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Skilling for Income Generation: Assessing the Economic Impact of Punjab's Youth Training Program

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Abstract: The Skilling Youth for Income Generation (SYIG) program was launched in 2021 by the Punjab Skills Development Fund (PSDF). The program was launched across 36 districts of Punjab province. The training provided was split into six broader categories, known as brand pillars. The primary objective was to equip young people with skills to enhance their income outcomes and employment opportunities. The present study aims to evaluate the structural design and demographic dimensions of the program, as well as the impact of these factors on the income of graduates who completed training under different brand pillars. Data on 3,775 graduates were collected from 36 districts in the province of Punjab. A proportionate stratified random sampling method was used to collect the data from graduates. The dependent variable is the log of monthly income, while the independent variables include gender, age, education, a dummy variable for the brand pillars, and geographical zones. It is estimated that female graduates earn 55.7 per cent less than male graduates. The graduates who received training under the *Mahir* (vocational training) and *E-Tayyar* (digital skills) programs earn 15.1 per cent and 24 per cent higher than those in the *Aghaaz* (base category). Graduates with tertiary education had a significant income advantage (9.7 per cent), while self-employed individuals outperformed graduates in transitional roles, such as internships and apprenticeships. Graduates from less developed areas earn less compared to those from relatively developed areas. Structural factors must be considered to enhance the income outcomes of the training programs. Entrepreneurship should be fostered to create new job opportunities rather than displacing the existing workers. Enhanced post-training placement services, especially in less developed areas, can lead to better outcomes.

Key Words: Skills, Youth, Income, Gender, Training

1. Introduction

Global transitions are primarily based on skills development, making skills the center of all transformations occurring in the world's labor

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markets. In low- and middle-income countries (LMICs), in particular, the changing pattern of skills is defining the future (World Bank, 2025). Even though LMICs are performing better in terms of skilling youth, in some regions, such as South Asia, a large proportion of young workers, although employed, are still living below the poverty line, which reflects both a job gap and a quality of jobs gap.

The fact that the working-age population in Pakistan and Punjab, the largest province, is increasing rapidly, adds to the problem. The population of Pakistan is already 241.5 million, and a distinguishing feature of the nation's population is its youth: people aged 15-29 form 26% of the total population, and people aged 15-59, 53.8% (GOP, 2025). The ability to turn this demographic dividend into an asset by enabling individuals to work can offer a distinct chance at economic prosperity. It could be a potent growth driver to increase the innovation potential of various areas (GOP, 2025).

This suggests that at this stage of demographic transition, strategic interventions can significantly contribute to accelerating economic growth and reducing poverty. However, for this potential to be realised, targeted efforts must be made to build the capacity of youth to engage meaningfully in the economy. The mandate of the Punjab Youth Policy 2012 is also to facilitate, groom, and guide the youth to live in peace and harmony, promoting attitudes, skills, and knowledge, and preparing them to shoulder responsibilities in the modern era (GOPb, 2012).

In response to the structural challenges the population is facing, the Government of Punjab has taken several initiatives. Out of these, the Skilling Youth for Income Generation (SYIG) program, launched under the umbrella of Punjab Skills Development Fund (PSDF), was designed as a response to Punjab's dire need for a skills-based and inclusive economic growth strategy. SYIG was launched in 2021 with the concept of building a future-ready workforce with digital, entrepreneurial, and employable skills. It also envisions a shift from supply-led training to demand-driven skills development by promoting the role of industry in both the design and the delivery of training interventions.

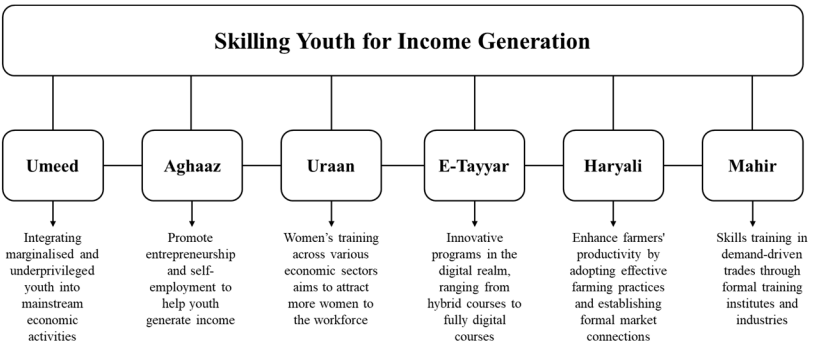
Various organizations with different training programs are operating in the province, but a systematic evaluation of these interventions is typically not conducted. That is the reason little is known about the effectiveness of such training programs. It is therefore essential to analyse the practical dimensions of these programs to study whether they are aligned with the labour market dimensions, accessible across regions and different demographic groups, and have the capacity to generate sustainable livelihoods. To understand whether such interventions translate into meaningful outcomes, particularly in terms of income generation, is necessary for ensuring that these initiatives move beyond theoretical promises. This study has been designed to address this evidence gap by evaluating the SYIG program.

1.1. Program Background

SYIG is a comprehensive program designed to address the multifaceted challenges of skill development in Punjab. It is a funded program and was launched in 2021 and ended in 2024, with the basic aim to promote social integration of youth through employment and income, and while doing this, the program's inbuilt structure considered the needs of individual demographic layers with special focus on youth of the province. Due to this very reason, the initiatives taken under the program were grouped under thematic areas with a specific target population. Each peculiar area was called a brand pillar, and the motivation behind designing training under each specific brand pillar was to ensure the growth and development of skills that can lead to the creation of a more inclusive and empowered workforce.

