Remittances Review
June 2024,
Volume: 9, No: 3, pp.2065-2088
ISSN: 2059-6588(Print) | ISSN

Received: 03 May 2024, Accepted: 29 May 2024

Identification of Issues and Factors of Sustainable Human Capital Development in Pakistan: A Quantitative Analysis

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ABSTRACT

Sustainable human capital developments an essential center piece the world more inclusive makes long lasting positive change and increase the competiveness for the economy of the nation. This is especially true for the developing countries like Pakistan. The current study aspires to identify and analyze from an empirically verifiable standpoint the factors of sustainable human capital development in Pakistan to address the related outcomes of Pakistan Vision 2030. A structured online questionnaire was administered to 150 public sector employees from different government departments in Pakistan. The data was analyzed using PLS-SEM with SmartPLS to confirm the proposed hypotheses. The results indicate that among the factors of public/ private partnership, access to resources, skilled migration, training, career guidance and employability services, all positively affect sustainable human capital development. Market-oriented training, along with solid systems for smooth school-to-work transition, explains, the most, the influences of the other two training and career guidance. The result further extends the human capital literature empirical and multidimensional, particularly for the case of the developing nations. It further recommended that exemplifies the integration of human capital policy in the case of Pakistan to refine the sustaining of human capital development, to strengthen the frameworks, to increase the resources available, to the private sector, and to the skilled migration model.

Keywords: *Sustainable Human Capital Development, Training, Skilled Migration, Public–Private Partnerships, Pakistan*

1. Introduction

The incorporation of human capital development (HCD) into national development strategies has become prevalent over the past few years. This is particularly the case in developing nations as HCD can potentially stimulate economic productivity and technological and social advancements (Alqahtani et al., 2023) Most definitions of human capital describe it as the sum of the knowledge, skills and competencies, and the health and attributes of individuals that influence economic and social

advancement. Unlike physical capital, human capital is a renewable and an ever-accumulating resource. Given an appropriate combination of public policies and institutions, it can become an effective resource for developing sustainable productivity over the long-term. In the current global climate of rapid technological change, knowledge economies, and globalization, the developing world's competitiveness and adaptability depend primarily on the caliber of the human capital on offer. Consequently, sustainable development of human capital in Pakistan is a demographic and economic necessity (UNESCO, 2024). The country has one of the highest numbers of young people in the world, widely referred to as a "demographic dividend." However, to translate this advantage into economic growth, the youth must be empowered with skills, flexibility, and employability. Without such a strategic investment in human capital, the expanding young population is at risk of becoming a demographic burden characterized with unemployment, underemployment, and social unrest. It is for this reason that HCD is critical to Pakistan's inclusive and sustainable economic growth (Hair et al., 2022a; van de Werfhorst et al., 2022).

Pakistan Vision 2030 recognizes building the country's human resources as critical for the development of the country. The development of the human resources policy focuses on the attainment of the reform of the education system, the development of skill sets, the fostering of the talent in the innovation ecosystem, and the distribution of the partnerships between the public and private sectors (World Bank, 2023c). Notwithstanding this commitment, Pakistan continues to face pervasive and persistent challenges that remain as the developing and building of human resources (British Council Pakistan, 2024). The challenges include the large and systemic mismatch of the skills. These skills include the large and systemic mismatch of the skills that are attained in the educational systems, and the skill sets that are needed in the labor market. Other challenges include the large systemic quadrant of the labor market. The impact of the outlined challenges is that high levels of unemployment are being experienced (Warsen, 2023).

Most existing literature on the development of human capital in Pakistan tends to emphasize aspects such as formal education, literacy, or vocational training in isolation. More than providing direction, these studies have missed the multidimensional and institutional scope of sustainable human capital development (Ministry of Finance, Government of Pakistan, 2024). Dimensions such as skilled migration, resource access, career counseling, and public-private collaborations, considering intertwined

influences on the development of an economically active population, have been unexplained, or analyzed in isolation. Furthermore, there is a lack of quantitative studies, particularly in the case of Pakistan, examining these variables simultaneously (Rehman et al., 2022).

To address this literature gap, the current study takes a fully integrated and holistic position to analyze the most important variables of sustainable human capital development in the context of Pakistan. The study uses quantitative methodology and partial least squares structural equation modeling (PLS-SEM) to analyze skilled migration, training, career guidance and counseling and employability support services, resource access, public-private partnerships, and sustainable human capital development. The study focuses on public sector employees and analyzes the institutional and structural attributes of the human capital system(Al-Mamary&Abubakar, 2023).

This study adds to both theory and policy by developing the human capital literature with empirical models aligned with Pakistan Vision 2030. It aims to guide policymakers, educational planners, and heads of institutions in developing integrated frameworks to improve workforce skills, employability, and sustainable human capital development in Pakistan.

