

Patterns of Correlation between Aviation, Education, and Economic Growth in Developing Economies

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Abstract: Statistically significant is the fact that aviation has a positive correlation with the economic growth of nations. Developing countries in particular, and most economies of the world, in general, have widely observed that aviation is not only a catalyst for economic growth, it is also a business enabler and a global market share enhancer for many businesses across the globe. Notwithstanding this logically understandable and intuitive statement, it is interesting to note that the relationship and dependencies of education, culture, economy, and aviation policy of developing countries to capitalize this potent element for politico-socio-economic growth of nations is more often than not, ignored or underestimated. This paper studies and attempts to identify patterns in the correlation of factors related to Human Resource Development that boosts the growth of the aviation industry; specifically analyzing and comparing countries like Singapore, UAE, Qatar, Turkey and few others with lesser-developed, but growing economies like Pakistan. Derived from analytical study and inferences, the paper suggests and recommends a proven track for growth, prosperity, and socio-economic stability. The focus of the study is on the effect of education, training, and grooming of Human Resource specifically engaged in the fast-growing global aviation industry.

Key words: Education, aviation, economic growth, soft power, Pakistan.

1. Introduction

Apt, visionary and forward-looking policies and strategies at national level can lead to a path that can change the destiny of nations. History is replete with such strategic moves initiated by national leaders of vision.

Nara Chandrababu Naidu, who was Chief Minister of Andhra Pradesh (erstwhile Hyderabad, India) between 1995-2004, devised and implemented a visionary strategy of ensuring an exemplary higher education infrastructure in the province with a focus on Information Technology. The success, not only brought about a dramatic paradigm shift in the growth of the region it also resulted in several awards including the "IT Indian of the Millennium" (India Times) and a recognition by Oracle's magazine *Profit* as one of the "hidden seven", working wonders around the world. The bottom line lesson from this success story is that focused education yields results that are

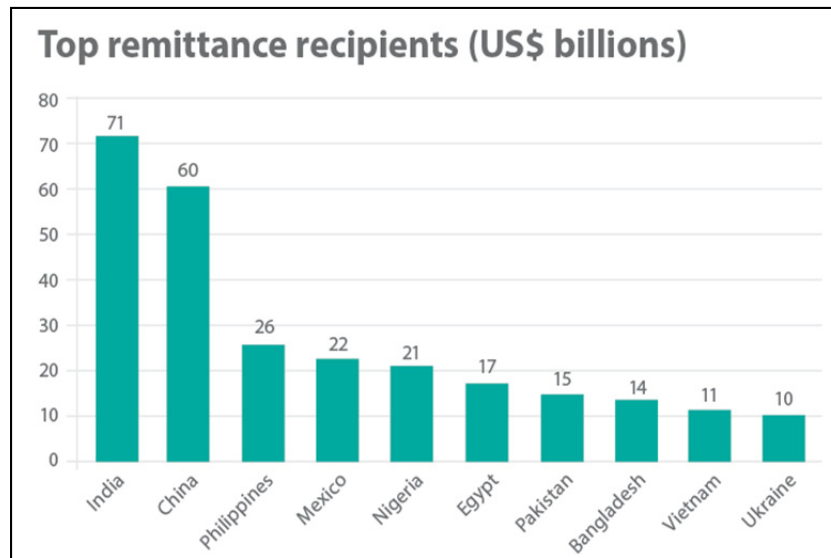
not only visibly laudable, but also, de facto improve the lives of the people in the region.

Following years led India to be another enviable Silicon Valley attracting many businesses and investors around the globe. With educated and skilled Human Resource, a large number of professionals sought employment overseas and resultantly, India exported a large volume of human capital that yielded enviable sum of remittances back to India [1]. Table 1 below clearly indicates India's lead in the remittance-receiving countries of the world.

Similarly, over the years, many other countries have re-modeled their economies and boosted their growth trajectories by laying more emphasis on a specific industry or a few industries. China is an unprecedented example of economic growth where emphasis on education and infrastructure spending are reaping benefits for the country. Malaysia is yet another example where dynamic and bold steps taken by their then prime minister Dr. Mahathir Mohamad yielded positive results in multiple strategic ventures.

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Table 1 Top remittance recipients.



Source: World Bank.

One such measure was Malaysia's MSC (Multimedia Super Corridor) initiative. This was designed to foster knowledge-based economy utilizing ICT (Information and Communication Technology) along with enhanced IT enabled services. Intelligent buildings and urban systems were constructed and used as a new approach to foster national growth. International companies were attracted by offering them hard and soft infrastructure and encouraging incentive packages, including user-friendly processes and regulatory structure to entice more Foreign Direct Investment (FDI) [2].

Similarly, Singapore's growth is another glaring example. According the Economist, "the country's first prime minister, the late Lee Kuan Yew is credited with transforming Singapore into a giant business hub. Mr. Lee called one volume of his memoirs, "From Third World to First" [3]. One of the major steps taken by Singapore's leader was to lay unprecedented emphasis on the aviation industry. A senior aviation correspondent from Straits Times, Singapore, stated that Aviation could be worth \$88b to Singapore's economy in 20 years [4]. Singapore has displayed phenomenal growth that portends leaving all regional countries behind in growth in aviation as well as the

country's economy.