Figure 1: Program Structure

The SYIG program proved especially helpful in addressing the long-standing issue of skill development in Pakistan. One of the issues that should raise concern among educated youths is the rate of unemployment,



as the Pakistan Economic Survey (2023) recorded that nearly one-third of all individuals who excel in a particular field fail to secure a job due to a mismatch between their skills, educational qualifications, and the market's demand. The SYIG program was designed to assist in bridging this gap and offer its beneficiaries the knowledge related to the industry, which could ultimately lead to betterment in their socioeconomic status. As the most populous province, Punjab has a large share in the labor force; only 20 percent of its workforce has attained any kind of training. This reinforces the fact that programs such as SYIG are very important for improving the overall skillset of the workforce (NAVTTC, 2022). Additionally, a report conducted by the World Bank (2022) shows that under skill training, employability can increase by 30 per cent, and participants in the training program were paid 20-25 per cent more than untrained workers. The fact that the SYIG program focuses on disadvantaged groups of people, such as women, the marginalized groups, and youths in the rural areas of the country, is of particular concern because these people are underrepresented in the traditional economic opportunities.

The operational framework of the program included PSDF as the lead institution, while the main collaborators were Training Providing Institutes and private employees. The major contribution of the initiative was its curricula and its partnership with more than 600 training providers and private employers. As per the program documents, the main aim was to promote self-employment and gender inclusivity. A total of 73952 people received training, out of which it is stated that 70 percent are engaged in income-generating activities. The program was stated to

contribute to Punjab's economic growth by improving livelihoods and consequent financial stability. The main trades in which training was given under different brand pillars were livestock management, industrial stitching, beautician, cooking and baking, fashion designing, digital marketing, hybrid professional cook, plumbing, sanitation workers, E-commerce, and web designing.

The evaluation of the SYIG program was done to guide the program's future performance and help meet the changing labour market demands in Pakistan. Through a rigorous analysis of the program outcomes, the research provides actionable recommendations on the program's strengths and weaknesses. The study's findings can also serve as a valuable tool for policymakers to pinpoint skills gaps, reorganize technical and vocational education policy, and align future programs with the country's overall socioeconomic objectives, including the URAAN 2025 Vision. The study in hand is based on the evaluation of the SYIG program; it also includes a rigorous analysis of the program's main objective of income generation.

2. Literature Review

The contribution of skills training and education to the development of employment and income opportunities has been a popular subject of research. It has been demonstrated that gender remains one of the most significant factors influencing access to education, occupation type, and income level. The female population faces systematic issues that restrict access to certain areas of education and professional careers, a factor that directly affects their access to the labour market. These are not only structural issues, but also cultural ones, as gender role norms still limit involvement in technical and vocational fields.

Gender disparity in employment in Punjab is reflected in the income levels. Even when female workers are equally educated and qualified to male workers, they always receive lower wages than the male workers (Aslam et al., 2014). Education has a positive influence on increasing the income of both men and women; however, during permanent job employment, men tend to gain more benefits. Male privilege in the formal employment sector helps perpetuate historical trends of inequality. Meanwhile, research demonstrates that in cities, women receive better

returns on further education than men; yet, the labour market, as a whole, continues to be organised in a manner that favours men (Ali & Akhtar, 2016). These results suggest that education may increase income opportunities for women; however, systemic constraints prevent them from fully realizing these benefits.

Skill formation programs have been identified as a way to enhance the chances of women securing employment and earning more. In Pakistan, skills-based ICT training, in particular, has played a crucial role in enhancing the employability and entrepreneurial potential of women. This type of training has provided women with the opportunity to access new areas of the economy and increase their earning potential (Hassan et al., 2020). This suggests that vocational education can play a role in eliminating gender disparities by offering women non-stereotypical and self-employment options.

Nevertheless, there are significant challenges to the broader vocational training system in Pakistan. Governance shortcomings and inefficiencies, as well as infrastructural inadequacies, reduce the effectiveness of training programs in generating actual income benefits. The emergence of education initiatives, such as the National Skills Strategy, aimed to facilitate alignment between the education and labour markets, but their content and execution are limited by financial constraints (Ali et al., 2024). There is international experience that demonstrates vocational training may carry some immense positive effects. For example, in China, vocational qualification certificates are associated with higher earnings, with wage premiums ranging from 9.5% to 24% depending on the type of certificate (Xiang-quan, 2011). Similarly, a systematic review of vocational training programs in developing countries found that such initiatives lead to a 5% increase in employment and a 11% increase in earnings. The review also noted that classroom-based training had the most potent effects (Agarwal & Mani, 2024).

The relationship between training, occupation type, and income is complex. Early studies have shown that the wage premium often associated with training may be overstated if occupation type is not taken into account. In reality, the type of occupation plays the most significant role in determining wages, sometimes even more than training alone

(Hotchkiss, 1993). This means that vocational training must not only build skills but also connect trainees with occupational pathways that are valued in the labour market.