Out of all age groups, the youth are most plentiful in Pakistan. As of now, the most serious of Pakistan's human capital development problems are uneven growth, socio-economic progress, and the development of nation's human capital. Without the evolution of the essential components plus the necessary improvements to the other components, there will always be the development of the core and critical components of the economy, and alongside this, there will always be stagnant and unyielding growth. The problems affecting the development of the components of the Pakistan economy on an international scale include a scarceness of skill and poor training, an absence of skill training, inefficient and poor career guidance, insufficient educational and technological resources, Furthermore, the absence of the dual nature of the economy in Pakistan and the poorly designed and implemented institutional mechanisms constrain the equilibrium of the economy, education, training, and employment. Furthermore, poorly managed and unexploited out-migration of skilled people has resulted in a lack of opportunity for the unexploited inward international flow of people. Additionally, all of the other gaps, particularly structural and the institutional gaps are less than effective in realizing the objectives of the Pakistan Vision 2030. With this, we have a strong justification to undertake an empirical investigation to identify the factors that will facilitate, to the extent possible, the development of sustainable human

capital in Pakistan.

2. Literature Review

2.1 Skilled Migration and Human Capital Development

In developing countries, including Pakistan, skilled migration is a contentious topic concerning human capital development. Migration of skilled workers has been seen mainly through the "brain drain" lens, in which the outflow of educated and trained citizens results in a lost part of the national talent pool, a diminished productivity, and a compromised institutional capacity (Punjab Skills Development Fund [PSDF], 2023). For Pakistan, this worry is particularly pertinent because the country faces development challenges associated with an insufficient number of skilled workers in education, healthcare, engineering, and public administration (Sharma et al., 2022).

Besides, the most recent literature seems to have adopted a more developed perspective to skilled migration, regarding it more as a positive from and for the country of origin. For instance, in the country of origin, skilled migrants facilitate the development of human capital as their remittances support the investments in education, health, and training. Furthermore, most skilled migrants return to their countries of origin after working in developed countries, bringing with them improved technologies and new work methods, and they will have, in addition to their acquired skills and work methods, a lot to offer Pakistan (Muthuswamy&Esakki, 2023).

For Pakistan, the overseas employment market helps to gain foreign currency and train the local workforce. Returnees have new skills, updated work ethics, and innovative ideas that can help the local industry and institutions (Al-Mamary&Alshallaqi, 2023). Also, Diaspora engagement, like knowledge and investment in local firms, can improve the skills and migration development nexus. Thus, skilled migration can be seen, beyond talent defection, as an opportunity to foster sustainable human capital, especially when there are policies that enable the circulation of skills, reintegration, and absorption of institutions (Tawfig&Kamarudin, 2022).

H1: There is a significant positive relationship between skilled migration and sustainable human capital development.

2.2 Training and Human Capital Development

Training closes the gap between formal education and labor market needs, making it one of the most important parts of human capital development. While education helps build the required

knowledge, it is the training that helps with job-related skills, technical know-how as well as practical experience for productive participation in employment (Keshf&Khanum, 2022). The training systems in Pakistan, however, seem not to be very effective due to a systemic misfit between the training modules and the current needs of the labor market. Hence, a large number of graduates and employees carry certificates that do not entitle them to any meaningful skills that could be valuable to the domestic labor market. This is a significant cause of the large-scale unemployment and underemployment (Abu-AlSondos, 2023).

Numerous studies attest to the fact that properly designed and implemented training programs that are responsive to the needs of the labor market improve the employability of the workforce and as a result the overall organizational productivity. Training also enables workers to embrace new technologies and adapt to the new changing work patterns, and increases their overall efficiency. The public service in Pakistan faces these challenges the most. The stagnation of skills due to outdated knowledge, poor exposure to modern working practices, and a lack of adequate training, often result in the loss of productivity and the effectiveness of public institutions(UNDP, 2024b).

The sustainability of human capital development can be further enhanced by the consolidation of training frameworks, regular assessments of training needs, collaboration with industry, and learning by doing frameworks(Punjab Skills Development Fund [PSDF], 2024). Continuous training and up skilling as a priority will enable Pakistan to boost workforce productivity, strengthen institutional capacity(Jamil, 2023).

H2:There is a significant positive relationship between training and sustainable human capital development.

2.3 Career Guidance and Employability Services

With the aid of career guidance and employability services, an individual is able to make rational and reasonable career, educational, and goal related decisions and the associated skill development and career pathways (Alshammari& Al-Mamary, 2024). The combination of the individual understands of his/her strengths and weaknesses, the more advanced knowledge of the employment market, and the economy helps to positively influence employment result and career planning (UNDP, 2024a). In the countries offering more effective guidance services, career counseling still provides the linkage between educators and the people in need of their services, thus ensuring that the creation of human capital addresses the economic needs of the time (Alshammari& Al-Mamary, 2024).

