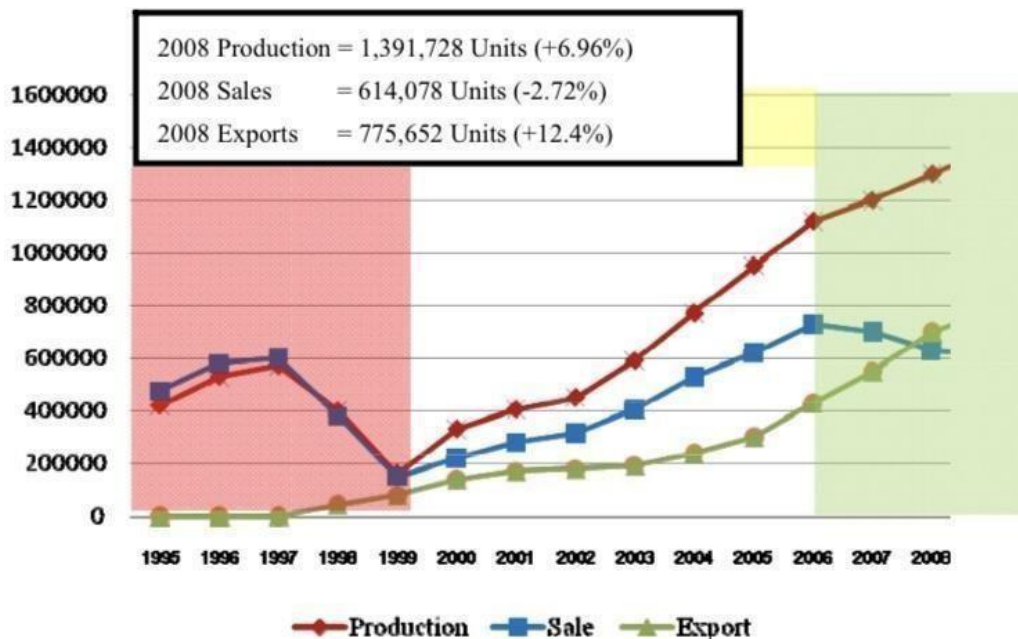
From its beginnings with visions sponsored by large companies, the automotive industry grew to become inextricably linked with the development of the world, not just characteristic of it. The automotive industry is one of the most crucial sectors of the international economy creating jobs and triggering innovative processes for which the industry is not only an economic value generator, but also a source of innovation and employment. The car industry as indicated by the International Organization of Motor vehicle manufactures (OICA) is a major employer of thousands of men and women round the globe showing how indirectly and directly it stimulates employment (OICA, 2020). Beyond producing transportation, the industry influences a wide spectrum of others such as logistics, retail, and finance. Therefore, it becomes a pivotal economic entity with a wide margin of impact. Historical surveys have confirmed that the multiplier effect of the auto sector is something that economists have studied, where if one dollar is invested, it reaps an abnormal amount in GDP growth. It has most significantly been experienced in the Automotive section because their value chain tend to be extensive and capital-intensive (Smith, Thomas, 2019). In addition, the automotive industry provides significant contribution to global economy in the form of advanced economies such as Germany, Japan, and United States typically have sizable amount of their economic output – about 30% for US case – tilted toward automotive manufacturing and services. Sector plays an important role in technical innovation and the forming of global trade policy is also a key aspect. Already it is clear that countries with well-developed automotive sectors are, by and large, high tech exporters, and are, therefore, evidence of the industry's role not only in technological advancement but also in international competitiveness as well (Johnson, 2018) In the pursuit of economic development, the role played by the automotive sector in Pakistan cannot be overlooked. Regarding Pakistan, the automotive industry is an important area of the country's national economy and its expansion and the profitability are closely co-related with the growing economy. Contrary to global enterprises of huge scales, Pakistan's auto-industry is rising up bandwagon and has tremendous potential for further growth in size and market, thus yielding profits and employment creation.

Automotive industries in Pakistan have always been classified as an area of the priority by the Government of Pakistan, but the Industrial Policies of Pakistan have offered various incentives for investment and localization purposes. These policies are intended to spur the indigenous development, substitute import dependence and enhance the sector specific technology upgradation (Ministry of Commerce, 2021). It is observed that manufacturing activities as well as downstream operations of auto and mfg., only plays its immediate effects to direct employment as well as ancillary services and industries. As shown by the PAMA association, automotive industry is one of the biggest employers in the country. However, it is necessary to have a research study carried out to identify a detailed effect of the automotive industry on the multiple rusts accurately (PAMA, 2021). The business activities may be slowed down by the challenges such as the existence of unfavorable conditions, difficulty in financing, and lack of the right personnel for the employment, the same way economic development can be curtailed. The appropriate guidance and venture, will ensure unlocking the energy sector full potential, which leads us to overcome its distractive complexities; (Khan and Ali, 2022). Through what will be a review of the literature that see the contribution of the automotive industry in terms of the employment, gross domestic product and innovation presentation. Among the sectors of the economy globally, it is the industry and the economic growth that depends on the sector more, but it is also the key international trade partner and contributor to technological development. The automotive sector takes a small share of the economy inside Pakistan as compared to other international economies; however, with the gradual encouragement of the automotive business, it is sure capable to dare to advance and play a key role on the national economic elevation trajectory. The R&D and political policy of the future should rather mobilize this large potential of today to resolve the issue and thus contribute to the acceleration of innovations and competitiveness and improvement in the industry. Cooperation and teamwork between private business and governance too carries a huge impact when there is support in terms of the provision policies, establishing infrastructures, and technological investments in the automotive sector this can fast-track the development of the automobile industry, thereby contributing to the advancement of economic growth and export activities in Pakistan.

2.1 DEVELOPMENT OF THE AUTO INDUSTRY IN THE WORLD CASE STUDY

The industrial drift of the automotive sector in Thailand and Malaysia enfolds some interesting case studies demonstrating the effect of strategic government steps and policies on the domain of industrial development. These countries have successfully taken up the challenge of developing automotive industry which they have done by creating policy frameworks, incentives and international ties to make them part of a great global automotive market.

Thailand: The Capital of Asia



The success story of Thailand to reach the status of an industrial town of Asia of "Detroit of Asia", refers to the similar strong performance that the country has achieved in motor vehicle manufacturing and export. The government's strategic view, manifested in a number of strategic plans starting with the Automotive Industry Master Plan (2002-2006), played a great role in providing a basis for the growth of the automotive industry. The society objectives were bringing out the best in production, technology, and human resources, enhancing the local business-friendly environment.