IATA cites aviation as a key driver of economic success, and that Singapore is an outstanding case in point. While many factors have contributed to Singapore's success as a trading center and business hub, "the quality and range of air services available at the country's main airport, Changi Airport, is a major, if not critical, contributing factor" [5]. As can be seen in the Table 2 below, according to IATA 2015 report, Singapore leads all other countries in the region and excels in the projections in terms of passenger traffic, employment rate (jobs) and contribution to GDP [6].

Projections up to 2035 are tabulated in the Table 2 and Singapore's growth in passengers is anticipated to grow by 216%, while jobs and contribution to GDP are expected to almost double.

Amongst examples from other countries, UAE is a country whom regional economies yearn to emulate. It is stated that aviation shall contribute \$53.1 billion to Dubai's economy, 37.5% to its GDP and will support over 750,000 jobs by 2020 [7]. Indeed, the benefits go beyond the economic footprint of aviation. The global connectivity that air transport facilitates has positive impacts that enhance overall productivity and economic growth in the long run [8]. The leaders

Table 2 Aviation growth and contribution.

	Aviation Growth and Contribution to Jobs & GDP					
	Passengers	Passengers	Jobs	Jobs	Contribution to	Contribution to
	(million)	(million)	(million)	(million)	GDP (USD billion)	GDP (USD billion)
	2014	2035	2014	2035	2014	2035
Singapore	54	117	0.32	0.7	30	65
Hongkong	63	128	0.3	0.61	25	52
Vietnam	51	136	2	5.3	9	23
Phillipines	60	140	1.4	3.4	10	23
Malaysia	86	174	0.5	1	13	26
Thailand	104	190	2	3.8	29	53
Indonesia	155	310	4.4	8.8	50	99

Source: IATA 2015

of United Arab Emirates and their strategic plan to stay focused on promoting and enhancing aviation has visibly impacted socio-economic growth in the country. Unequivocally, Dubai is an epitome of success to reckon with.

Many studies in recent past have determined that growth in aviation and economic activity has shown a positive correlation. There are studies that specifically identify relationship between education and economic prosperity. It is expected that there would be a statistically significant relationship between higher education in aviation, growth in aviation, and national economy. It is also observed that particularly in Pakistan, the perceived significance of such a relationship in policy makers is far less than its real value.

2. Purpose of Research

To identify patterns of correlation between aviation, education and economic growth in developing countries, suggest policy guidelines and strategic measures, specifically for Pakistan, that may boost future economic activity with due emphasis on training & higher education in the field of aviation.

3. Research Design, Methodology and Approach

The research addresses the questions: “What is the relationship of education, aviation and economic growth particularly in developing economies?

Furthermore, are there some discernible patterns of correlation in variables (within the study scope) that contribute to the growth of nations? Relevant aviation, education and economic data is analyzed using ANOVA while expert opinion/views are collated using surveys, interviews, Delphi technique and Q methodology for policy recommendations specific to Pakistan. Secondary data used in this research is taken from World Economic Forum’s Travel & Tourism Competitiveness Report 2015 and 2017 [9].

4. Education & Economic Growth Relationship

While the proponents of endogenous growth theory believe that investment in human capital, innovation, and knowledge are significant contributors to economic growth [10], many critiques do not realize that skilled labor and educated Human Resource are prerequisites for research which in turn is the basis for innovation. Thus, specialized education is critical to the growth of the specialized industry. Indeed, growth of an in-demand industry yields economic growth at the regional and national level.

To paraphrase Gautam Mukerjee in his book Economics of Globalization (2017) quotes Adam Smith’s logic discussed in his famous book ‘Wealth of Nations’ (1776), mentioning the impeccable logic that prosperity of a nation depends on trade, and both are intimately tied to: a) Division of labor and productivity, and b) Specialization and efficiency

[11]. To relate this logic to Aviation, it can be stated that Aviation domain is a specialization and division of labor and productivity in this specialized field can only be attained through education, training and human resource development. Therefore, as per Adam Smith, the prosperity of a nation is, in today's terms, tied to Aviation, which is indisputably one of the fastest growing industries.

5. Soft Power of Aviation

In an increasingly complex and interdependent world, national leaders and strategic planners are faced with cognitive dissonance to adapt a path or the other to best achieve their political and socio-economic goals in the face of a myriad of challenges. The challenges are imposed by disruption and dissemination of power by the ever-growing digital revolution, connectivity networks and intertwined influence of endogenous and exogenous sources of power, from governments in the regional as well as far flung countries and now, even more influencing, are incumbent and potential non-state actors with dubious alliances, allegiances, belief systems and groups from un-demarcated and sometimes fleeting locations.

In such a dynamic but hazy and convoluted geo-political environment, reliance on military might and economic strength alone is not enough. This hard power, must also be augmented with soft power. According to Professor Joseph Nye, who introduced the concept of "soft power" in late 1980s, states: "Power with others is more effective than power over others" [12].