Regional differences further complicate income outcomes. Urban workers in Pakistan earn significantly more money than their rural counterparts. One study estimates the wage gap between rural and urban workers to be approximately 54.57 per cent, with a considerable portion of this gap being attributed to place-based discrimination (Riaz & Faridi, 2023). Merely, more opportunities are paid more in cities, and rural people are typically restricted to outdated training and useless connections to industries (Ali et al., 2024). This makes training less effective in increasing the income of rural youth. There are also differences in how education and occupation interact by region. In rural regions, returns on lower education levels are often higher than in urban regions, where more educational levels are required in order to get better-paying jobs (Ali & Ramay, 2013).

Meanwhile, inadequate access to utilities and limited social safety nets in the rural sector contribute to income inequality across regions. This exacerbates the disadvantage of rural workers and limits the effectiveness of training plans aimed at closing the income gap (Mumtaz & Hussain, 2024). The differences between rural and urban contexts underscore the need for localised approaches in vocational training, where the design of training must take into account specific labour market realities.

Skill training has consistently demonstrated a strong and positive relationship with employability and income. Evidence suggests that individuals with higher levels of skill training have better chances of securing jobs and earning higher incomes. A chi-square analysis has confirmed a significant relationship between vocational training and income levels, reinforcing the argument that skill development is essential in conjunction with formal education. Labour migrants with advanced education and specialised training are reported to have significantly higher incomes than those with limited qualifications (Mahato & Paudel, 2023).

Education level is also an important factor in determining income. Higher levels of education, such as matriculation and intermediate, are

consistently associated with higher monthly earnings. Studies show that each additional year of education can raise wages by around 7 per cent (Nasir & Nazli, 2000). Despite this, systemic barriers remain. Many training programs are underfunded, and their content often does not match the real demands of the labour market. These structural issues continue to limit the full potential of both education and vocational training in transforming employment outcomes and raising incomes (Shakil et al., 2024).

Research has also shown that income levels prior to training influence the extent to which individuals benefit from skills development. Academic achievement often acts as a bridge between past earnings and the effect of training. A study on young professionals in Lahore found that individuals with already strong educational backgrounds are more likely to have their training translate into higher earnings. In this case, academic achievement worked as a key factor that explained why training had a greater effect on income for some groups compared to others (Shakil et al., 2024). This suggests that education and skills do not work in isolation but together, and the benefits of training are amplified when supported by formal academic qualifications.

Skill training programs in Pakistan have also been directly linked with better income outcomes. The PSDF, for example, has played an important role in improving the employability of trainees. Many participants in PSDF-supported programs have seen their incomes rise after completing training, demonstrating that targeted interventions can improve livelihoods when training is aligned with market needs (Raza & Akram, 2024). At the same time, even in the informal sector, workplace-based or on-the-job training has been linked to higher wages and improved socio-economic status for workers. Such training equips individuals with practical experience, making them more competitive in labour markets where formal certification may not consistently be recognised (Yasmeen & Hashaam, 2024).

However, not everyone has equal access to these opportunities. Prior earnings often determine the ability of individuals to pursue training. Those with higher earnings can afford the costs associated with training, such as fees, transport, or the loss of daily wages when attending classes.

They also have more chances to have time and financial support to attend longer courses. Conversely, individuals with very low income might not be able to engage fully in training due to financial constraints and the urgency to earn money to support their families (Mehmood et al., 2024). This forms a circle of low-income populations that require more training but also face more barriers.

Socioeconomic and demographic factors also influence these. Relationships within the family, such as family dynamics, affect an individual's ability to proceed with education or enrol in vocational training programs. It is even demonstrated in research that the number of children in a family can decrease the likelihood that a child remains in school to get an education because, with more children in the family, the family becomes financially strained. Under these circumstances, children can be forced into child labour at a very young age to earn money in the household, and this leads directly to the restriction of their education (Hussain et al., 2017). Long-term income outcomes may also be influenced by family size and family structure. It has been discovered that in large families, resources such as money and parental attention are often divided among numerous members. This tends to result in poorer educational outcomes, which consequently restrict the income-earning capabilities of individuals as they grow up (Ahmed et al., 2012).

3. Scope and Theoretical Framework

Youth around the world is a distinct stage of human development; if nurtured carefully, it can shape a better society in the future. A positive trajectory that puts the energy in the right direction can lead to positive outcomes. In Pakistan, the government is continually seeking ways to enhance youth employability and earnings; however, an evaluation is necessary to determine whether the strategy is based on a displacement mechanism or actually contributes to societal development. The challenge young people face is entering the workforce, which is based on relevant experience and its effective utilization.

The SYIG program is structured around specific brand pillars that align youth training with industry requirements, aiming to lower entry-level barriers to employment. However, this paper seeks to examine whether

post-training income differentials are primarily influenced by program-specific factors or by individual characteristics of the trainees themselves. Based on this idea, the study's objective is to examine the key demographic, programmatic, and geographic factors that influence income generation among youth who have completed training under the SYIG program.

The determinants of income of the people who received the training in any of the brand pillars are the focus of this study. The log of income of the graduates is the dependent variable, and the estimated coefficients can be interpreted as the approximate percentage changes resulting from changes in various factors. The very idea of the analysis is premised on the assumption of the theory of human capital that belongs to one of the conventional approaches in the sphere of the labour market to treating human capital as a set of skills that contributes to productivity and, consequently, to the increment of income.