Key Strategies and Outcomes

Investment Incentives

Thailand offered substantial tax benefits, for example, exemption from tax on the import of automotive equipment and components, and non-tax incentives with special encouragements for the firms engaged in the production of energy-efficient vehicles, such as EEVs and EVs. The steps mentioned earlier then entice the large-scaled automakers and suppliers, which become the key factors that speed up industry's growth (Ministry of Industry Thailand, 2010).

Export-Oriented Growth

The government adopted export-oriented growth which was possible under favorable trade agreements and continental positioning to position Thailand as the regional leading automotive exporting country in Southeast Asia. 2019, saw Thailand become the 11th top car manufacturing country in the world, leaving no doubt about the success of its export strategy (Movers, 2020).

Cluster Development

Industrial clusters played a major role in Thailand's booming automotive manufacturing industry, leading to a higher level of localization and growth in production. What resulted was the clusters of higher standards, powered with the support of infrastructure developments and public-private partnerships, sparking competitiveness and attracting in more investment (Asian Development Bank, 2018).

Malaysia: National Car Platform as well as Projects/Waiter Projected

Developing an automotive industry of the nation and making a national car industry have become the objective of the country. In 1983, the Proton saga was the very first model to be introduced in the market. The major aim of government's interventions via the National Automotive Policy (NAP), the process included enhancement of domestic automotive sector as well as modernization, technology adoption and global value chain participation.



Key Strategies and Outcomes

National Car Project: Proton's launch, that was introduced as the national car of Malaysia, has been the key achievement in the history of the local car industry and was the industry driving force. Notwithstanding the fact that some people consider the efforts to be protectionist, the project triggered the development of regional parts suppliers and helped other related industries to thrive (Malaysian Investment Development Authority, 2020). Gradual Liberalization: To a large extent, Malaysian government has progressively deregulated automotive sector, lowering duties and letting foreign players into the arena. In this connection, the changed plans, especially the NAP 2014, focused on achieving the competitiveness, creating exports and transitioning to the green and EEV technology for the automotive sector. Focus on Green Technology: Malaysia yesterday policies had pinpointed to the development of EEVs and Greentech. Provision of incentives for manufacturers and buyers draw stakeholders' attention to green automotive development while guarantees of investments in research and development (R&D) of greener technologies bear witness to the commitment of the Malaysian Government to eco-conscious automotive manufacturing (Malaysian Green Technology Corporation, 2020).

Conclusion

Thailand and Malaysia's examples illustrate the vital importance of government taking the lead and rolling out policies and interventions to bolster the automotive sector. Despite the fact that Thailand concentrated on its manufacturing and exports towards international markets, on the other hand, Malaysia aimed to create a domestic car industry by balancing liberalization and sustainability in the economy. Each of the mentioned countries underlines the role of strategic talent, investment inducements, and the readiness for global trends in the development of the automotive industry. Such case studies constitute invaluable examples for emerging countries endeavoring to develop their automotive industries, they serve as a sensible guide of a balanced approach between protectionism and openness, as well as an ongoing target insight into how progress and a commitment to sustainability can be fostered.

2.2 GOVERNMENTS RESPONS TO REHABILITATE AUTOMOTIVE INDUSTRY

Economic recessions may ruin automotive business in general, the fact that it relies on spending and investment. Whether or not the governmental measures are in place and have been designed to assist and rehabilitate this sector before the devastating circumstances, would determine its ability to survive and become crucial for economic growth. The second part scrutinizes into different jurisdictions and their real-life implementation of the policies relating to the public welfare. This section assesses their effectiveness by comparing the actual results and areas of improvement.

Financial Assistance and Bailouts

The most straightforward way that the government intervenes during economic downturns, specifically when it comes to financial assistance, is through bailing out of organizations that are in trouble. In particular, we notice that the reaction of the US at the 2008 global financial crisis is one of the most common examples. In the United States, the AIFP Financing Program of the Automotive Industry was launched by the federal government. It was a \$80 billion bailout given to General Motors and Chrysler companies which included their financing organizations and suppliers. Thus, this option albeit being stunning was attributed with saving more than a million jobs and also avert the collapse of the industry in the latter part of the century. This helped these companies to rejuvenate, reshape their approach to practice and consequently them back to profitability (U.S. Department of the Treasury, 2014). On the one hand, bailouts can be a good remedy for immediate relief, but on the other hand, they create the market distortion. Moreover, the moral hazard and the uncertainty of whether it is a healthy intervention or not are raised. We are told that bailouts are potentially risky and firms will use such them to go on risky business with a confidence that at the end the government will come and to come to the rescue. Thus, though financial aids are important they should be designed to maintain vigilance and evaluate the agenda for accountability, efficiency, and industrial innovations.

Tax Incentives and Subsidies

Using tax breaks and incentives is the policy option that states mostly apply in order to promote sales of the cars and provide manufacturers with support. As a case in point, electric vehicles and lighter cars attracted tax cuts in China as well as subsidies from the government in the wake of the COVID-19 crises. These Temporary supports did their job of getting car sales back up at an unexpectedly high rate (China Ministry of Commerce, 2020). Moreover, the efficiency and suitability of tax incentives and subsidies can differ depending on their method of work and style of implementation. These activities should be tailored and bound by time to avoid their turning into a crutch and will only enrich the results, like those leading to a more competitive industry or the faster move to eco-friendly mobility.

Regulatory Adjustments

Amending the legislative framework as well may add a great deal in allowing the industry to survive. In case of recession, governments use to make relaxation in the regulations with the aim to decrease the load on the manufacturing companies and dealers of automobile sector. For example, an environmental regulation may be limited temporarily if a new car model is supposed to be brought out quickly, lower production costs, and get it to market swiftly. Even so, regulations must be modified with the view to meeting too many economic objectives, while at the same time, long-term goals like environmental sustainability and consumer safety must be regarded as important. It is of great importance that the implementation does not give way to the possibility that the goals are touched. This is the array that preserves the industry's long-term health and reputation.

The investment in research and development (R&D)

Researches and development are future-forging steps that the government makes to stimulate the automotive industry by exploring new areas of innovation and encouraging competitiveness. These investments can pivot towards the creation of new technologies, including autonomous driving and electric vehicles, and addressing energy efficiency to place it as a global industry ready for growth. In this regard, the European Commission's Horizon 2020 program is providing substantial investments for the purpose of automotive R&D aiming at greenhouse gas emissions cuts and safety enhancement (European Union, 2020). R&D spending is a key mechanism not only for current regeneration but also for the creation of a infrastructure that is not only reactive but proactive regarding future business needs and technology trends. Nevertheless, the efficacy of such projects might be slow and therefore policy makers have to be prepared to hold long positions and NOT just to target instant impact.

