Transforming DB Pension Receipts: Building the Financially Sustainable Future for Higher Education in Pakistan

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Abstract

The "pay-as-you-go" system, widely adopted globally, ensures pension payments by using current employees' contributions to fund retirees' pensions within a defined benefit (DB) pension framework. This system faces significant challenges as pension expenditures now surpass annual salary expenditures, driven by lower fertility rates, longer pension cycles, and annual pension increases. Projections indicate that by 2050, countries such as Taiwan, China, the USA, Japan, and Spain will dedicate nearly 50% of their annual budgets to pensions. In Pakistan, pension costs have escalated by nearly 1000% over the past two decades, prompting the Finance Minister to introduce reforms aimed at controlling these rising expenses. The Higher Education Institutions (HEIs) in Pakistan are particularly impacted. The research indicates that employees at HEIs prefer the DB Pension System over Defined Contribution or Hybrid Pension Systems. This paper presents existing pension and proposed reforms to sustain the DB pension receipts, specifically for HEIs in Pakistan. Using the snowball technique, open-ended interviews were conducted with core pension team members, and thematic analysis was employed to develop a framework designed to enhance the viability and sustainability of the DB pension system. The study integrates empirical findings with a comprehensive literature survey to propose detailed policy recommendations aimed at ensuring the long-term sustainability of the pension system for Higher Education Institutions in Pakistan.

Keywords: Family Pension, PAYG, Defined Benefit-DB, Pension Recceipts.

Introduction

The employee appointed by the Government under basic pay scales is paid a salary during the job period and a monthly pension after his retirement till the employee is alive. After the demise of the pensioner family pension is started, the system is known as Pay-As-You-Go (PAYG) within the framework of the Defined Benefit – DB pension system. The PAYG is widely adopted in many countries (Holzmann et al., 2005). The Job seekers are often attracted to Public Sector

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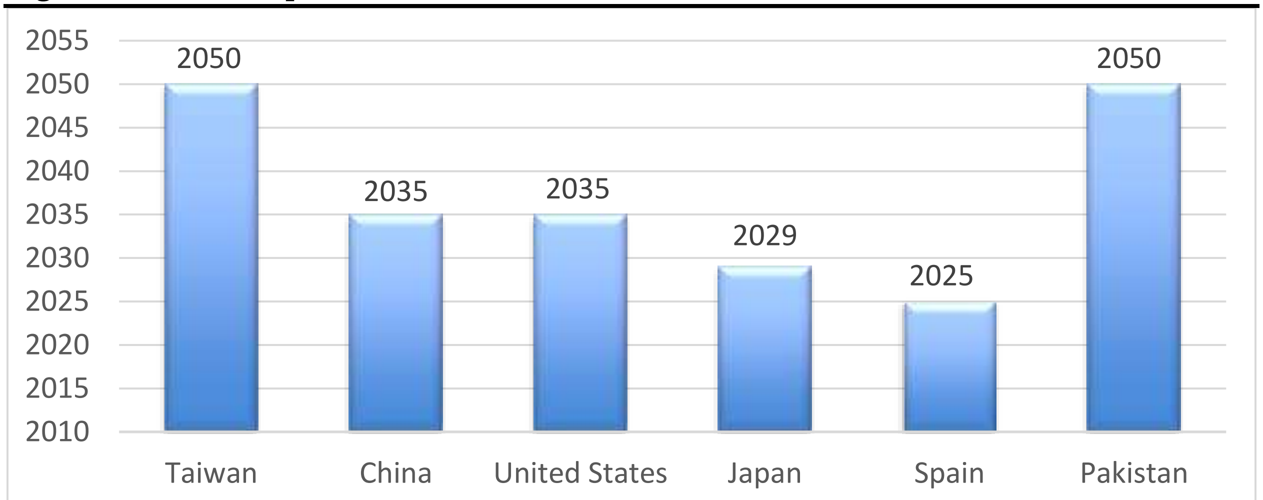
Organizations for the dual benefits of job security and the assurance of a guaranteed pension post-retirement, along with family pension benefits after their demise (Wahab et al., 2020).