An increase or decrease in income cannot only be attributed to the attainment of training. Several other factors, including confounding variables, affect workers' ability to perform tasks and impact their income generation. Differences exist based on innate ability, level of education, geographic location, gender, and many other factors. Investment in training is converting the country's youth bulge into human capital. Recent advances in the human capital theory reveal that individuals stop accumulating human capital due to inadequate access and quality of opportunities for skills development through formal education and employment. Total economic disengagement is a rational choice that individuals make when (i) the formal education system and labour market do not contribute to building skills that are valued by the labour market, and (ii) the costs related to economic engagement (that is, studying and working) surpass its benefits. The phenomenon of economic disengagement has lifelong implications that not only constrain and restrain future earnings but also undermine prospects for improvements in productivity and economic growth (Angel-Urdinola & Mayer, 2018). The inbuilt structure of the SYIG program addresses both constraints by providing a model based on labour market-driven theory. Furthermore, the financial hindrances to training are addressed by providing a stipend to the trainees. However, training outcomes vary for trainees depending on

several other factors. These factors are incorporated in the model to identify their potential effect on the income of the trainees.

4. Research Methodology

The data were collected from 36 districts across Punjab province. The study targeted the SYIG graduates, with a total population of 73,952 training graduates, of which a sample of 3,775 was selected. Of these, 2,224 were interviewed face-to-face in 12 districts using computer-assisted personal interviews (CAPI), while 1,551 graduates were interviewed remotely in the remaining 23 districts through computer-assisted telephonic interviews (CATI).

Table 1: Population and Sample Details

Population of Interest		**Sample Size**		
		Total	Face to face	Telephonic
Graduates/Trainees under SYIG	N=73,952 (36 districts)	n=3,775	2,224 (12/36 districts)	1,551 (23/36 districts)
Female Graduates	N=40,998	n=2,098	1,160	892
Male Graduates	N=32,954	n=1,677	1,026	623

4.1. Sampling Frame

A sample of 3,775 graduates was drawn using a proportionate stratified random sampling mechanism. The sample was proportionally stratified across key dimensions of the program, such as brand pillars, gender, and geographic zones. It was ensured that the representation of trainees was aligned with the population across brand pillars and zones. Such a stratified design enhances the generalizability of the survey findings. Although the sample was not systematically stratified by trade under each brand pillar, care was taken that the trades under each brand pillar should be fairly represented. This helped provide a balanced view of the relevance and outcomes of training across different occupational categories.

4.2. Sampling Across Brand Pillars

The sampling was also made across all six brand pillars. Mahir was the most significant pillar, so a sample of 1,469 graduates was drawn, followed by the E-tayyar (790), Haryali (604), Uraan (399), Aghaaz, (342), and Umeed (171).

The gender distribution reflects the population structure, with 2,098 females and 1,677 males. Some brand pillars have a notably high representation of female trainees, indicating a gender-specific focus in these streams. This carefully drawn, proportionate sampling ensured that both brand pillar diversity and gender dynamics were adequately incorporated for meaningful analysis.

Table 2: Sampling Across Brand Pillars

Brand Pillar	Population	Total Sample	Female	Male
Aghaz	6,888	342	146	196
E-Tayyar	15,377	790	405	385
Haryali	11,737	604	439	165
Mahir	29,123	1,469	657	812
Umeed	3,335	171	82	89
Uraan	7,492	399	369	30
Total	73,952	3,775	2,098	1,677

Data Source: SYIG (2025)

The sampling strategy effectively maintained gender representation, with females constituting 55.4 per cent (40,994) and males making up 44.6 per cent (32,937), as shown in the table below. This is done to derive gender-based insights.

Table 3: Sampling by Gender

Gender	Total Population	Per cent (%)	Sample	Per cent (%)
Female	40,994	55.4	2,098	55.6
Male	32,937	44.6	1,677	44.4

Data Source: SYIG (2025)

4.3. Sampling Across Zones

The study area (Punjab province) was divided into six geographically representative zones, each corresponding to a distinct regional identity based on its socio-economic profile, which allows for a meaningful comparison across regions. Zone I represents the Northern skills corridor, which covers the Potohar belt and capital region. Zone II is centred on the

industrial skills triangle, which encompasses the industrial and export-oriented districts. Zone III is about the western access zone. This zone represents the remote and underserved areas, such as Mianwali. Zone IV represents the central Punjab workforce belt, including major labour and industrial hubs. Zone V represents the southern Agro-industrial zone, reflecting the agricultural and its linkages with the industry, and Zone VI is the Cholistan skills frontier, covering the southern rural belt of the province. During analysis, Zone I to VI codes have been used to maintain consistency in data handling and explicit reporting, while the coSrresponding cluster themes and names help contextualise the findings for the relevance of policy and program interventions.

Table 4: Geographical Zoning

Zone Code	Cluster Name	Districts Included	Rationale/Theme
I	Northern Skills Corridor	Rawalpindi, Islamabad, Attock, Chakwal, Jhelum, Mandi Bahauddin, Sargodha	Capital & Potohar belt; urban–rural mix with diverse employment and training needs
II	Golden Triangle	Gujranwala, Sialkot, Gujrat, Hafizabad, Narowal	Dense industrial/export

			zone; high demand for technical and vocational skills
III	Western Access Zone	Mianwali, Layyah, Bhakkar	Border district; underserved with low access to skills
IV	Central Punjab Workforce Belt	Lahore, Kasur, Sheikhupura, Faisalabad, T.T. Singh, Nankana Sahib, Okara, Sahiwal, Jhang	Punjab's labour market core: a mix of industrial cities and agrarian peripheries
V	Southern Agro-Industrial Zone	Multan, Khanewal, Muzaffargarh, Vehari, Lodhran, D.G. Khan, Rajanpur	Southern mixed economy; emerging industry, strong rural youth base
VI	Cholistan Skills Frontier	Bahawalpur, Rahim Yar Khan, Bahawalnagar, Pakpattan	Rural and remote; need for inclusive, especially gender-responsive, skill outreach