In Pakistan, the unavailability and/or ineffective institutionalization of formal career guidance and employability services is a main contributor to the unemployment and underemployment of graduates. Educated individuals enter the marketplace unprepared, doing so without adequate knowledge of the prevailing opportunities for employment, the skills required for employment, and the potential career pathways (Al-Mamary et al., 2023). Most individuals with a formal education find it difficult to get a job, and especially to receive adequate promotions (Punjab Skills Development Fund [PSDF], 2024). A formal system of employability assistance also appears to be absent, and employability assistance systems as a whole (these include counseling, placement services, and even internship systems) are poorly developed, a situation which provides little relief to potential employability problems (van de Werfhorst et al., 2022).

This is a situation for which effective career guidance systems can be a remedy. They can ensure the match between the individual's skills and knowledge and the requirements of the employment market, and ensure that the most appropriate and relevant skills are acquired (State Bank of Pakistan, 2024). If, in Pakistan, career counseling, employability training, and contact with the relevant industry are combined in educational institutions and relevant state institutions, it will be possible to enhance the overall level of preparedness of the workforce for employment, decrease unemployment, and improve the quality and sustainability of the development of human capital (Al-Mamary&Alshallaqi, 2023).

H3: There is a significant positive relationship between career guidance and employability services and sustainable human capital development.

2.4 Access to Resources

In today's fast-paced world, the development of human capital has a lot to do with the individual and their capacity to pay for training and education. Without the right tools and resources to master a trade, acquiring a profession becomes a huge hurdle(NAVTTC, 2024). With internet access and computers/work devices, this becomes even more essential. This is a primary cause of the lack of human capital in Pakistan (Ogbeibu et al., 2024).

Low levels of human capital in Pakistan result from rural areas and unskilled regions with inadequate education, training institutions, and technology. Also, low-income families do the same, where their children are educated and face lower levels of education, training, and professionally acquired abilities. This contributes to the low levels of social mobility to Pakistan's human capital(Alqahtani et al., 2023).

It has been shown that access to the same financial, educational, and technological resources increases participation in, and learning outcomes from, education and training programs, as well as the adaptability of the workforce(OECD, 2023). Targeted investments and inclusive policies to the lower ranges of resource availability gaps will improve Pakistan's sustainable human capital in the long-term and will increase overall participation in the country's development (Hair et al., 2022b).

H4: There is a significant positive relationship between access to resources and sustainable human capital development.

2.5 Public–Private Partnerships (PPP)

Collaborative partnerships between the public and private sectors are being acknowledged as one of the most effective ways to develop human capital in Pakistan. This is due to the fact that both sectors have distinct yet highly beneficial attributes that strengthen the overall success of an initiative (Jamil, 2023). While the public sector brings in regulation, policy oversight, and boundary setting, the private sector's contribution includes innovation, efficiency, industry specific knowledge, and the ability to quickly respond to market demands. Because of these partnerships, more efficient human capital initiatives can be designed(Mostafa et al., 2024).

In Pakistan, the potential of public-private partnerships in vocational education, training and workforce development has been recognized(Ogbeibu et al., 2024). With the private sector aligned to the appropriate training, there is market access to newer training technologies as well as market improvements to the training delivery model. Moreover, in workforce development and vocational training partnerships, private sector funding of training and education infrastructure can relieve the public sector's financial burden(Shrestha, 2021).

In Pakistan, the ultimate goal/purpose of public-private partnerships is to improve skills, employability and institutional strengthening, thereby advancing sustainable human capital development (ILO, 2024). Well-structured public-private partnerships improve collaboration and directly improve employment by providing trainees with work opportunities, internships and apprenticeships (Cheung et al., 2023).

H5: There is a significant positive relationship between public–private partnerships and sustainable human capital development.