Skill-Development and Workforce-Training

Automotive industry's evolution, due to crisis events, shifts a lot to additional requirements for skills. Government might fund the transformation of the industry by creating programs to develop skills and give workers chances of re-training. Thus, these plans produce the workforce that are able to meet the challenges of the technology and of newly structured processes. Moreover, this will be helpful in transforming the industry and in building the competitiveness of the industry. Employing the German government's very own "Kurzarbeit" program which not only gave unemployed workers financial support linked to cut in hours, but also included provisions for upskilling and reskilling. Hence, not only was the workforce kept but they also developed their skills and their readiness to the new normal, (Federal Ministry of Labor and Social Affairs Germany, 2020).

Critical Evaluation

The abilities of state measures to effectively support the automotive sector are determined by the intervention's pattern, the way it is implemented as well as a suitable context. Emergency Fund use for a pandemic creates immediate calm, but if they're not carefully managed, they can distort the direction of the economy and cause moral hazards over time. This may evoke the demands and enhance the development of the new industries. However, the latter have to be carefully calibrated and limited in duration to prevent the distortions of the markets. Aberrancy in regulations must be corrected in a way that maintains the family atmosphere and the society progressive approach. The automotive industry in Pakistan had exciting eras; more policy shifts, more challenges and more technological developments were introduced as it developed. Section2 will review the historical statistics and show the timeline of the broad progress of the industrial sectors from its beginning to the modern.

1950s-1960s: The Foundation



The dawn of car industry in Pakistan began from 1950s with the establishment of country's first automotive factory . In the 1953, the car called 'Oldsmobile' and GM plant made in Karachi for the start of the auto assembling in Pakistan. This a period in which dependent on CKD kits that were shipped from outside into the country and further assembled locally was the main feature (Government of Pakistan, 1953). The industry of those times was primitive that lacked advanced production capacity and concentrated in firstly satisfying the demand of transportation for government officials and a small section of aristocrats only.

1970s: Analyzing and Understanding causes for Nationalization and Early Growth

The 1970s represent a decade of political revolutions, with the nationalization policy implemented by the government playing a critical role in steering different sectors such as the automotive industry. This went hand in hand with the beginning of the state-owned entities such as Pakistan Automobile Corporation (PACO) whose mission was to create a basis of indigenous automobile manufacturing in Pakistan. Regardless of this development, the pace of the holding and shipping industries severely declined due to red tape and a lack of expertise in technology (Government of Pakistan, 1972).

1980s-1990s: Deregulation and Expansion

The deregulated and liberalized policies led to the eighties and nineties of Pakistan's automotive sector, considered to be a turning point in the sector. The authorities launched a pointed policy called 'deletion policy' in the 1980s which aimed to strengthen local manufacturing and decrease dependence on foreign manufacture. Theta program in fact required progressive introduction of locally made elements to foreign automakers' vehicles. Ministry of commerce, 1985 The period likewise witnessed the arrival of Japanese automotive brands like Suzuki, Toyota, and Honda that chose to enter in joint ventures with local. However, these alliances immensely augmented the growth of the sector taking in the latest vehicle models and incorporated the latest manufacturing expertise into the market (Pakistan Automotive Manufacturers Association, 1993).

2000s-Present: Modernization and Challenges

The industrial sector expanded with turn of the century as did Pakistan's automobile sector. The AIDP that was launched in 2007 besides other policies were geared towards drawing investments, promoting more competition, and using vehicles that imitate the clean, green cars, therefore giving the environment respect (Ministry of Industries & Production, 2007). Industrial developments have manifested these through investment rise be it on of these existing players or new ones that emerging obtain the Automotive Development Policy (ADP) 2016---2024. The strategy of the authorities was focused on attracting fresh investment, implementing competition and manufacturing quality vehicles that would be sold affordably in mass market (Ministry of Industries & Production, 2016). Besides this the industry has had a number of problems which include economic dips due to the policy fluctuations and more specifically the covid-19 pandemic which upset the supply chains code and accounted for varying rates of sales. In the face of the pandemic though the sector has had remarkable resilience as there are recovery signs as market conditions get better. The industry faces the crossroads point in the times of world adaptation towards e-cars. Govt's National Electric Vehicle Policy (NEVP), targeting to grow EVs in Pakistan, has turned out to be a major driver for clean transport systems. As the electric vehicles gained traction, this shift towards the electrification has in its part the challenges and the opportunities for the industry such as making new investments (Ministry of Climate Change, 2020).

Conclusion

The 1950s marks the humble beginning of the industry which has gone through a transformation and is now considered the modern market. This road has been patchy in nature and has witnessed an expansion and challenges almost simultaneously with government policies often rocking the boat. The industry trying to hold its own in the future will be doing so by, one, giving a "green card" for technological advancements, and two, embracing sustainable practices that will parallel the progress and positive contribution to the economy of Pakistan.

3 CURRENT INDUSTRY OUTLOOK AND MARKET DYNAMICS

A present situation of automotive industry in Pakistan manifests itself as simultaneous growth opportunities and challenges, whose development is underpinned by several shifting market trends, competition and consumers' preferences. According to the latest data, the industry is at a certain stage of the way that contains recovery, as well as adaptations after the situation of global turbulence and local economic pressure. This part of the paper analyzes the dynamics of the modern-day auto industry in Pakistan. Listed are issues like market trends, major automakers, and consumers tastes.

Market Trends

Growth Trajectory: The Pakistani automobile industry has been on track for recovery from the early pandemic shock of the "COVID 19" disease. The volumes of sales have proved as resilient as ever with the recovery in some segments going on strong; notably passenger cars and two-wheelers. The recovery of the economy is underpinned by surging demand, unbuckling of financing pressures, and slow but relatively steady resumption of production processes.

Shift Towards Localization: On-going trend favoring expanding domestic production as much as it is possible in space sector to ensure currency stability, market capability for domestic manufacturing and avoid dependence on imports is noticed. Governments around the world implement industrial policies that support local built envisaged supply chain dynamics, and push capital spending and investment patterns towards coherent pathways.

Electric Vehicle (EV) Adoption: A global shift has made an influence on Pakistan as well where now there is rising interest in EVs, escalated by environmental problems, fuel saving, and incentives under NEVP which is National Electric Vehicle Policy. Nevertheless, the EV industry is somewhat at its beginning, and offering incentives to establish charging infrastructure, and also for EV buyers and producers, are certainly indicators of possible evolution and expansion of such segment.