Strategy consultant on soft power, Jonathan McClory beautifully states: "While it may not seem immediately obvious, aviation is a crucial source of soft power for nations. Well-run national carriers can lift global perceptions of their home country, but more broadly, aviation is a great facilitator of soft power, closing distances and connecting people, cultures, companies, ideas, innovation, and opportunity

[13]. Thus aviation as an instrument of soft power cannot be over-looked and must be given its due importance in exploiting its potential.

As per 'Soft Power 30', despite a recent string of terror attacks raising questions about safety, tourists have not been entirely deterred. Of the surveyed countries, Turkey attracts one of the highest numbers of annual visitors, drawing them in with ancient architecture, stunning beaches, and a magically blended international experience. As Turkish Airlines further ramps up its international branding efforts, Istanbul's role as global travel hub is a further boost to Turkish soft power [14].

In recent times, Turkey has shown an exemplary growth in aviation that has resulted not only in substantial soft power but also in reckonable economic terms (GDP growth, see Table 3).

Turkey's leadership also paid phenomenal emphasis on the aviation industry. The GDP growth rate of countries as per Trade Economics (June 2017) indicates that its GDP growth rate is the highest amongst countries. Table 3 clearly depicts a large difference between the first and the second position [15].

Qatar too, has gained considerable lead in the region and its Travel & Tourism Competitive Index is far better than those in the region [16]. Importance accorded to aviation and its resultant growth in the economy is graphically depicted in the illustration below.

Table 3 GDP growth rate.

Gdp Growth Rate by Country		Updated
Turkey	3.80	Dec/16
India	1.60	Dec/16
China	1.30	Mar/17
United States	1.20	Mar/17
Australia	1.10	Dec/16
Canada	0.90	Mar/17

Source: Trading Economics, June 2017.

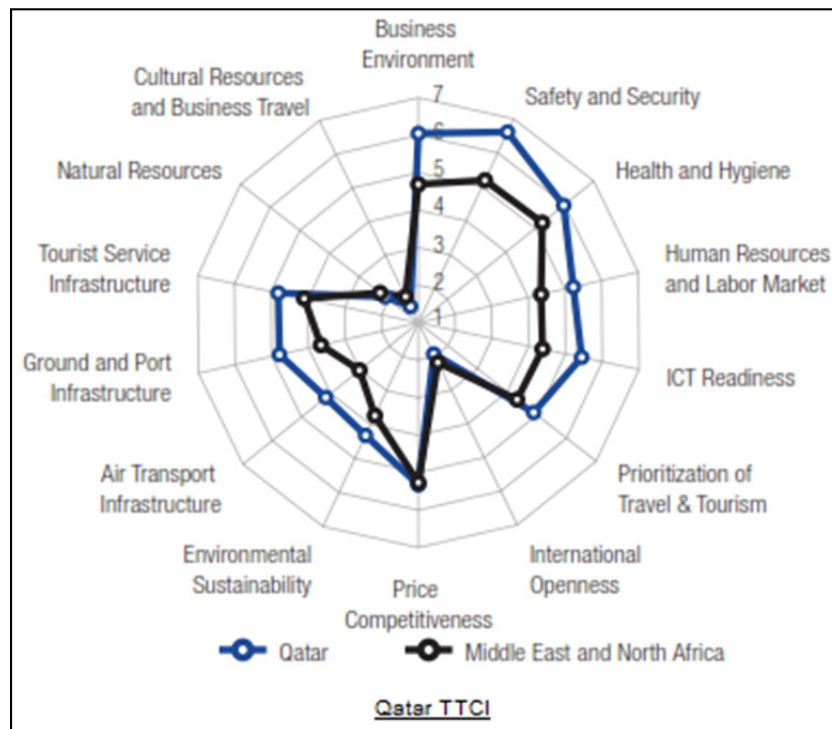


Fig. 1 Qatar TTCI.

Source: WEF 2014.

6. Aviation's Contribution to Jobs & GDP

Globally, aviation's contribution to employment and GDP is amply demonstrated by Figs. 1 and 2. Also, interesting to note is the fact that Tourism catalytic impact on both jobs and GDP is larger than aviation's direct, indirect and induced impacts.

Aviation's Global Growth and Growth in Asia Pacific While globally about ten million passengers fly every day in over one hundred thousand flights (Fig. 3), in the Asia-Pacific region (where Pakistan is also located, as per delineation by ATAG) the growth projection is 33% (highest in the world) as shown in Fig. 4. Daily traffic data also depicts the volume, the depth, the width and breadth of the aviation industry.

If it is internationally recognized and proven beyond doubt that aviation is a major contributor to global economic prosperity, it makes sense to believe that aviation is a major contributor to national economic prosperity. It behooves, therefore, that countries in the fast-growing region of Asia-Pacific

must lay more emphasis on the growth of aviation industry in their countries to catch the proverbial band wagon. Pakistan too, certainly falls in this category.

7. Travel Tourism Competitive Index (TTCI)

The Travel & Tourism Competitiveness Index (TTCI) measures the set of factors and policies that enable the sustainable development of the Travel & Tourism sector in a country. The index is expressed on a 1 (worst) to 7 (best) scale across 90 indicators, and assesses 141 economies [17]. Very detailed and pertinent data and its analysis are presented in the 2017 report on TTCI.