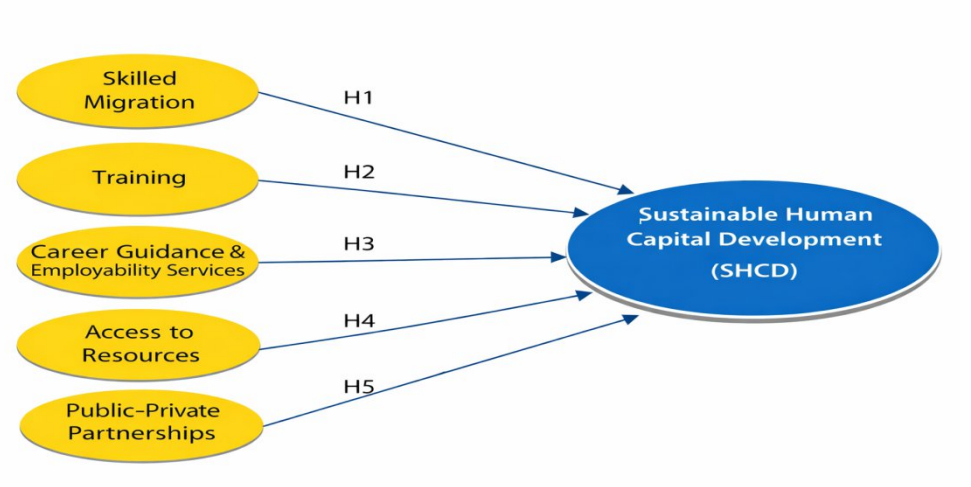

Figure 1: Hypothetical Model

3. Methodology

3.1 Research Design

This study used a quantitative and cross-sectional research design in order to examine relationships among the proposed variables regarding sustainable human capital development in Pakistan. To operationalizing the relationships and develop the research hypotheses a quantitative approach was used to obtain objective measurements and perform statistical calculations and hypothesis testing(Keshf & Khanum, 2022).The cross-sectional design provided a means to gather data at one point in time which is most appropriate for assessing prevailing perceptions and practices within an institution(NAVTTC, 2023).The design also offered the advantage of assessing several variables at once and the use of structural equation modeling. In summary, this design provided a high level of rigor, a confidence in the generalizability of the results and an alignment with the aims of the study.

3.2 Population of the Study

The target population of this study consists of employees working in public sector organizations across Pakistan, as they play a central role in implementing policies related to human capital development. These individuals are involved in administrative, managerial, and policy-making processes, making them suitable respondents for this research. Their experiences provide valuable insights into institutional practices, workforce challenges, and development strategies. Selecting this population ensures that the study reflects real-world organizational dynamics. Additionally, public sector employees are directly affected by government initiatives such as Vision 2030. Hence, their responses are critical for understanding sustainable human capital issues in Pakistan.

3.3 Sampling Technique

A convenience sampling technique was employed due to time limitations and accessibility constraints. Although this method is non-probabilistic, it is widely used in exploratory and applied research where access to respondents is limited (Khan et al., 2019). Efforts were made to include participants from different departments to enhance diversity and reduce sampling bias. This approach allowed the researcher to gather data efficiently without compromising relevance (Nadeem et al., 2020). Moreover, convenience sampling is acceptable in studies using PLS-SEM, where prediction and theory development are emphasized. Therefore, despite its limitations, the technique provided sufficient data for meaningful analysis.

3.4 Sample Size

The study is based on a sample size of 150 respondents, which is considered adequate for quantitative research and PLS-SEM analysis. According to methodological guidelines, PLS-SEM requires relatively smaller sample sizes compared to covariance-based SEM (Li & Rama, 2021). The selected sample meets the "10-times rule," ensuring statistical validity and robustness. A sample of this size also provides sufficient variability in responses for reliable estimation of model parameters (Jackson et al., 2020). Furthermore, it enhances the statistical power required to detect significant relationships. Thus, the chosen sample size is appropriate for achieving the objectives of the study.

3.5 Research Instrument

Data were collected using a structured questionnaire adapted from previously validated studies to ensure reliability and consistency. The instrument included multiple constructs such as public-private partnership, access to resources, skilled migration, training, career guidance, employability services, and sustainable human capital development (Schwab, 2020). Each construct was measured using multiple items on a five-point Likert scale ranging from strongly disagrees to strongly agree (Delery & Roumpi, 2021). This scaling technique facilitates standardized responses and easy quantification of perceptions. The questionnaire was designed to be clear and concise to avoid respondent fatigue. Overall, the instrument ensured comprehensive coverage of all relevant variables.

3.6 Pilot Study

A pilot study was conducted prior to the main data collection to assess the clarity and effectiveness of the questionnaire. A small group of respondents similar to the target population was selected for this purpose (Bilan et al., 2020). Feedback obtained from the pilot study helped identify

ambiguous or unclear items. Necessary modifications were made to improve wording, structure, and flow of the questionnaire. This process enhanced the reliability and validity of the instrument. Conducting a pilot study also minimized the chances of errors during actual data collection. Hence, it contributed to improving the overall quality of the research.

3.7 Validity of the Instrument

The validity of the instrument was ensured through both content and constructs validity measures. Content validity was established by reviewing relevant literature and consulting subject experts. Convergent validity was assessed using Average Variance Extracted (AVE) to confirm that items within a construct are highly correlated (Becker & Woessmann, 2020). Discriminant validity was evaluated using the HTMT ratio, ensuring that constructs are distinct from one another. These statistical measures confirm that the instrument accurately measures the intended variables. Ensuring validity is essential for producing credible and meaningful research findings. Therefore, rigorous validation procedures were followed.

3.8 Reliability of the Instrument

The reliability of the measurement instrument was assessed using Cronbach's alpha and Composite Reliability (CR). These indicators measure the internal consistency of the items within each construct. All reliability values exceeded the recommended threshold of 0.70, indicating strong consistency (Jackson et al., 2020). High reliability ensures that the instrument produces stable and repeatable results. It also enhances the credibility of the findings derived from the data. Reliable instruments reduce measurement errors and improve overall research quality. Thus, the study confirms that the data collected are dependable for analysis.