The table presents a gender-disaggregated overview of both the overall population and the survey respondents across six geographically defined zones used in the skills training study. Each zone is identified by its code and a representative cluster name that reflects its regional characteristics, such as the Northern Skills Corridor and the Golden Triangle. The data show the total number of females and males in the overall population, as well as those who participated in the survey, allowing for assessment of gender representation within each zone. Zone IV, the Central Punjab Workforce Belt, has the largest population and survey sample, highlighting its significance in the study. The distribution across zones is generally balanced, although some variations exist, such as in Zone II where females significantly outnumber males overall. This detailed

breakdown supports both regional and gender-sensitive analyses of skills training outcomes, ensuring that the survey sample accurately reflects the broader population across the different zones.

Table 5: Zoning Sample

Zone	**Zone Name**	**Female** (Overall)	**Male** (Overall)	**Female** (Survey)	**Male** (Survey)	**Total** (Overall)	**Total** (Survey)
I	Northern Skills Corridor	5,083	5,897	251	281	10,980	532
II	Golden Triangle	10,687	2,910	546	136	13,597	682
III	Western Access Zone	4,220	4,237	232	219	8,457	451
IV	Central Punjab Workforce Belt	11,511	10,341	596	591	21,852	1,187
V	Southern Agro-Industrial Zone	4,700	5,411	222	241	10,111	463
VI	Cholistan Skills Frontier	4,793	4,141	251	209	8,934	460

Data Source: SYIG (2025)

4.5. Survey Tool

After carefully reviewing the local and international research and program documents, a comprehensive survey tool was developed. The questionnaire captured the survey participants' demographic information. The situation before and after the training, their employment status, income generation, and skills attained were also assessed. Additionally,

one section covered the perceived improvement in socio-economic status, household contributions, and societal contributions. Training specific information was also gathered, such as the type of training, duration, location, and alignment of the training with the professional goals. The survey also covered satisfaction with the training and its relevance to business/ work requirements. Pilot testing was conducted to further refine the survey in terms of clarity, validity, and robustness. For pilot testing, six graduates were interviewed, including both face-to-face and telephonic interviews.

4.4. Regression Model Specification

To empirically examine the study objectives, the regression specification is presented below:

$$\begin{aligned}\text{logincome} = \beta_0 &+ \text{Gender}\beta_1\text{Female}_i + \text{Brand Pillar}\beta_{2j}\sum_{j=2-6} \\ &+ \text{Zone}\beta_3\sum_{k=1,2,3,5,6} + \text{Education}\beta_4\sum_{l=2\text{to }7} \\ &+ \text{Job Type}\beta_5\sum_{m=1,3,4} \\ &+ \text{Employment Status}\beta_6\sum_{n=1,3,4,5,6} + \text{Age}\beta_7\sum_{o=1,3,4,5}\end{aligned}$$

Where:

log_income_i = Log of income for individual i
Female_i = Dummy variable for gender (1 if female, 0 if male)
Pillar_ij = Dummy variables for program pillars (Pillar 1 as base)
Zone_ik = Dummy variables for geographic zones (Zone 4 as base)
Edu_il = Dummy variables for education categories (Completed Secondary as base)
JobType = Dummy variables for job types (Private/Other as base)
Employment Status dummy variable for employment status (Self-employed as the base category)
Age = age categories of the employees (20-24 years as base)

ε_i = Error term

The dependent variable is continuous, but it was highly positively skewed and had distributional non-normality with a long tail on the upper end of the distribution. This type of data skewness can distort statistical estimates and violate the key assumptions of the regression, particularly the normality of the residuals and homoscedasticity. In such cases, the transformation of variables into the log form has a long history in empirical economics (Mullahy & Norton, 2022).

The occurrence of extreme values was reduced by using natural logarithmic transformation, which increased the symmetry of the distribution and stabilised the variance. This conversion is not only better placed to fit models but also to provide a more meaningful interpretation of the coefficients as per cent or proportional changes in income. The use of log transformation is a common practice in labour economics and income models where financial data is skewed to the right, and it is used in this situation to provide a higher degree of reliability.

To enhance the model's interpretability and robustness, multicollinearity was also checked. For this purpose, the variance-inflating factor (VIF) was used, and variables with high correlation were dropped. A careful selection of the dummy variables was made, with the variable having the highest population being selected as the reference category.

4.6. Descriptive Analysis

The majority of the SYIG graduates had an education up to secondary or higher secondary levels, indicating that mid-education level youth are most engaged in the training program. About 25.17 per cent have a tertiary level of education, while only a small share had vocational training or no formal education.

Table 6: Education Level of the Respondents

Education Level	Percent
Less than Secondary / Secondary Complete	30.54
Less than Higher Secondary / Higher Secondary	30.17
Tertiary Education	25.17

Less than Primary / Primary Completed	6.75
Hafiz	3.6
No Formal Education	1.99
Diploma/Vocational	1.62
Other/Unknown	0.16

Data Source: Author's Calculation using Survey Data

The training participants represent a diverse range of household incomes, which manifests the program's broad reach across various segments of society. The largest segment of the sample is from households with monthly incomes ranging from Rs. 30,000 to Rs. 50,000. Out of the total sample, 22 per cent of the surveyed population is from households earning above Rs. 50,000. A small number of households earn less than Rs. 10,000, primarily due to a lack of access to resources.