Major Players

The Pakistani automotive market is basically a realm of just a few big companies, the most important among which being the Japanese brands – Suzuki, Toyota, and Honda - particularly, the latter dominate the passenger car market. These companies have practiced local dominion establishing strong partners for joint venture, derived from their logos recognition, original dealers, and consumer trust. Furthermore, as a result of the Automotive Development Policy 2016-2024 which is a driving force, new entrants are making inroads. This, in turn, gives the consumers the options, and slowly but gradually these players begin to change the competitive landscape. Along the same lines, Chinese manufacturers entered the global market for the passenger and commercial car segments that caused price erosion for they were affordable and at the same time brought new technologies into the market.

Consumer Preferences

Price Sensitivity and Value for Money: Punjabi traffic is price sensitive, according to the trend that buyers combine advantages and a good deal. The preoccupation of fuel efficiency, repair expenses, and the value of the vehicle in the marketplace will also be examined. Demand for vehicles is characteristically constant notwithstanding the economic climate and changes in purchasing power. **Preference for Sedans and Hatchbacks:** The sedan and hatchback segments are the leading players in the consumer preferences of Pakistani customers that taken into account their practicality, low cost, and suitability in urban settings. Yet, there is a huge splash of small urban vehicles and crossovers which are known to be accommodative and versatile. The demand comes as a result of the need for larger cars with a lot of space. **Increasing Interest in Features and Technology:** Vehicles demand which offer high tech automotive features, safety technologies and connectivity options is experiencing a rapid rise. The reinvigorated interest from these younger people to technologies in shaping new trends has triggered rivals to introduce new and advanced products to the market. Pakistan's auto industry is undergoing a phase of crucial turning-point as the industry strives to gain new grounds via improving consumer requirements, facing global curve by adapting to trends such as eco-friendly technologies and sustainability. In the contemporary market, we have a more diverse competitive structure with new players joining in while the old market leaders are using innovations to keep up with the changing consumer behavior. The

government policies and assistance have great significance in the vision of the industry by creating an environment for localization, urban mobility, etc., and it also ensures the sustainability of the sector through attacking several problems. As the future unfolds, these industry players, smartly positioning themselves to address these dynamics while prioritizing high quality, affordability, and innovative products will have the privilege of usurping most of the market share.

Covid-19 And Automotive Industry

Concerningly, the global industries have been facing the new COVID-19 pandemic imposed challenges, among which the automotive sector is one of the firsts venerers of the fundamentals of global supply chain and industrial cycle sensitivity. The pandemic has touched on the course of automotive industry, concerning supply chain disruptions, production stoppage, change of consumer behavior, and the reconsideration on the future strategies. In this environmental study, there is a focus on all these aspects of the automotive industry to study how the automotive sector is being shaped up with these aspects.

Supply Chain Disruptions

Due to unforeseen lockdowns and border closures, the automotive manufacturing industry, which took pride of its complex and integrated supply chain for ages, had to face a variety of challenges straight away. The just-in-time (JIT) production model, developed by automakers all over the world to control inventory and reduce costs, turned to be a life-threatening vulnerability as the pandemic spread through, and made it difficult to produce automobiles with unavailability of components from the key hubs of manufactured like China, South Korea and Europe which caused production halt (Smith, 2020). For example, the temporary stoppage of the chip manufacturing plants (in China) and later in some other parts of the world gave rise to the global micro-chip crisis, the primary chips being used in many other important vehicle systems. This disruption was not a one-time thing but rather demonstrates the variability of global supply chain and is likely to encourage automakers to have rethinking their supply chain strategies so as they can become more resilient in the future (Johnson, 2021). The commencement of the pandemic witnessed the temporary closure of manufacturing facilities across the globe, inclusive of

Pakistan, in order to meet the guidelines, set by the health administrations and ensure the workers' protection. These disruptions of operations together with the spring reduction of demand were extremely detrimental to the state of financial health of the companies. The auto manufacturers and their suppliers confronted illiquidity, and in response to that many employed cost-cutting measures, some of which were workforce redundancies and capital expenditures decreases (Khan & Ali, 2020). Possibly the most affected was the automotive sector in Pakistan, which suffered complete drowning of sales in the beginning of the pandemic, as was manifested in consumers' fears and ignition of economic activity reduction. The recovery of the industry has been slow, and the government has made efforts in this regard by reducing interest rates and this move has created a situation for the buyers who avail the financing and also by lifting up the lockdown rules (State Bank of Pakistan, 2020).

Shifts in Consumer Behavior

The pandemic has contributed enormously to consumer behavior and the ways they buy them, implicating both way and what they buy as they did before. The reduction of economic confidence and also the doubts about the upcoming public transportation services determined the change in car purchase intentions. In a selection of markets, the growth in consumer demand for personal mobility solutions was observed which may be explained by the fact that people started using different modes of transport in order to isolate themselves from the risk of infection. As a result, the auto sector is likely to benefit in the medium term (Doe, 2021). An accelerated digital adoption was seen in Pakistan during the pandemic, e.g., more consumers are resorting to online websites in their car buying efforts that include research, inquiries and buying. The shifts prompted a need for auto makers and dealers to strengthen their digital customer channels and present online showrooms and buying reservations as well that aligned with the new consumers habits (Mark Malik, 2021). In addition, the economic effect of a pandemic has also greatly affected consumer sensitivity, where now they are price and value conscious and they show a shift with preference of small car and economical vehicles. This trend has a productive consequence, making use of product business strategy to look for an affordable and effective model for the customers (Raza, 2020).

Reevaluation of Future Strategies

The advent of COVID-19 in the pandemic has challenged the automotive industry to reassess its long-term strategic vision in regard to supply chain management, digital transformation, and sustainable management. In recent years, experts tend to suggest that a more robust and resilient supply chain should be created probably through a strategy of local distribution in addition to choose of the multiple sources and purposeful stockpiling the needed components (Smith, & Thomas, 2020). Digitalization surfaces as the main strategic option for companies in the automotive industry, which means more and more resources are devoted to either the improvement of digital sales or exploration of the new technology such as Artificial intelligence (AI) and the Internet of Things (IoT) to enhance manufacturing efficiency and customer experience (Khan & Hussain, 2021). Sustainability and Electrification, however, have got its attention now, and the pandemic has also piqued the interest of environmental issues as well. Governments and consumers are getting more excited about green initiatives, hence the pace of the implementation of this approach while EVs and ecofriendly production will be used more. Correspondingly, automakers have been moving well with their EV offers and have made a firm decision to go carbon neutral (National Electric Vehicle Policy, 2020). During the time of COVID-19, the auto industry has seen a huge effect, mostly due to a fact that supply chains and market models are very susceptible to changes both in the production and sales. The response is adopted by looking up innovation, enhancing digitalization and speeding up sustainability projects. The future of automotive sector for Pakistan is the adaption for the change with the support and taxation policy incentives from the government, which would enable the sector to overcome the past and emerge in the foreground. Without a doubt, it is this pandemic that has brought about changes that just might be the driving force for a future industry which is considerably more robust, innovative and sustainable.