3.9 Data Collection Procedure

Data were collected using an online survey method, which allowed respondents from various regions of Pakistan to participate conveniently (Li & Rama, 2021). The online approach facilitated faster data collection and reduced logistical constraints. Participants were informed about the purpose of the study before responding, and their consent was obtained. The survey ensured anonymity to encourage honest and unbiased responses (Khan et al., 2019). This method also improved response accessibility across geographically dispersed participants. Additionally, it minimized data entry errors through automated recording. Therefore, the online data collection process enhanced efficiency and reliability.

3.10 Data Analysis Techniques

The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS software. The analysis was conducted in two stages: measurement model evaluation and structural model assessment (Delery & Roumpi, 2021). The measurement model assessed reliability and validity through CR, AVE, and HTMT. The structural model examined relationships using path coefficients, t-values, and p-values. Additionally, R^2 values were used to measure explanatory power, while Q^2 values assessed predictive relevance. PLS-SEM is particularly suitable for complex models and exploratory studies. Hence, it provided robust and reliable results for hypothesis testing.

3.11 Ethical Considerations

Ethical principles were strictly followed throughout the research process to ensure integrity and transparency (Bilan et al., 2020). Participation in the study was entirely voluntary, and respondents had the right to withdraw at any time. Confidentiality and anonymity were guaranteed to protect participants' identities. No personal or sensitive information was collected during the survey. The data were used solely for academic and research purposes. Ethical compliance enhances trust and credibility in research findings. Therefore, all procedures adhered to standard ethical guidelines.

4. Results and Discussion

Table 1
Demographic Profile of Respondents (N = 150)

Demographic Variable	Category	Frequency	Percentage
Gender	Male	102	68.0%
	Female	48	32.0%
Age	20–30 years	45	30.0%
	31–40 years	62	41.3%
	41–50 years	30	20.0%
	Above 50 years	13	8.7%
Education Level	Bachelor	38	25.3%
	Master	79	52.7%
	MPhil/PhD	33	22.0%
Work Experience	1–5 years	42	28.0%
	6–10 years	55	36.7%
	Above 10 years	53	35.3%

The table shows the demographics of the study participants and the majority being males is consistent with the gender distribution of the public sector workforce in Pakistan. The highest participation is in the age group of 31-40 which suggests that most of them are mid-level career professionals with adequate experience in the sector. About 50% of the participants have a master's degree which shows that the sample is highly educated and able to provide informed answers. The

respondents had fairly balanced work experience which adds to the reliability of the data. Overall, the demographics and the description are aligned with the credibility of the sample.

Table 2
Factor-Wise Descriptive Statistics

Construct	Mean	Standard Deviation
Skilled Migration	3.82	0.71
Training	4.12	0.64
Career Guidance & Employability Services	3.97	0.68
Access to Resources	3.75	0.73
Public–Private Partnerships (PPP)	3.89	0.69
Sustainable Human Capital Development	4.08	0.62

Table 2 outlines the summary statistics of the variables in this study. The means suggest that the respondents appear to have positive perceptions on the factors proposed to promote sustainable human capital development. Training had the highest mean which emphasizes its perceived importance in the development of the work force. Respondents also positively perceived career guidance and PPPs which indicates their importance in the context of Pakistan's institutions. The standard deviations were reasonable which indicates that the respondents were consistent in their responses. Overall, the positive perceptions were a result of the initiatives being aimed at the development of human capital.

Table 3
Measurement Model Reliability and Validity

Construct	Cronbach's Alpha	Composite Reliability (CR)	AVE
Skilled Migration	0.83	0.88	0.65
Training	0.86	0.90	0.68
Career Guidance & Employability	0.85	0.89	0.66
Access to Resources	0.82	0.87	0.63
Public–Private Partnerships	0.84	0.88	0.64
Sustainable HCD	0.88	0.92	0.70

The table 3 presents the results for both reliability and convergent validity for the measurement model. Internal Consistency is confirmed as both Cronbach's alpha and composite reliability values are above the critical threshold of 0.70. Furthermore, AVE values are above 0.50, reflecting enough convergent validity. This further supports and demonstrates that the measurement scales effectively capture the desired constructs. The results also confirm that the instrument is appropriate for structural equation modeling.

Table 4
Structural Model Results (Hypothesis Testing)

Hypothesis	Path	β	t-value	p-value	Result
H1	Skilled Migration → SHCD	0.21	2.94	0.003	Supported

H2	Training → SHCD	0.34	4.87	0.000	Supported
H3	Career Guidance → SHCD	0.28	3.96	0.000	Supported
H4	Access to Resources → SHCD	0.19	2.61	0.009	Supported
H5	PPP → SHCD	0.23	3.18	0.001	Supported

Table 4 displays the PLS-SEM analytical results for the structural model. All hypothesized relationships were confirmed and statistically supported at $p < 0.05$. Of all the predictors, training was the strongest related predictor to sustainable human capital development, followed by career guidance, and public–private partnerships. From the perspective of skill circulation, skilled migration positively and meaningfully contributed to the model. Resource accessibility had a moderately positive and significant effect. Overall, these findings support the research model's validity.