The data is also presented in a global heat map format to depict countries with their corresponding rating mapped with color coded visual appreciation of where a country stands with regards to its performance and attractiveness for travelers around the globe. Although the data (and analysis) is comprehensive and covers numerous factors from within the transportation industry, "aviation" forms an essential

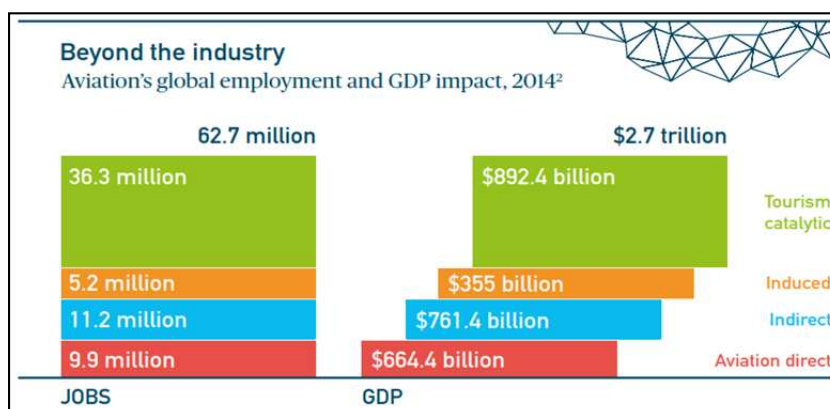


Fig. 2 GDP and jobs.

Source: ATAG2016.



Fig. 3 Air transport.

Source: ATAG2016.

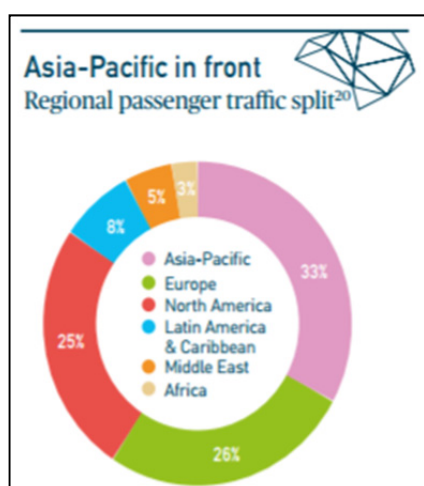


Fig. 4 Traffic split.

Source: ATAG2016.

component of the index. Red colored countries are the poorest in TTCI, while green indicates the best in

TTCI.

Fig. 6, on the left is a graphical depiction that shows TTCI Singapore # 11 (globally out of 141 countries) in comparison with Pakistan #125 (Fig. 7 on the right). Both countries are comparable in many ways but one that has given priority and emphasis on Aviation while the other that has lagged behind. The black lines depict the Asia-Pacific average which is the same graphical outline in both the illustrations. The blue lines are country specific ratings of TTCCI, i.e. for Singapore on the left and Pakistan on the right. Emphasis on air transport infrastructure in Singapore and way below average of the same in Pakistan is a visible sign of why Pakistan is ranked so low while Singapore enjoys a leading position in the Asia-Pacific region.

8. Pakistan and Singapore: Comparative Study of Growth Patterns in Aviation and Economy

It is interesting to note that if passengers carried are proxied as a bench mark for aviation growth, in 1970, Singapore had less passengers enplaned than Pakistan. In 2015, Singapore, by paying serious attention and importance to aviation, grew by 44 times its 1970 level, a growth unprecedented in the region. In comparison, in the same time frame, Pakistan grew by only six times its volume in 35 years.

Also, interesting to note is that in Table 5 (data

extracted from World Bank), the GDP per capita of the two countries also grew with same ratio during the same period, i.e. 7:1 in favor of Singapore.

Graphical depiction of growth of GDP per capita and growth in aviation (proxied as passenger enplaned figures) between the period 1970 and 2015 is shown below.

It is visibly evident that there is a positive

correlation between growth in aviation and growth in the economy of a country (Figs. 8 and 9). While this may be a classical case in point, where 7 times the growth in aviation corresponds to a 7 times growth in economy, it only proves that Pearson’s correlation coefficient is close to 1. Also evident is the fact that greater emphasis and investment in aviation yields correspondingly larger growth in economy.