3.1 GOVERNMENT STEPS TO REHABILITATE AUTOMOTIVE INDUSTRY

Financial Support and Incentives

Governments across the globe impose different financial measures ranging from direct support to the automotive sector to cushion the industry, thus limiting the negative impact on the economy. These solutions generally include direct bailouts, loans with standard lending conditions, and reductions in taxes for automotive companies in crisis and their suppliers due to disruptions at the production stage (Smith, 2021). Another hint is the European Union approval of state-aided funds for several member states' automotive industries that will be aimed at the operation continuity and the retainment of jobs (European Commission, 2020). In Pakistan, the State Bank of Pakistan unveiled refinancing facilities for businesses, with this sector including auto both sectors. These have been aimed at supporting the operations of the businesses and safeguarding jobs. These establishments gave room for delayed loan repayments with a provision for the credit facilities with a reduced interest rate (Approach: The subsidies were done by SBP and these allowances created a space for delayed loan repayments. Interestingly, they also made the credit facilities available with a reduced interest rate. Consequently, TERF (Temporary Economic Refinance Facility) was also organized which propelled investment in new projects and capacity expansion through concessional rates of financing (State Bank of Pakistan, 2021).

Policy Reforms

Assessing the fundamental and strategic nature of the automotive industry, the governments have entered into development of regulatory policies that have been conducted for the purpose to sustain a strong environment for the recovery and expansion of the industry. Hopefully with the mentioned reforms, the industry will have the basis to handle and open doors for economic development through technology and sustainability. The introduction of the Automotive Development Policy (ADP) 2016-2021 prioritized improving sector competitiveness through incentives for new players, fostering a robust internal market via provision of generous parts and components quotas and promotion of localized production endeavors. What follows on from this new EV policy is the development of a new AIDEP 2021-2026 by the government, which shall focus on deeper liberalization of the sector, infrastructural augmentation for EVs and enhanced export capacity (Ministry of Industries & Production, 2021).

The Financial aid For Infrastructure and Technology Development

While the electrification of vehicles or EVs and the use of advanced manufacturing technology are essential for the automotive industry today and tomorrow. The gears of change can be powered by government financing towards infrastructure development and research and development. As an illustration we can consider National Electric Vehicle Policy (NEVP) in Pakistan which demonstrate a number of steps for promoting use of EVs including tax exemptions, reduced import duty on EV parts and also electric charging network development (Ministry of Climate Change, 2020) These strategic investments, therefore, target not only immediate recovery but also the longevity of the entire industry and eventually the ability to accept technological changes and acting in the favor of the environment.

Enhancing Skills and Employment

It is evident that the pandemic emphasizes the appropriateness of highly skilled labor that can be able to handle new technologies and production innovation. The function of this measure can be directed to the development of vehicles-related skills and retraining of the workforce in order to facilitate this transition. In Pakistan, a program named as Hunarmand Pakistan has targeted to potentially improve the technical and vocational education and training (TVET) which will supply the laborers with the skills required for new manufacturing technologies including EV manufacturing and maintenance whereas National Vocational & Technical Training Commission (2021) approximated.

Addressing Supply Chain Vulnerabilities

Covid 19, which has brought into focus the weaknesses in the global automotive supply chain. As guarding against disruptions, governments decided to have solutions to increase supply chain resilience by means of diversification of sources and planning local manufacturing. The case of Pakistan is the fiscal support to the local manufacture of car components to avoid imports and to limit the risk of supply chain problems. These actions are one of the core strategic means of improving the auto industry for self-dependence and constriction of the supply chains (Ministry of Commerce, 2021). on the one side, the pandemic-new condition is a serious challenge for auto-manufacture, but there are many layers of that onion that nevertheless keep proving themselves beneficial. Government provided financially relief, implementing practical solutions acting towards future-focused technology and infrastructure and further developing workforce skills, is a real necessity for recovery and sector development. These are proactive measures that effectively cover the short-term impact of the pandemic. They also serve as a solid foundation to foster resilience, innovation and sustainability for the automotive industry in pursuing its long- term goal. The realization is already in gear, but steady evaluation, monitoring and enhancement will be key elements to achieve maximum results as the industry adapts further. The undertaking of the government towards this transformation is not something that can be underestimated with policy consistency, engagement of industries, and direction to lay a course for the sector to succeed under sustainable circumstances, being focal here.

4 ASSOCIATIONS IN PAKISTAN AUTOMOTIVE INDUSTRY

4.1 SYNERGIZING INNOVATION AND STRATEGY

The Pakistan Automotive Manufacturers Association (PAMA) not only considers as an important body for industry advocacy but also for the creation of industry standards, overseeing the output of more efficient and attractive designs thus contributing to an innovative culture in the nation. By its total efforts, It has added many folds in the enhancement of Pakistan's automotive sector reputation making it to compete in the global markets and continue implementing sustainable and beam line development practices. This extensive discussion is dedicated to a comprehensive look at the diverse multidimensional nature of the industry and PAMA influence on it.

Industry Advocacy

The PAMA acts as the voice of Pakistan's automotive sector and is expected to make sure its industry members interests are represented in the government and regulatory bodies. Beyond its campaigns, PMA has also played a significant role in dialogue with the government during deliberation on policy directions, especially coalition on procompetitive and pro-industry policies. The most relevant example is PAMA members' participation during the formulation and the several revisions of the Automotive Development Policy whose components were based on incentives for new entrepreneurs and aiming for higher levels of localization in the automotive sector (Government of Pakistan, 2027). Furthermore, PAMA is involved in the negotiations of trade agreements and includes within these trade agreements matters that affect the automotive sector. Through acquiring the shared message of the industry, government representatives can see what important issues should be considered when drafting new legislations and rule-making and where they may have a negative effect on the sector's growth (PAMA, 2020).