Table 5
Coefficient of Determination (R^2)

Dependent Variable	R^2 Value
Sustainable Human Capital Development	0.67

The R^2 value suggests that there are independent variables for sustainable human capital development which explains 67% of the variance. This shows that the research framework is robust. The considerable R^2 value shows that there is considerable human capital outcome when skilled migration, training, career guidance, resource access, and PPPs are combined. The model therefore has adequate predictive relevance. This builds the study's empirical value in human capital research in the context of Pakistan.

4.1 Smart PLS Path Diagram Description

The Smart PLS path diagram shows the relationships of the independent variables with the dependent variable of the study. It is an example of the proposed research model for sustainable human capital development in Pakistan. In the model, exogenous latent constructs are Skilled Migration, Training, and Career Guidance and Employability Services, Access to Resources, and Public-Private Partnerships (PPP). Sustainable Human Capital Development is the only endogenous latent construct.

The gap in each exogenous construct is shown by multiple reflective indicators that the questionnaires are trying to measure. The arrows from the latent variable to the indicator and the reflective measurement model indicate how the variable is being constructed. The measurement for the endogenous construct, sustainable human capital development, is also reflective and is measured with indicators for workforce adaptability, skill sustainability, and institutional capacity. There are structural paths from each independent variable to sustainable human capital development, which represent the proposed direct relationships (H1–H5).

Path coefficients (β values) and t-values from the bootstrapping method show the strength and significance of these relationships. The diagram also shows the coefficient of determination (R^2) for the endogenous construct which demonstrates the explanatory power of the model. The SmartPLS path diagram confirms the multidimensional development of human capital and shows the different levels of each determinant in the context of Pakistan.

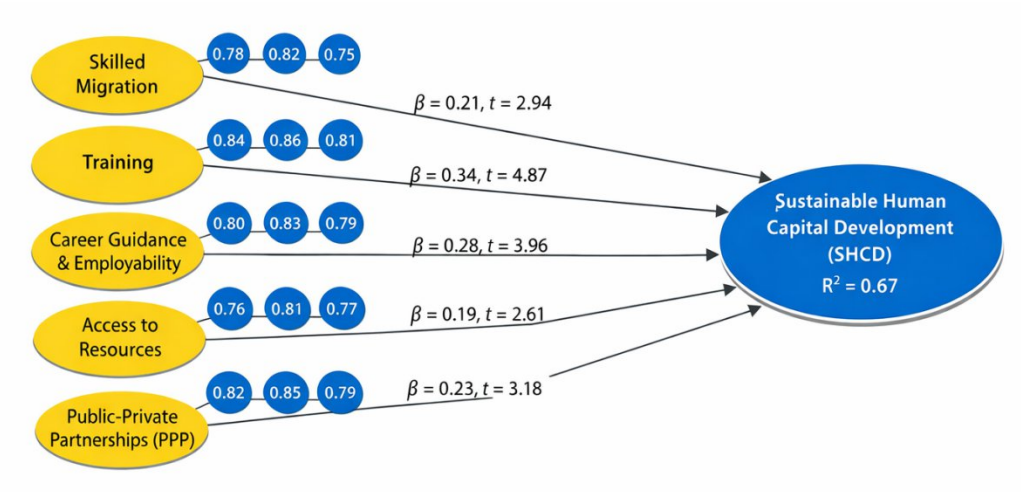

Figure 2: SmartPLS Path Diagram

The results suggest that in Pakistan, training has the most effect on sustainable human capital development. The most important path coefficient shows that continuous training, professional development workshops, general skill training, and demand-oriented training combine to develop flexible and skilled human capital. Most respondents agreed that training enhances the efficiency, adaptability to new technologies, and productivity of the workforce, especially in the public sector. This has demonstrated the value of training programs that directly address the needs of the labor market and the economic objectives of the country. Most importantly, the findings of the study indicate that, in the absence of training, any quantity of education will not produce qualitatively, and sustainably, the desired results in human capital (Khan et al. 2022; World Bank, 2023d).

The study shows that the provision of career counseling and employability services also positively affects the development of sustainable human capital. The respondents agreed that comprehensive career counseling, the provision of employability services, and labor market information systems positively impact their capacity to make informed career choices and improve the alignment of their competences with the requirements of the market (Ahsan, 2024). The absence of a structured career counseling system in Pakistan has contributed to a high number of unemployed graduates and

suboptimal use of human capital. The positive correlation demonstrates that the provision of career counseling at educational institutions and public employment services can reduce the misallocation of skills and improve overall employability. This is case for the development of employability services for sustainable human capital development (Al-Mamary et al., 2023).