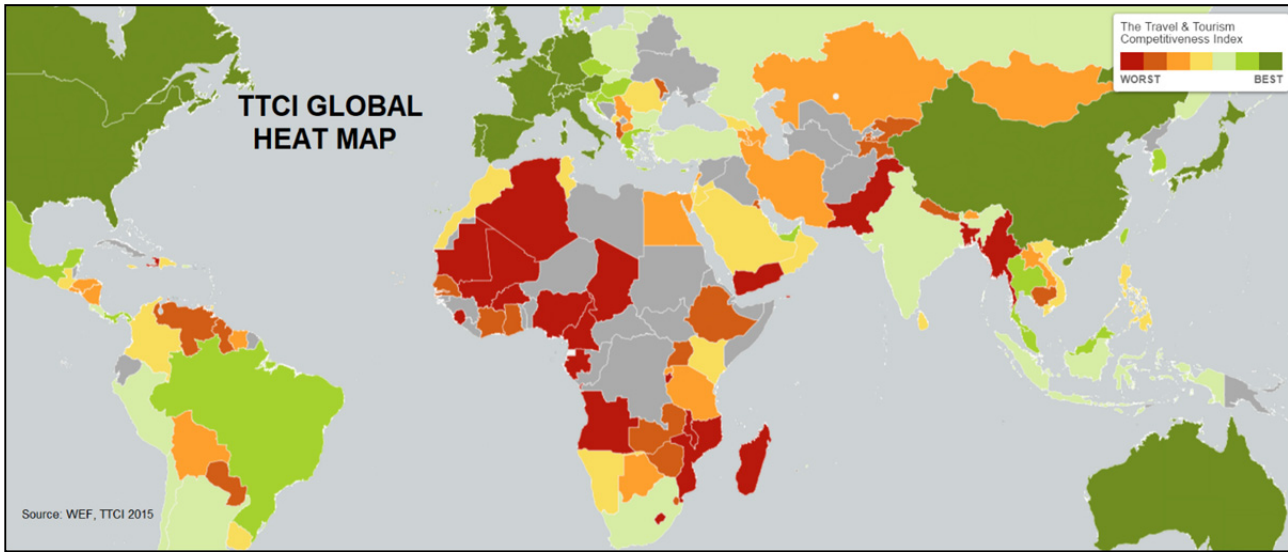


Fig. 5 TTCI global heat map.

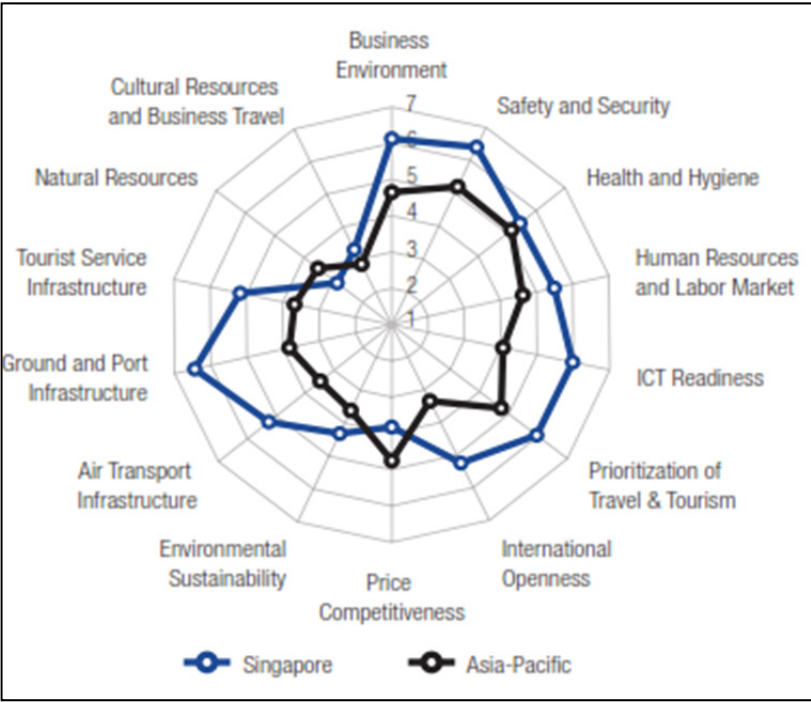


Fig. 6 TTCIs of Singapore and Asia-Pacific.

Source: WEF 2016.

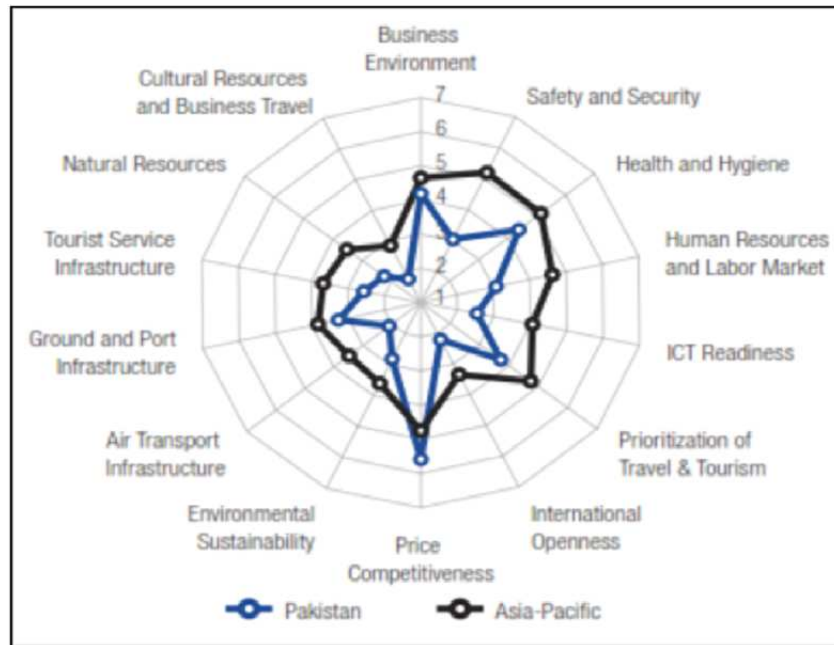


Fig. 7 TTCIs of Pakistan and Asia-Pacific.