Figure 2: Monthly Household Income Distribution in PKR (%)

Data Source: Author's Calculation using Survey Data

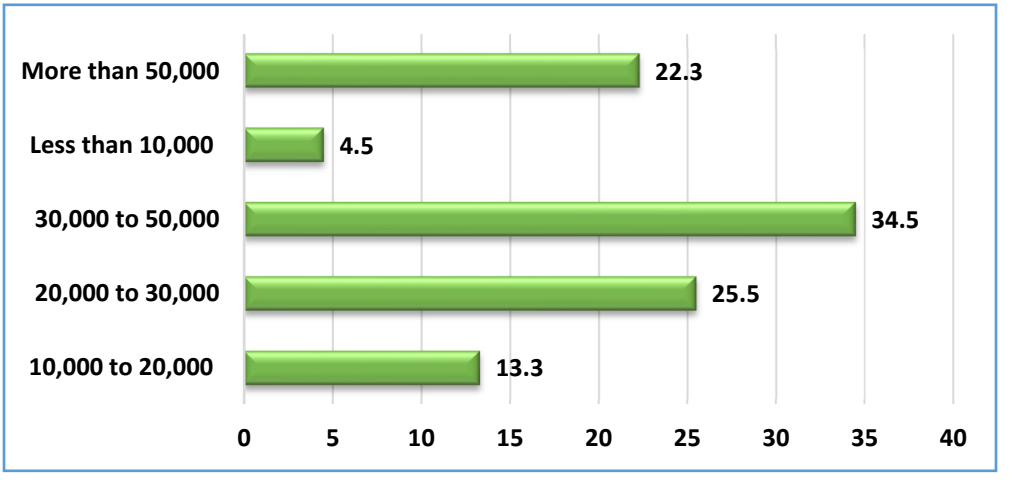


Table 7: Monthly Household Income Distribution

Age Bracket	Per cent
<20	5.99
20-24	59.18

25-29	19.81
30-34	8.69
35+	6.33
Total	100

Data Source: Author's Calculation using Survey Data

The age distribution of the graduates reveals that the majority (59.18 per cent) falls within the younger age group of 20-24 years, followed by 19.81 per cent within the age group of 25-29 years. People above 35 years of age are less likely to receive training, as they make up only 6.33 per cent of the sample graduates. This reveals that programs predominantly target youth, especially those who are typically transitioning from education to employment. This highlights the programs' alignment with their goal of preparing a workforce for the future.

4.7. Distribution of SYIG Graduates by Employment Status

The table below explains the categories of employment used in the variable "type of employment". It is essential to evaluate how the type of employment affects the earning potential of graduates.

Table 8: Description of the Employment Type

Type of Employment	Description
Unemployed and not seeking work	Those individuals who are not working and are not actively seeking work. They are not included in the labour force, e.g., students, housewives, and housekeepers.
Unemployed and Seeking Work	Individuals who are not currently employed but are actively looking for employment. They are part of the labour force and classified as unemployed.
Paid Wage Employment	Both full-time and part-time employees in the formal and informal sectors who are working for a salary and

	wage under an employer
Day laborer	People engaged in casual and daily wage work, usually hired on a per-day basis without any long-term contract, e.g., construction workers, farm workers,
Apprenticeship	Individuals enrolled in a structured training program where they learn a skilled trade by working under an expert, often receiving a stipend. It combines training and work.
Self Employed	Individuals working independently without a wage-earning employer and running their own businesses, e.g., shop owners, plumbers, electricians, freelancers.
OJT/Internship	Individuals engaged in on-the-job training and internships. This is a temporary placement set up for career exploration and skills development, often with a mentor, and sometimes it is paid.

A total of 27% of individuals are neither working nor searching for a job. This includes 15% who are studying or in training programmes, and another 12% who are simply not looking for work, including women and housekeepers. These individuals are not part of the labour force, according to standard definitions. In contrast, 18% are unemployed but actively seeking work. Then there is the broad category of those who are earning, such as graduates with paid wages at 17%, while day labourers make up 4% of the total graduates. Those undertaking apprenticeships account for only 1%, and those with on-the-job training and internships comprise 25%.

5. Results

Table 9: Regression Results

Variables	Coefficient	Std. Error	t-value	p-value	95% Confidence Interval
Female	-0.813***	0.082	-9.86	0.000	[-0.975, -0.651]
Program Pillar (ref: Aghaaz)					
E-Tayyar	0.151	0.132	1.14	0.025	[0.108, 0.409]
Haryali	-0.180	0.175	-1.03	0.304	[-0.525, 0.164]
Maahir	0.214*	0.119	1.79	0.074	[-0.021, 0.448]
Umeed	0.239	0.175	1.36	0.173	[-0.105, 0.583]
Uraan	-0.092	0.180	-0.51	0.611	[-0.444, 0.261]
Zone (ref: Zone IV)					
Zone I	-0.016	0.097	-0.17	0.869	[-0.206, 0.174]
Zone II	0.011	0.133	0.08	0.937	[-0.250, 0.271]
Zone III	-0.238**	0.112	-2.12	0.034	[-0.458, -0.018]
Zone V	-0.169	0.121	-1.40	0.163	[-0.406, 0.069]
Zone VI	-0.453***	0.131	-3.45	0.001	[-0.710, -0.195]
Education Level (ref: Secondary Completed)					
Diploma/Vocational	0.015	0.193	0.08	0.937	[-0.363, 0.394]
Hafiz	-0.072	0.207	-0.35	0.727	[-0.478,