Standard-Setting

PAMA has a one of its kind positions which no private or public entity has ever been given before. This is the reason that during its entire span of activities, since it was established, PAMA has set high standards and made sure that the Pakistani stature is copied not only by the local automotive industry but also by the entire Pakistani industry for compliance to good quality, safety and environmental standards. Working with bodies of international standards such as PSQCA and the Pakistan Standards and Quality Control Authority (PSQCA), PAMA develops and puts in place standards for the implementation of best practices that concentrate on global requirements. The resultant partnership has informed the way in which the cars are manufactured, with stringer emissions and safety standards being used and sold in Pakistan, and thus promote environment sustainability and consumer safety (PSQCA 2019) The participation of PAMA in standard-making is, however, not only limited to plugging the country into global standards but to likewise secure the export prospects of local-made autos and their components in the international market. Pakistan automotive industry's playing field is leveled by increasing the standards through PAMA. It also improves domestic industry's competitiveness and puts Pakistan in the map as a player of international automotive market (PAMA, 2021).

Fostering Innovation

Innovation is the indispensable and essential condition for the further development and improvement of the automotive industry, and PAMA (particularly of course) create a system of facilities and technology that lead to innovative practices. These are achieved through corporate collaboration with academia and research facilities, as part of the R&D program in the automotive technologies. Efforts are directed towards improving efficiency of fuel, alternative energy vehicles, and more advanced safety features. PAMA's initiatives to encourage innovation are also demonstrated by its facilitation of electric vehicles (EVs) usage as well as the technology that goes with it in Pakistan. Through the proposed electric vehicle policy (NEVP) and joint efforts with all relevant partners to build EV charging infrastructure which the PAMA is at the forefront, the industry is actively engaged to offer sustainable mobility solution (Ministry of Climate Change, 2020). Moreover PAMA not only organizes automotive exhibitions, seminars, and workshops, but also it acts as the platform where knowledge is being passed, new inventions are disclosed, and cooperation between the manufacturers, suppliers and tech companies can be enhanced. These events serve to fuel the fire of the industry's developmental strategy, allowing companies and other stakeholders to investigate new technologies as well as market trends (PAMA Yearly report, 2019).

Challenges and Opportunities

PAMA not with standing the promoting, standard-setting and harnessing innovation efforts it has highly contributed to the phase of the industry still there are trials. These include having to deal with regulatory uncertainty and a constant need for technology adaptation, in addition to a long-term competitiveness guarantees amid ever -variant global dynamics. The ability to overcome these difficulties requires regular interaction with stakeholders, visionary thinking, and the capability to respond in the face of novel possibilities. Provided the industry can seize the potential available on the digital market and be ahead with the advent of autonomous vehicles and sustainable production practices, it will assure its resilience. A significant development in Pakistan's automotive industry has been the pivotal position of the Pakistan Automotive Manufacturers Association in maintaining quality standards through advocacy, setting industries standards, and creating new innovations. Thus, the Authority can be considered as a key factor of the industries' growth and sustainability, as it guarantees an industry voice in policy-making, makes possible to reach high standards of quality and safety, and provides a welcoming

environment for innovation developments. Going forward i.e. PAMA's unconditional control of the given strategies will be very important in setting the parallel paths that will take the industry through challenges to a future with more innovations and trade that are competitive and in alignment with the global automotive trends. The continuous presence of the association establishes a proof that Pakistan is capable of making very high machines but also illustrates the need of cooperative industry effort to be effective in achieving shared common goals of improvement and growth of national economy.

4.2 PAKISTAN AUTO PARTS MANUFACTURERS ASSOCIATIONS

The Pakistan Auto Parts Manufacturers Association (PAPMA) stands out being the most paramount structure as far as improving and maintaining the development of Pakistan's automotive sector is concerned. In fact, PAPMA is one important link between parts manufacturing companies, the government, and international markets, which thereby has largely contributes to the growth of the entire parts manufacturing sector, quality improvements, and exports promotion of the industry in Pakistan. This provision is a thorough inquiry into the multifaceted impacts of PAPMA, from an industrial perspective.

Parts Manufacturing Enhancement

Supporting SMEs: PAPMA leads to a reduction of challenges experienced by SMEs in the auto parts manufacturing sector. In the automotive supply chain, the SMEs are highly significant, and PAPMA provides technical suggestions, banking connections, and market relationships about the growth and sustainability (PAPMA, 2020). Owing to these measures small and medium sized enterprises have been able to move forward and be much more integrated into the automotive sector's supply chains, be they national or international. Facilitating Technology Transfer:

PAPMA has gained power and network to further its mission of connecting technology transfer and member adoption of new manufacturing methods through a strong winning network.

Sponsored by the PAPMA, international automotive institutions as well as companies have held seminars, workshops, and expos, which are venues that local manufacturers and entrepreneurs use to familiarize themselves with the latest technological developments and the newest trends in

manufacturing. It is the right technical strategy which not only increases the competitiveness of local industry but also ensures that the Pakistani auto parts are up to International Standards (PAPMA, 2019). Investment Attraction: Through lobbying political offices for support policy and the provision of incentives, the auto parts manufacturing has not only attracted investments from the domestic and international investors. The investment promotion has targeted the industry by emphasizing the exploitable possibilities of a profit in this sector that is sustained by Pakistan's strategic position of a bridge between the markets such as Asia and Middle East (Ministry of Commerce, 2018).

Quality Improvement Initiatives

Standardization and Certification: As PAPMA, we have managed to stand out from the rest as we have been an advocate of standardization of auto parts and components manufactured in the country. Collaborating with Pakistan Standards and Quality Control Authority (PSQCA), the Pakistan Agribusiness Processing, Manufacturing, and Adding Value Association had aided the setting up of quality standards in line with the international norms. In both of these ways, it has resulted in making manufacturers strive for ISO certification, which in turn has guaranteed consistent quality and safety of their products (PSQCA, 2021). Quality Assurance Programs: Recognizing that a quality assurance program is the basis of keeping the market competitive and successful, the PAPMA puts forward such programs for members of societies. These programs consisted of regular quality audits, comparing best practices and taking feedback from OEMs (sometimes called Original Equipment Manufacturers) and end users. The OEM are the central venues where the local parts manufacturers are mandated to meet the standards and requirements set by the global auto giants. Such initiatives have significantly elevated the quality of Pakistani-made auto parts, enhancing their reputation in domestic and international markets (PAPMA, 2020).