Source: WEF 2016.

Table 4 The extracted data from ICAO that reveals that the comparison of growth profile of Singapore is 7 times that of Pakistan.

AIR TRANSPORT - PAX CARRIED				
Country	1970	2015	Growth x	Δ Growth
Pakistan	1,335,900	8,467,828	6	7
Singapore	748,900	33,290,544	44	

Source: ICAO

Table 5 GDP per capita comparison.

GDP PER CAPITA COMPARISON - USD				
	1970	2015	Growth x	Δ Growth
Pakistan	173	1,429	8	7
Singapore	925	52,889	57	

Source: World Bank.

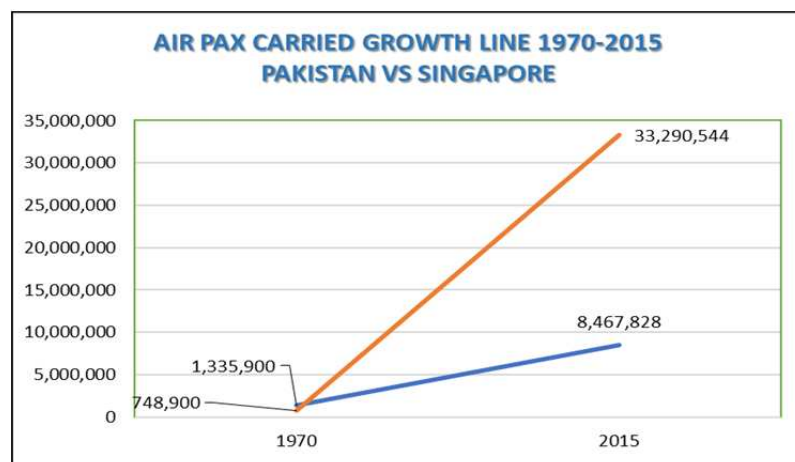


Fig. 8 Air pax carried growth.

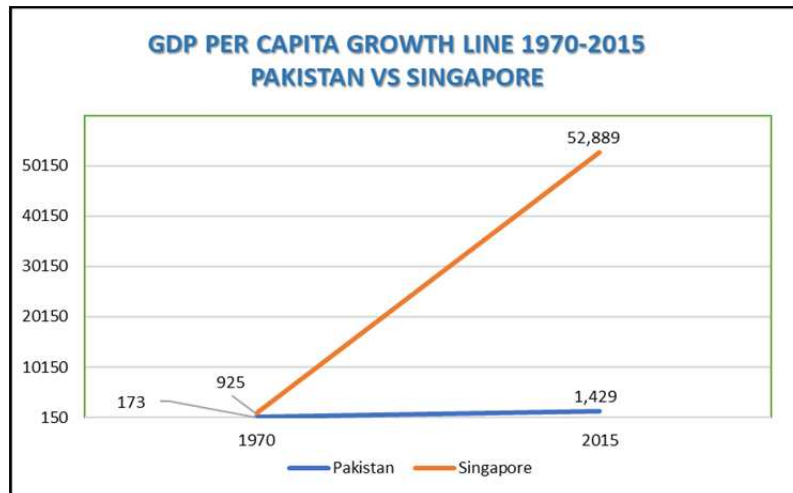


Fig. 9 GDP per capita growth.

9. Aviation, Education & National Economy

Using appropriate econometric techniques other researchers have conclusively determined that air-transport impacts national economy and the causality is bi-directional between the two variables [18]. Panel data Granger tests as well as empirical studies and analyses confirm this relationship [19, 20]. Many authors including Percoco (2010) have sequentially categorized the effects of airport (and therefore, air-transport or aviation) as direct, indirect, induced and catalytic impacts [21]. A modified schematic flow chart representation is given in Fig. 10.

Air transport industry supports a total of 62.7 million jobs globally (according to Oxford Economics, 2016). This is a direct impact that includes streams of revenue through airports, airlines, manufacturers, air navigation service providers, etc. Indirect impact is through supply chain providers of fuel, food, ground transportation, etc. The induced impact is due to wage payments that are consumed in the consumer economy which supports further economic activity. The catalytic impact is the largest of all impacts as aviation acts as a catalyst to a number of business activities; it is also a business enabler and a business enhancer of many industries. The induced impact accounts for almost \$900 billion (ATAG 2016).

Education, training and human resource development through dedicated and specialized

institutions, schools and universities (for tertiary specialized education) are a pre-requisite to aviation industry's growth. This is translated into real world environment, where education to jobs in the industry along with prospects and opportunities are summarized in Fig. 11.