					0.334]
Primary completed or less	-0.200	0.290	-0.69	0.491	[-0.770, 0.370]
Less than Higher Secondary (HS) and HS completed	0.007	0.095	0.08	0.939	[-0.179, 0.193]
No Formal Education	-0.374	0.528	-0.71	0.479	[-1.410, 0.662]
Tertiary Education	0.097	0.089	1.09	0.027	[0.078, 0.273]
Job Type (ref: Private/Other)					
Government	0.548***	0.128	4.27	0.000	[0.296, 0.800]
NGO	0.044	0.303	0.14	0.885	[-0.550, 0.638]
Others	0.083	0.184	0.45	0.654	[-0.279, 0.444]
Employment Status (ref: Self-Employed)					
Formal Education & Training	-0.870**	0.405	-2.15	0.032	[-1.665, -0.075]
Unemployed & seeking	-0.613*	0.353	-1.74	0.083	[-1.305, 0.080]
Day Laborer	-0.598	0.570	-1.05	0.295	[-1.717, 0.522]
Apprentice	-1.071***	0.368	-2.91	0.004	[-1.794, -0.348]
Paid Wage	-0.499	0.337	-1.48	0.140	[-1.161, 0.164]
OJT/Internship	-1.456**	0.551	-2.64	0.008	[-2.539, -0.373]
Age Bracket (ref: 20–24 years)					
<20	-0.624***	0.183	-3.41	0.001	[-0.983, -0.265]
25–29	0.182**	0.084	2.16	0.031	[0.017, 0.348]

30–34	0.104	0.135	0.77	0.441	[-0.161, 0.369]
35+	0.490**	0.223	2.19	0.029	[0.051, 0.929]
Constant	10.653***	0.348	30.65	0.000	[9.970, 11.335]

Data Source: Authors Calculation using Survey Data

The results indicate a significant gender gap in the income of training graduates. Holding other factors constant, females earn 55.65 per cent less than males. This sizable disparity suggests that, although similar training opportunities are available, even some trades are specifically women-centric, and the entire brand pillar Uraan has a complete focus on women-related skills enhancement. Nevertheless, there are still structural barriers, variations in employment opportunities, and social hindrances that limit their earning potential. Literature also suggests different effects of training based on gender (Attanasio et al., 2011; Blattman et al., 2012).

Under the SYIG program, training was provided under six brand pillars, out of which Haryali focuses on agriculture and livestock skills, Aghaaz on entrepreneurship, Mahir on vocational training, Uraan on women-focused programs, E-Tayyar on digital skills, and Umeed on marginalised communities. While examining the impact of different programs Maahir program stands out significantly, affecting income (24 per cent) relative to the Aghaaz, which is the base category. This reveals that training under the Mahir program is better aligned with the market demands and leads to better earning opportunities. The same is true for E-Tayyar, which is imparting digital skills. On average, graduates trained under the E-Tayyar program earn approximately 15.1 per cent more than those trained under the reference category Aghaz. This reveals ICT skills make training graduates more equipped and enable them to work according to the market demands (Atasoy, et al., 2021; Rêgo, et al., 2024). However, the lack of statistically significant effects for other programs could imply that differences between training modules may be less influential than other factors such as location or employment status.

The results show that income outcomes are greatly dependent on geographical location. The Central Punjab workforce belt, which encompasses major cities and constitutes the largest cluster, is the base category. As compared to the base category, Zone VI (Cholistan Skills Frontier) and Zone III (Western Access Zone) earn 36 per cent and 24 per cent less, respectively. This reflects regional disparities in terms of job availability, market access, or the training provided, which may not align with market demand. Zone VI is an underdeveloped and remote area that has limited job opportunities, and the labour force exhibits less earning potential due to a lack of opportunities. Meanwhile, other zones are showing no significant income differences with the reference category and are comparable in terms of economic conditions and labour market opportunities.

The relationship between income and the education level of the training graduates is examined. The category 'Secondary Completed' serves as the reference group in the analysis, as it includes the highest number of graduates in the dataset. The findings reveal that tertiary education is significantly linked with better income levels compared to other education categories. Individuals with the tertiary level of education earn approximately 9.7 per cent more than those who have secondary education. Those who have vocational training have higher wage differentials than those who have a formal education. However, when tertiary education is combined with skills training to integrate skills in the labour market better, it reveals that individuals gain a better understanding of the training materials and can apply them more effectively in the market (Wongmonta, 2023). In contrast, other categories of education, such as diploma, primary education, no formal education, and religious education, do not show statistically significant differences when compared to the income of the secondary education level. Overall, the results highlight that tertiary education is the only level that confers a clear and significant income advantage among SYIG program graduates.