The DB – pension system works on the funding derived from payroll taxes, the employees appointed in the Basic Pay Scales – BPS do not make payments; instead, employers contribute on behalf of the employees (Arif, 2010) . The pension system faces problems due to less available resources. The DB pension system faces challenges, particularly in the form of escalating pension expenditure (Liu & Sun, 2016). To address these challenges, countries worldwide are undergoing pension reforms. The projections indicates that pension expenditure will significantly impact Government Grants in several countries upto year 2050 which are further explained as follows (Lin et al., 2021).

Figure 1: Pension expenditure across different countries



The Prime Minister of Pakistan has highlighted the seriousness of the pension increasing bill, comparing it to a more significant problem than the power sector debt. There is a growing concern that the expanding pension expenditure will become a substantial budgetary challenge in the near future (Dawn news, 2020). The pension expenditures in Pakistan have witnessed a substantial increase over the past two decades, rising from Rs. 225 billion in 2004 to Rs. 2.2 trillion in 2023, marking an almost 1000% increase. In response to this upward trend, the Pakistan Government is contemplating various reforms to ensure a fair and sustainable pension system that benefits both pensioners and taxpayers alike (GoP, 2024). The Higher Education Institutions – HEIs are grappling with challenges in meeting their pensionary obligations, leading them to utilize their Recurring Grants for pension payments. The Government of Pakistan stopped regular appointments and raised the retirement age from 60 to 63 referred by (Wang & Shan 2016) . A study was conducted to understand the preferences of faculty members only regarding their pension options, specifically whether they preferred 1) staying with the DB - pension system, 2) switching to the Defined Contribution – DC pension system, or 3) opting for a hired pension system. The findings indicated that faculty members expressed a preference for remaining within the DB - pension system (Wahab et al., 2020).

It is evident from global and Pakistani experiences that the current pension system is no longer sustainable. There are two possible approaches: either to discontinue the existing system DB – Pension System or to revamp in order to ensure long-term sustainability for both Higher Education

Institutions (HEIs) and employees. The Govenrment of Pakistan has recently stopped appointment of new employees in HEI effective from 1st July 2024 & onwards called Contibury Pension Scheme – CPS (GoP, 2024), the DB – pension system will not be available for newly appointed employees now.

After immplemnetion of this system the HEI are become secured but employees will be having less attraction place due to disocnnectinuation of DB – pension system. The below mentioned table shows the comprasion of grade wise pension contribution by HEI & Employer.

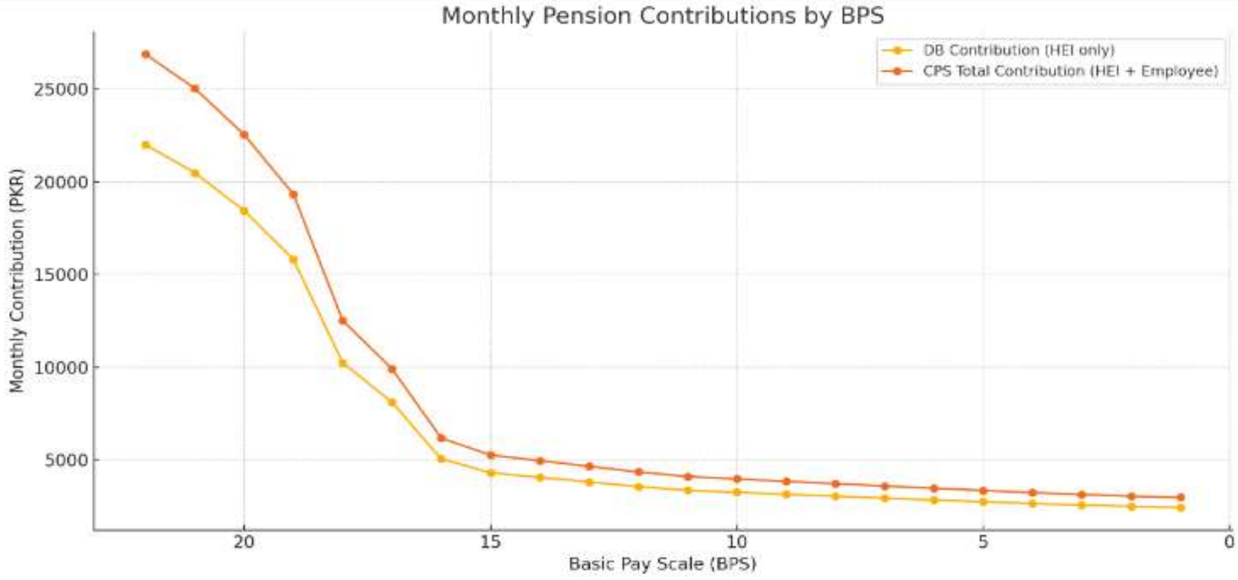
Table 1: Contrubution under DB Pension and Contributory pension scheme