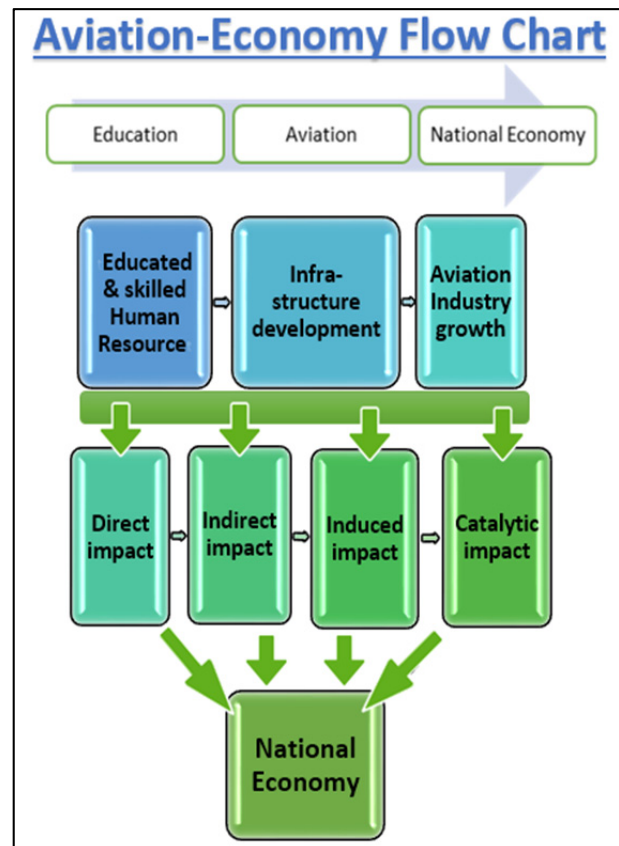


Fig. 10 Aviation-economy flow chart.

Source: Author's formulation.



Fig. 11 Vertical integration of human resource development.

Source: Author's formulation.

Education, training and grooming as per industry demand and prognosis is essential for gainful engagement of skilled and educated work force. The benefit is mutual for growth of the aviation industry, the academia and the individuals.

10. Survey Results

A series of interviews, surveys and analyses were carried out within Pakistan's aviation industry and outside the industry to gauge and understand the feelings and perception of the populace directly and indirectly related to the aviation industry. Some pertinent issues were addressed using Q methodology and other statistical methods. Results of some key aspects were conclusively determined as follows:

1. Majority of the lower management (93%) and upper management (87%) cadre within the industry are critical of the regulatory body and their lack of user-friendliness in their approach (n=20+20);
2. Statistically significant was the observation that most of the incumbent officials have indifferent and nonchalant attitude (n=25);
3. Exploitation and corruption by regulators was

perceived to be rampant by both subjects within and outside the industry ($p = .83$; $n=29$);

4. Lack of appropriate foreign courses and in-house training was considered as a primary reason for lack of professionalism (91% of $n=28$);

5. Across the board, the sample subjects agreed that soft skills training and formal courses on ethics and values was non-existent ($n=27$);

6. Aviation Management education opportunities were less than desirable and a large percentage (97%) stated the need for such degree programs ($n=31$);

7. The awareness of the potential for jobs in the aviation industry was a concern by many (82% of $n=35$);

8. Trust in leadership and trust in the top hierarchy for turning around the industry was lacking (84% of $n=30$).

It was concluded that lack of strategic planning, minimal tertiary education, insufficient awareness about aviation and its potential, user-unfriendly regulatory body, and lack of motivation were key contributory factors impeding growth of Pakistan's aviation industry.

11. Catching-up with Agile and Innovative Education Strategy and Pedagogy

While there are some limitations, it is clear that the use of air-transportation, specifically for longer distances, is faster, cheaper, flexible, reliable and safer than other modes of transportation. And having established that air-transportation has a causal relationship with economic growth it is also pertinent to establish as to what needs to be accomplished to foster aviation. The first and foremost step in this direction is specialized education and training focused to groom and develop human resource that may be gainfully employed in the aviation industry. The question then is, which training and higher education is necessary for in-demand career paths that the developed, groomed and trained human capital would be engaged in. Albeit, not an all-inclusive list, the basic concept is depicted in Fig. 11.

Not mutually exclusive industries, Technology and Aviation, and their ability to mobilize and globalize human resource, businesses and communities is significantly transforming and disrupting the way we work, interact and perform business activities.

Notwithstanding this, education and training systems, having remained mostly static and under-invested for decades, are largely inadequate for catering the needs and demands of emerging markets. We must, therefore, rethink the way talent is developed and deployed in the world of aviation. As per World Economic Forum's 2017 report, this will require breaking down old silos between education systems and labor markets, more agile approaches to regulation, new forms of public-private collaboration, and new norms and values have to be adopted.

The air-transportation system development, including infrastructure as well as policies is the responsibility of the government. Quintessential is the fact that the Human Resource that is required for managing and operating the air-transportation system are also required to be trained, groomed and educated to meet the mushrooming industry demand. Again,

government's role in establishing and promoting institutions and universities that cater for such specialized education is warranted. Failing this important emphasis on the aspect of specialized education, the entire system will be built on a framework that may not be sustainable in the long run.

Aviation impacts economy by providing employment to people, enabling access to markets, enhancing trade, attracting capital, adding innovations in business and technologies, fostering labor supply and skills enhancement, and above all opening opportunities for entrepreneurs. The economy, on the other hand, reciprocally provides capital injection and generates demand for travel of passengers and freight [23].