A better wage premium is associated with government employment, which may suggest that public sector employees get more stable salaries and other benefits. The construction of the income variable includes all the benefits an employee receives, which are then calculated in monetary terms, and the total income is determined. This includes medical

allowance, provident fund, gratuity or old age benefits, in-kind support in terms of products (this is mainly in the case of factory workers), child protection, accommodation, etc. All of these benefits are more available to the government employees. In contrast, those working with NGOs and in other private sector jobs do not show a significant increase in income as compared to the reference category. The reference category in this variable is selected because the maximum training graduates are working in the private sector. However, those who received the training and are in government jobs are earning better; however, this cannot be attributed solely to the training. However, if the tasks performed on the government job are related to the skills learned through training, then it can clearly be attributed to the higher income levels of those in the government sector. In contrast, working for NGOs or in other private sector jobs does not significantly boost income compared to the reference group, highlighting that government employment remains a highly desirable and lucrative option in the region.

The regression analysis reveals a significant variation in income levels across the employment status of training graduates. The self-employed category is associated with higher income levels. Graduates working as apprentices, doing internships, or in formal education, however, have some source of income, but it is significantly less than that of the self-employed category. These results are significant and reveal the limited financial returns associated with the transitional roles of individuals in the process of building skills. A critical analysis of the results reveals that job creation as a result of training points to the problem of displacement, where job placement for some youth comes at the expense of others, and this does not generate income in the labour market as a whole (Fox & Kaul, 2018). Even the graduates are earning less than those who are self-employed, which seems to offer more sustainable income opportunities. Business training, access to finances, and mentorship can help youth enter and thrive in self-employment, generating more income, and in this way, program objectives can be met. A mere displacement of income and job opportunities will not lead to the overall benefit to society.

Age follows a logical pattern that is consistent with labour economics. Younger participants who are under 20 years of age earn significantly less, which reflects their limited work experience or informal or part-time

labour involvement. Income significantly increases for those aged between 25-29 years and above 35 years, which follows an expected trajectory of income growth with experience and skills accumulation. Overall, the age findings reinforce that work experience and maturity are the important determinants of income. Among youth aged 15 to 24, indicators of difficulty in transitioning from schooling to full-time employment and becoming productive citizens and providers for their families are among the most frequently cited (Adams, 2007). Overall, the findings on age reinforce the importance of work experience and maturity in determining income.

The intercept represents the expected baseline income of a male training graduate with secondary education who works in the private sector in the Central Punjab Workforce Belt and received training under the Aghaz program. This baseline serves as the foundation for understanding how variations in gender, program, location, education, employment status, and age affect income. In all the variables, a few categories showed insignificant results, which is due to a smaller number of training graduates in that particular category, such as Uraan and Umeed, which are not significant because they have an overall smaller number of graduates, and it does not affect income significantly. In the education variable, only a higher level of education significantly affects the income level. Lower levels of education do not show significant variation in income, indicating a limited impact on income levels.

5.1 Discussion & Recommendations

This model demonstrates that structural factors, such as gender, geography, and job type, are significant determinants of income outcomes, despite the importance of training programs. Post-training interventions to enhance earnings should, therefore, focus on broader sources of labour market inequalities, including gender and regional gaps, as well as skill development. A multidimensional approach is needed to achieve improved labour market reforms. Particularly one that incorporates gender sensitive training programs and job opportunities, region-specific economic planning and interventions, and entrepreneurial assistance to the youth.

The objective of generating income can be achieved by availing post-training placement services with particular attention to the female graduates. To improve the situation and make the training program more inclusive, it is possible to implement gender-sensitive entrepreneurship opportunities, primarily within the Mahir and E-Tayyar Brand pillars.

The pillars that are performing well should be focused more, and to achieve even better results, cross-pillar integration of the training can help graduates find better income generation opportunities. Entrepreneurship, for example, may be combined with the development of digital skills. The findings indicate that the development in the overall ecosystem will lead to improved outcomes.

The training, combined with the local economic development project, local market conditions, and improved investments, can be used to support underserved areas where training results are not as favourable, such as zones III and VI. To ensure that training programs provide increased income-earning opportunities for youth, technical training programs should be integrated into the formal education system. The realisation of previous learning to reskill people with higher education levels can be more effective in terms of income earning. If self-employment opportunities are incorporated into the program, it would be even more effective.

The training can provide start-up capital and mentorship, opening up opportunities for self-employment, as well as introducing income support or stipends to interns in the process of apprenticeship.

To reinforce the connection between training programs and employment rates within specific sectors, particularly in government and non-profit jobs, targeted policy solutions are necessary.

First, aligning training content with public sector competency frameworks can significantly improve job matching and ensure that trainees are equipped with the skills and knowledge relevant to available government roles.

Tiered training programs, based on experience and age, can lead to increased income generation. Providing basic skills and reskilling the ageing population can help align with evolving market needs. Displacement effects of the interventions

A more human-centred approach to youth employment policy begins with rethinking the goal of training programs, not just as tools to quickly place individuals into jobs, but as catalysts for creating meaningful, long-term employment opportunities. Rather than focusing solely on short-term placement targets, there is a need to prioritise interventions that genuinely generate new jobs and support sustainable livelihoods. This includes regularly assessing training initiatives for displacement effects, where one person's employment may come at the cost of another's, and refining targeting strategies accordingly. In labour markets that are already saturated, empowering youth to become job creators through entrepreneurship should be a central pillar. Programs must be designed to complement existing employment, especially by focusing on underserved sectors or emerging industries where labour demand is growing. Ultimately, these efforts should be embedded within broader, inclusive economic policies that stimulate overall demand for skilled labour, so that training does not just prepare young people for jobs, but ensures those jobs truly exist and are within reach.

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