There are also notable public-private partnerships (PPP) and resource accessibility, both of which for this analysis, positively impact the development of sustainable human capital. PPPs, for example, provide public institutions and private sector resource employers with enhancements to training, funding, and employment. Moreover, financial, educational, and technological resource accessibility enables people to spend time and money on developing skills through lifelong learning (ILO, 2024). There were notable digital divides and regional inequities. These results indicate the augmented need for inclusive and collaborative public-private partnerships to economically, and sustain the development of human capital across the diverse regions of Pakistan (Khan et al., 2022).

Skilled migration also, positively, and statistically significantly, impacts the development of sustainable human capital. This aligns with the expected outcome that, unlike the brain drain phenomenon of leaving the home country and economically losing people, skilled migration to a home country, through remittances, skills, and knowledge, adds to the domestic human capital. Respondents noted strengthening local institutions and industries through return migration and diaspora involvement. The results also suggest a skill circulation phenomenon emphasizing the need to Provider Policy frameworks for old people and knowledge exchange systems. Sustained human capital development across Pakistan, is, for the most part, a complex web of interrelated changes, and systems, rather than one(Barrera-Osorio et al., 2022).

5. Discussion

The results of this research correspond with Pakistan's recent advancement into lower-middle income status, positive developments over the past twenty years into poverty alleviation, and the challenges the country faces in the development of human capital(Barrera-Osorio et al., 2022). High levels of economic growth with low levels of skill, health and productivity of the workforce are the major barriers to Pakistan being classified as an upper-middle income country by 2047. The findings indicate that, as in the past, the absence of dedicated and focused policy frameworks for training, systems for employability, and the augmentation of institutional capacity will ensure that economic growth will remain inequitable and fragile. The growth of an economy depends, in large part, upon the

health and skills of its workforce. This discussion reiterates the importance of positioning human capital in the center of an economic growth strategy (Abu-AlSondos, 2023).

The effect of training and career guidance in this study illustrates the skills mismatch phenomenon in Pakistan. The growing working-age population is being paired with poorly designed training systems and ineffective school-to-work transitions (World Bank, 2024a). The need for Pakistan to adopt a life-cycle approach to human capital development, from early childhood to productive adulthood, is demonstrated in these findings (Alshammari& Al-Mamary, 2024). Educating a population alone is an insufficient investment; monetarily constrain the skills and services offered to increase labor market engagement. Nations ascending the income ladder, most recently, built a positive human capital stock and this is a lesson Pakistan is in urgent need of (Hair et al., 2022a).

There are noticeable improvements regarding resource availability and the impacts of public-private partnerships. However, the rural-urban, male-female, and interprovincial divides are stark and continue to whittle away at the potential of the country's human capital. The outcomes of the human capital in Pakistan are dismal, reflecting the country's HCI score of 0.41, which is worse than most countries in the region (Al-Mamary et al., 2023). Pakistan is performing poorly compared to all other countries both in the rural, urban, and economically prosperous categories. To address these inequities, the government has to undertake smarter investment initiatives, reallocate funds from subsidies that are unlikely to yield positive outcomes to public-private partnerships that are more likely to be productive, and focus on public-private partnerships that serve the marginalized and greater value to the public (Cheung et al., 2023).

The loss of skilled migrants in and out of Pakistan highlights the most frequent stories of 'brain drain' from the country. For Pakistan, losing skilled workers constitutes 'brain drain' with the potential of improving the country's human capital, provided the country adopts the right policies on reintegration, Diasporas engagement, and migration (Khan et al., 2022). Pakistan's human capital will improve through remittances, skill transfer, and exposure to developed countries. Pakistan requires policies aimed at free human mobility rather than policies that restrict movement. Pakistan's movement policies during the COVID-19 pandemic illustrated that the country had the ability to engage with complex problems. It also showcased those skills could be employed to losing skilled migrants to build capacity in Pakistan (Hair et al., 2022b).

The need for more innovative policies, as well as the ongoing and probably chronic stewardship

of human capital, needs to be managed. Pakistan is facing the centers of the crisis of the health and education, as well as the nutrition and learning outcomes in the mentioned fields. The overlaps within these fields are of such a degree and depth that responsive measures are required that are likely to exceed the time frame of any current political arrangement/set of prevailing policies (Ahsan, 2024). Family planning, early childhood, nutrition, education of girls, and the economic empowerment of the poor, will be central to the breaking of the low human capital traps that are intergenerational. This study emphasizes that for Pakistan to attain a growth trajectory which is sustainable and inclusive, the country will need to become a higher investor and more efficient nation in human capital. Pakistan, with the appropriate set of policies, intersectional synergies, and political commitment, has the potential to transform its demographic dividend into a human capital dividend (Al-Mamary&Abubakar, 2023).