Export Promotion Efforts

Market Access and Diversification: The other big action that was undertaken by PAPMA was the initiative that was aimed towards the promotion of exports and market diversification for auto parts of Pakistan. The inspiration for Pakistani auto parts was created by exhibiting in the international trade fairs and missions to country visits as well as B2B matchmaking events in Asian, African and European countries. These measures were made to make the system of agriculture less dependent on traditional markets, and they have dealt with the trade fluctuations in the global markets (PAPMA, 2021)

Export Facilitation Services: PAPMA offers an array of export services to its members, for example, export market intelligence work, export documents preparedness assistance and the guidance on export compliance. They facilitate the export process by delivering it in a simple performative behavior, giving especially SMEs a chance to expedite the process of the complex international trade regulations and standards. Also, the PAPMA's policy transformation and local logistic support has sizeable contributed in rising export volumes (PAPMA, 2019)

Branding and Promotion: Recognizing the importance of branding in the context of international markets, PAPMA has undertaken efforts that seek to enhance the image of the "Made-in-Pakistan" brand associated with its automobile parts. These branding strategies have made it possible for Pakistan to reap the benefits of the high quality, reliability and cost-effectiveness of its automotive parts which has in turn earmarked the country as a reliable and reputable source of auto parts to the world (Ministry of Commerce, 2018). The role of Pakistan Auto Parts Manufacturers Association is to an extent having a profound and far-reaching effect on the automotive industry. With its task about the manufacture of components, efforts for classification of quality, and encouraging exports, PAPMA has contributed significantly to the process of development and export in the industry. Its pursuits, however, have added a lot to the competitiveness of the locally assembled motor vehicles and also have made Pakistan a prime player for the global automotive supply chain. The automotive industry, known for the dynamism of the changes and requirements it has to face, is a place where PAPMA's innovation power, quality and market expansion will have the greatest effect and, hence, are the forces shaping the future of the industry.

5 FUTURE DIRECTIONS AND TECHNOLOGICAL ADVANCEMENT

Globally, the automotive industry is reeling and the waves of revolutionary technology are on the advance with new technologies such as electric vehicles (EVs), autonomous driving concepts and sustainable manufacturing processes leading the pack. These propulsions are the source of innovative ideas for Pakistan, such that they can help to catalyze the growth of the economy, apply production techniques that are environmentally friendly and perhaps take steps to find an edge in the new global automotive market.

5.1 ELECTRIC VEHICLES (EVs)

Current State and Potential Growth: While the nuclear power plant safety culture exists in the country, it has not yet got on the right track of ethical review and evaluation. The policy consists of the tools to support the manufacturers and consumers, which are also known as the demand and production side of the EV market (Ministry of Climate Change, 2020). **Economic and Developmental Impacts:** The implementation of electrified cars would carry remarkable economic gains for the country. Whereas, chiefly it can lead to a drastic fall of oil import bill by balancing the trade and mitigating the effects on exchange rates. Besides, EV could be a factor increasing an ecosystem of the manufacturing of machinery components locally from the assembly to the battery production and the charging infrastructure which can promote the diversification of the economy. The EVs provide a window of opportunity for technological leapfrogging, whereby Pakistan can tap into the global value chain of advanced auto technologies, therefore, the future of electric vehicle manufacturing in Pakistan is very appealing.

5.2 AUTONOMOUS DRIVING TECHNOLOGIES

Prospects for Adoption: Although it may look as the Pakistan's path to fully autonomous cars will take its time, applying some semi-autonomous and assisted driving features will undoubtedly bring benefits here and now. Such technologies can do wonders when it comes to vehicle safety and efficiency, which can be a boon for those tech savvy people out there who are mostly consumers and fleet operators. Hence, these technologies offer something special to the consumers. **Economic and Developmental Impacts:** Besides bringing in investments and providing new opportunities for technology businesses in related fields, the deployment of autonomous driving technologies in country can work as a catalyst for research and development (R&D) in areas like artificial intelligence (AI), sensors, and data analysis. Furthermore, this situation would not only help the industry but also enable industries that are neither IT nor services ones to grow. And also, they can achieve the aim to achieve the goal of reducing the economic costs of road accidents control and traffic jams that occur.

5.3 SUSTAINABLE MANUFACTURING PRACTICES

Importance of Sustainability: In the pursuit of the environment preservation, the green manufacturing unfolds its success story into the auto industry. Hence, reliance on eco friendly materials, energy saving during production processes, and resources saving are the other ways.

Economic and Developmental Impacts: There is no single sustainability solution for Pakistani automotive industry, however transitioning to sustainable manufacturing practices may be one among many other pragmatic steps that can help the manufacturers to reduce operational costs, enhance competitiveness and deal with growing demand of eco-friendly products globally. Furthermore, this shift of activities fulfills obligations of the country under various international environmental agreements and on the national level conforms with the goals of decreased carbon footprints. As such, it may lure the sponsorship of companies looking for partner that practices sustainability ethics in their supply chain, which indirectly boost economic development.

5.4 CHALLENGES AND OPPORTUNITIES

Policy Support and Infrastructure Development: Policies or support tools must be established in order to tap the amazing capabilities of technological innovations. Also, various infrastructural requirement need to be enforced to ensure continuous growth in this sector. The government would need to check policies like NEVPs for their efficiency, since the growing problem and market gaps are emerging. Also, having connector investment for charging infrastructures and subsidies for research and development of technologies may be the game changers. **Skill Development and Education:** Through the transformation in advanced automotive technologies a functional group which has a capability to touch all the domains including battery technology, software development, and sustainability practices is required. TVET programs should be strengthened and the university-industry cooperation fostered so that requisite talent for industrial manpower can be built. **Collaboration and Partnerships:** The central government and the industry players have to include academia and foreign partners in their efforts to fuel innovation and the adoption of technology. These partnerships help in technology transfer as the collaboration goes forward, joint ventures, and participation in global research initiatives. Thus, the progress to a technologically advanced automotive industry in Pakistan can be sped up. Prospects of the automotive industry in the future and its technical developments are regarded as

enhance its economic structure and growth. Pakistan's acceptance of electric vehicles, autonomous driving technology, and sustainable manufacturing processes will bring about environmental sustainability that creates new jobs. Also, aware of crucial component in developing a national economy and market. Indeed, the achievement of this Objective will greatly depend upon united efforts by the actors involved, with sufficient support from policies, investments and innovation that is the key to sustainability. While the world makes its way to a greener and smarter transport area, Pakistan can become an example for others by it taking advantage of its very special talents to do economic success and environmental protection

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6 POLICY RECOMMENDATIONS AND STRATEGIC FRAMEWORK

The future of automotive industry of Pakistan is eventually driven by its strategic courses and regulatory policies that are specific to a year or more, but fine tune its growth, innovations and sustainability. Localizing the present situation, having difficulties and opportunities that in the automotive sector is emphasized in this chapter by giving policy suggestions and providing a strategic plan for promoting the success of economic growth.