For Pakistan, skilled training and education (from primary and secondary to tertiary levels) is required to catch up after lagging behind in the race by regional and global aviation industry players. At this stage, the best way is to team up with recognized and reputable players in the industry, including top aviation universities, so as to acquire internationally acceptable educational standards and best practices. Use of technology and innovative techniques to hasten the learning process is now necessary for Pakistan. Such a move can only be successful if government's acquiescence of the concept, support, policy implementation and policy buy-in by stake holders is forthcoming.

12. Conclusion & Recommendations for Pakistan

Potential to Grow: In spite of the general pessimistic perception of near failed nation and the fact that Pakistan is lagging behind in Aviation and TTCI, according to IMF's World Economic Outlook (2017) as shown in Table 4, it is distinctly indicated that Pakistan stands out amongst oil importing comparative countries in terms of Real GDP and other prognostic economic indicators. Promoting aviation

Table 4 World economic outlook.

WORLD ECONOMIC OUTLOOK (for oil importers)												
Countries	Real GDP			Consumer Prices			Current Account Balance			Unemployment		
		Projections			Projections			Projections			Projections	
	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
Egypt	3.7	3.5	4.5	10.2	22.0	16.9	(5.6)	(5.3)	(3.9)	12.7	12.6	11.8
Pakistan	4.7	5.0	5.2	2.9	4.3	5.0	(1.1)	(2.9)	(3.0)	6.0	6.0	6.1
Morocco	1.5	4.4	3.9	1.6	1.2	1.5	(3.9)	(2.6)	(2.0)	9.4	9.3	9.5
Sudan	3.0	3.7	3.6	17.8	23.2	16.0	(5.8)	(4.7)	(4.3)	20.6	19.6	18.6
Tunisia	1.0	2.5	3.1	3.7	3.9	3.8	(9.0)	(8.6)	(8.1)	14.0	13.0	12.0
Lebanon	1.0	2.0	2.5	(0.8)	2.6	2.0	(16.0)	(15.5)	(14.9)			
Jordan	2.1	2.3	2.5	(0.8)	2.3	2.5	(9.4)	(8.6)	(7.4)			
Other Oil Importers	3.7	4.0	4.4	6.2	11.4	9.5	(4.8)	(4.9)	(4.3)			

Source: IMF Projections 2017.

Note: All figures are annual percentage change.

Table 5 Economic rates of return from aviation investment.

Economic Rates of Return from Aviation Investment			
	Kenya	Cambodia	Jordan
Investment (US\$ million)	351	538	360
Increase in national connectivity / GDP	59%	46%	55%
Impact on GDP (%)	0.42%	0.32%	0.39%
Impact on GDP (US\$ million)	209	100	100
Annual Economic Rate of Return (%)	59%	19%	28%

Source: IATA Economics Briefing # 8.

(with emphasis on education, motivation, grooming and training) with perseverance and dedication is the only route to success. Albeit it is all history now, Pakistan once had a track record of superb performance (regionally and globally) in the aviation domain. It is not impossible to regain its lost stature. Political will, strategic vision, policy formulation and implementation, and crusader-like approach to recoup and win back is all that may be required to regain the desired flight path. Commencing with education, it is an uphill task, but it is doable.

Soft Power: The soft power of aviation cannot be over emphasized for growth and success in today's complex geo-political environment. Aviation plays a major role in gearing up to gain the invisible soft power. In fact, the dominance of hierarchical, state-to-state classical diplomacy is fading away as networks increasingly determine the direction of global events. Aviation develops physical, cultural,

psycho-socio-political, and business and economic networks that form the backbone of soft power of nations; and more importantly, developing nations.

Economic Rates of Return from Aviation Investment: Often ill-realized and frequently overlooked is the Economic Rate of Return from Aviation Investment. Evident from the extract taken from IATA's briefing [8], it can be observed that in a real-world example, Annual Economic Rate of Return on Investment has been as high as 59% (Table 5).

It is, therefore surmised, that governments and leaders, particularly in developing economies, must plan and invest in the infrastructure and other development areas like educational and training centers/universities/institutions that are dedicated for aviation and aerospace.

According to ATAG (July 2016): "Unlike other transport modes, the air transport industry pays for a

vast majority of its own infrastructure costs (runways, airport terminals, air traffic control), rather than being financed through taxation and public investment or subsidy (as is typically the case for road and railways).”

Bridging the gap between academia and industry, finally, it is considered critical and essential that the academia and the industry within the aviation domain must come closer. Research & development must form a core component of this industry-academia relationship. To attain internationally accepted standards and adopt best practices it is incumbent on institutions to collaborate with globally recognized, reputable and accredited aviation and aerospace educational institutions and universities with those being established in Pakistan.

Government intervention: the above aspects appear to be the most plausible macro level factors that are hindrances to the potential of growth of aviation specifically in Pakistan. Growth in aviation requires state’s attention, and foremost phase in a poorly educated and ill-groomed environment is to establish and support high quality/standard institutions/universities dedicated for aviation, aerospace, and related disciplines. Similarly, for infrastructure development and policy implementation, government intervention is a mandatory ingredient for success.

As has been proven all over the world, success of the aviation industry is bound to be a cause for the socio-politico-economic success of the country.

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