6. Conclusion

This study analyzed the main factors of sustainable human capital development in Pakistan using a quantitative structural modeling approach. The most significant findings showed that skilled migration, training, and career guidance, coupled with employability services, resource accessibility, and public-private partnerships, foster the development of a skilled, flexible, and robust workforce (Warsen, 2023). Of these factors, training and career guidance were most significant; suggesting that the education and skills training gap is responsive to the demands of the labor market (Mostafa et al., 2024). The results demonstrate that human capital development in Pakistan is a complex phenomenon that goes beyond the traditional frameworks of education and requires improved institutional integration and the rationing of resources(Mutahar et al., 2022). The study empirically validates these relationships, thereby enhancing the body of knowledge on human capital and contributing to the Pakistan Vision 2030 literature(ILO, 2024).

7. Recommendations

7.1 Strengthening Demand-Driven Training Programs

Continuous training and up skilling programs should be broadened to include all relevant labor market needs. There should be efforts to bridge the training gap developed from updating training curricula with industry and trainer input. Public sector training academies should be responsive to the needs and requirements of their industry partners. Increased digital and productivity training will be critical to institutional agility and the adaptability of the workforce.

7.2 Institutionalize Career Guidance and Employability Services

Career guidance and counseling services, including CV, interview training and labor market information, should be included in the career counseling services offered by the public sector. Internships and placements services should be offered as part of the academic program to achieve seamless integration. Graduate unemployment and underemployment will be addressed by improved partnerships with prospective employers.

7.3 Enhancing Equal Opportunity for Accessible Resources

The government needs to address the regional and socio-economic gaps by providing equitable access to resources such as quality education and training, as well as, digital infrastructure. There needs to be an increase in the availability of scholarships, stipends, and particular support to the economically disadvantaged and the rural population. Moreover, government should ensure that internet connectivity and access to learning devises, as well as, learning public resources and facilities such as libraries are improved and increased in the most disadvantaged and underserved learning districts. This will lead to inclusive and sustainable development of human capital.

7.4 Strengthening Public-Private Partnerships (PPP)

In education and training, Pakistan will benefit from the implementation of well-structured PPP frameworks to enhance the quality and relevance of the services offered. The private sector has the potential to support the modernization of curricula, provision of technology, and enhancement of certification standards. The policies governing PPPs, coupled with contract incentives, should be aimed at creating a performance gap. The establishment of joint training centers and apprenticeship programs should be extended at the national level. This will strengthen the linkages between employability and job creation.

7.5 Utilize Skilled Migration for Skill Recirculation

Policies have to change from the “brain drain” thinking to a positive approach concerning Diasporas engagement and the return of migrants as potential for ‘skill circulation’. For this to be the case, returning professionals need support through reintegration, recognition of foreign qualifications, and career support. The transfer of knowledge through mentoring, online training, and investment should be encouraged. Initiatives for the development of skills linked to remittances should be implemented in order to make migration a means of developing human capital.

6. Policy Implementation

6.1 National Coordination of Human Capital Stewardship

A coordination body must be created to unify national human capital initiatives at both the federal and provincial levels. This body will make sure that the policies are free from the influence of election cycles and will also track policy execution. Goals need to be set regarding educator, trainer, and facilitator employability initiatives, and inter-ministerial collaboration must be reinforced among education, labor, health, and planning. This strengthens governance and accountability on human capital the investments of

6.2 Finances for Human Capital to be Increased and Reallocated

A segment of the budget must be set aside for the financing of initiatives on education, training, and employment, which can be done through the mobilization of domestic resources and improvements in budget management. Money should be reallocated from ineffective subsidies to promote human development. Funds should be directed to the geographically and socially marginalized, especially in rural and underserved areas with high concentrations of poverty. Spending should be streamlined through audits and human capital outcomes through result-based financing.

6.3 The Extension of Apprenticeships and Training Integrated with Industry

The education, training, and employment connection needs a national policy on apprenticeships and internships. With private sector partnerships, formal workplace learning must be created. The certification of skills, and the standards of the skills, must be unified for market recognition. Firms that train and hire young people and women should receive special incentives. This will increase employability and decrease the gap of skills and education.

6.4 Policies on Inclusion of Resources and Digital Inclusion

To address the digital gap in education and training, the formulation of a policy on digital inclusion is necessary. Initiatives such as low-cost internet access, community digital laboratories, and programs to support student trainees in obtaining access devices must be implemented. Training, and capacity building in the public sector must include digital literacy. In remote areas, the use of technology for learning should be improved. This will provide better access, continuous learning, and develop a workforce that is ready for the future.

6.5 Framework for Skilled Migration and Diaspora Engagement

A policy framework can be constructed to manage skilled migration positively as a development asset. The government can establish diaspora skill databases and integrate them as specialists in domestic projects and training. Policies to support returned migrants should combine tax incentives with

professional reintegration. For better labor mobility, overseas skills certification and recognition mechanisms must be streamlined. This will improve national capacities and turn migration positively and sustainably into human capital.

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