Policy Recommendations

6.1 ENHANCING POLICY STABILITY AND COHERENCE

Create a framework for an automotive policy that will provide the arch oscillation and adherence to the industry shareholders. This plan can be an unambiguous document of the government aims for the sector which include figures of electric vehicle (EV) promotion, local car manufacturing, facilitation of export and eco-friendly. Make sure that there is a coordination and understanding among all stakeholders including the policy makers on all levels to ensure that the national and international regulations and incentives are not conflicting.

6.2 SUPPORTING ELECTRIFICATION SUSTAINABLE PRACTICES

Increase the index of EV manufacturing and adoption by introducing tax incentives, EV subsidies for purchases, and investments in charging architecture. Design a regulation set and financial stimuli which drive the change towards sustainable manufacturing of vehicles, with the final objective of minimization of ecological footprint.

6.3 PROMOTING RESEARCH AND DEVELOPMENT (R&D)

Formulate a government-private sector partnership plan for finance R&D in highly creative automotive technologies, including EVs, autonomous driving, and environmentally friendly materials. Establish innovation centers in automotive parks that guarantee direct access to technical resources and other incubation tools for the R&D activities

Strengthening Supply Chain Resilience

To lessen vulnerability the country should install such policies that direct localization of automotive components and the variety of supply sources. Accommodate SMEs in auto part sector by enabling access to finance, technology transfers and supply chains involvement in the global level.

Enhancing Workforce Skills and Education

Invest in the technical and further educations and training (TVET) programs that have a corresponding skill sets with the developing requirements in the industry. Strengthen university-industry relationships in order that the automotive sector draws educational curricula that are fit for the demands of the sector.

Facilitating Market Access and Export Promotion

Come up with trade agreements which facilitate in market access for the automotive products of Pakistan. Develop programs specifically tailored to help manufacturers acquire and showcases the requirements and certification which help in access to new markets.

Strategic Framework

The strategic framework for harnessing the full potential of Pakistan's automotive sector is built around four key pillars At the core of our business strategy are four key pillars Innovation Sustainability Collaboration and Skill Development.

Innovation

Every investment effort shall be sharply directed into R&D and concentrated on what matters most in the context of mobility as in electric vehicles (EVs) autonomous technology and digitalization. Stimulate the startups and high tech companies involvement in automotive sector through juggling competitions grants and incubation programs.

Sustainability

Go for a regular holistic move which includes not only environmental factors but as well as economic and social dimensions. Spread the circular economy within automotive sector and focus on waste stream management, recycling of automotive parts and systems as well as overall vehicle lifecycle.

Collaboration

Establish a framework of joint commitment among all stakeholders that is business academia, governments as well as international organizations to use made resources and expertise.

Formulate applied-industry leading groups for example favorability of supplies, obstacles to technology adoption and market development as experts.

Skill Development

Tie in skill development initiatives with ever changing industrial requirements, especially focusing on more advanced technologies and fresh business patterns. Initiate lifelong learning and re-skilling campaigns to cater for the existing workforce ensuring that their competencies persist in the fast-pace altering auto industry environment. These policy recommendations if implemented and the given strategic framework should be adopted can inevitably alter the auctioned industry growth contour. Through creating an arena that cherishes innovativeness, bestows priority to environment, endorses interaction and promotes knowledge, Pakistan can not only obtain economic development but also lead in automotive industry globally. While this path is difficult, it also means that we have that most demanding and yet valuable asset time. Its successful completion is our joint responsibility and requires continued efforts, openness and strategic planning, meaning the automotive sector staying alive and prosperous.

CONCLUSION

The verbal's covered in detail all aspects and every detail about the Pakistani automotive industry, from the historical milestones, the activities currently undertaken, and the future expectations. The pathway of the industry from its initial zero presence to the current situation is a true measure which shows two sides as things are both toughening consequences as well as getting improvements with a diversifying industry and trying to prepare for the technology in innovation and sustainable solutions. In the opening paragraph, the historical overview includes the development of the Pakistani automotive industry from its initial growth stages until the time when it faced a number of problems. What's also mentioned are the strategic orientation, policies, and government programs that enabled its growth. The current background of the sector has shown very clearly how much the sector means for the country's economy: the relationship to the GDP is obvious, as well as its role in training and technology application. This journey had shown an inherent problem within the supply chain, regulatory environment and the need to keep innovating for both domestic and global leadership in addition of the imperativeness of continuous improvements in order to create better places in the market. COVID-19 pandemic was a watershed for many domains, which were troubled by a lack of either staff or materials, as supplies and ships were hit by disruption, but on the other hand moved the world close to the adoption of digital technologies and eventually made business owners think about old models. Today's events are portraying the government agencies as fast-moving with their responsive efforts and strategic steps. Therefore, disaster-risk management appears to become the future country's main strategy. To future evolution within automotive sector of Pakistan, EVs, autonomous driving and sustainable manufacturing techniques play contributing roles as there is a global trend of change. These regions offer to avoid having to start from the very beginning. Instead, it is possible to jump directly into new eras of auto manufacturing in line with environmental growth and economic expansion along with technological advancement. However, the actual achievement of the potential involved in these targets cannot happen without collaboration, strategic approach with the contributions of government, industry, academia and the international partners. The policies, covered in this thesis, recommend a holistic support framework for accelerating the growth of the industry stability, investment in R&D, social upskilling, supply chain resilience, and sustainability (the refreshed version). The strategic framework proposed would focus on gaining synergies in terms of innovation, cooperation, and personnel capacity, and delivering future automotive industry that is socially responsible, technologically innovative and forward-looking. Finally, the automotive industry, which is a

major source of economic opportunity in Pakistan concludes the statement. Its transformation path from a project-based activity to a technology arena of the country's economic future is quite the same with the nation's economic progress wave resilience, slow but sure, and an unexploited resource. Nevertheless, the way ahead is interspersed with difficulties and does indeed have a considerable scope for creating economic, societal, and environmental effects. By leveraging the latest technologies, promoting innovation culture and insisting on the sustainable production process, the sector will be not only rising, but also bringing a significant benefit toward the economic development of Pakistan. The initial steps of the journey of the automotive industry in Pakistan, as ensured in this essay, reveal the strength of the sector and the potentials it has to make the country's economic aspirations come true. Through applying these strategies the nation can overcome difficulties of today and take the lead moving into era of auto industry which will be more sustainable and rich. Beyond adding to the scholarly dialogue on the automotive industry's economic and industrial growth of Pakistan, this thesis also establishes a guide for the governmental policymakers, industry strategists, as well as other stakeholders who wish to utilize the sector as a means to maximize the national aid and benefit.

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