Basic Pay Scale	Basic Pay	Contribution under DB – Pension		Total Monthly Contribution	Contribution under the Contributory Pension Scheme		Total Monthly Contribution
		18% PLSC by HEI	No Contribution By Employee		12% Contribution by HEI	10% Contribution by Employee	
22	122,190	21,994	-	21,994	14,663	12,219	26,882
21	113,790	20,482	-	20,482	13,655	11,379	25,034
20	102,470	18,445	-	18,445	12,296	10,247	22,543
19	87,840	15,811	-	15,811	10,541	8,784	19,325
18	56,880	10,238	-	10,238	6,826	5,688	12,514
17	45,070	8,113	-	8,113	5,408	4,507	9,915
16	28,070	5,053	-	5,053	3,368	2,807	6,175
15	23,920	4,306	-	4,306	2,870	2,392	5,262
14	22,530	4,055	-	4,055	2,704	2,253	4,957
13	21,160	3,809	-	3,809	2,539	2,116	4,655
12	19,770	3,559	-	3,559	2,372	1,977	4,349
11	18,650	3,357	-	3,357	2,238	1,865	4,103
10	18,050	3,249	-	3,249	2,166	1,805	3,971
9	17,470	3,145	-	3,145	2,096	1,747	3,843
8	16,890	3,040	-	3,040	2,027	1,689	3,716
7	16,310	2,936	-	2,936	1,957	1,631	3,588
6	15,760	2,837	-	2,837	1,891	1,576	3,467
5	15,230	2,741	-	2,741	1,828	1,523	3,351
4	14,690	2,644	-	2,644	1,763	1,469	3,232
3	14,260	2,567	-	2,567	1,711	1,426	3,137
2	13,820	2,488	-	2,488	1,658	1,382	3,040
1	13,550	2,439	-	2,439	1,626	1,355	2,981

The above table illustrates that the Contributory Pension Scheme (CPS) generates higher monthly contributions compared to the Defined Benefit (DB) Pension System. This increase is primarily achieved through the simple mechanism of sharing the Pension Leave Salary Contribution (PLSC) between the Higher Education Institution (HEI) and the employee.

On average, the DB system contributes Rs. 7,881, while the CPS contributes Rs. 9,960, reflecting a significant improvement in pension receipts. The graphical representation below clearly compares the contribution levels under both systems:

Figure 2: Monthly pension contributions by BPS



Building on this concept, the paper explores potential modifications to the Defined Benefit (DB) pension system. The earlier comparison highlights that a single tool—the Defined Contributory Pension Scheme (CPS)—has significantly strengthened pension funding compared to the DB model, especially in terms of sustainability. However, completely discontinuing the previous DB system may not be feasible.

Since the DB pension system consists of two main components—pension receipts and pension payments—this study focuses specifically on enhancing the receipts side to ensure the long-term sustainability of the DB framework.

Literature Review

The employee appointed by the Government under basic pay scales are eligible for pension & family pension, which is regular source of income is paid after retirement / expiry of an employee against the services with organization. Even after death of spouse the pension remains continue to dependants (Government of Sindh, 1984) . This is called PAYG within the framework of DB - Pension System (Holzmann et al., 2005).

The PAYG system is widely adopted in many countries around the world (Wahab M, Aamir M, Hussain A. 2020). The pension system is experiencing shortfalls in payments because the pension receipts are not sufficient to meet the pension payments. The yearly pension expenditure is exceeding yearly salary expenditure. This problem is being caused by an increase in the number of pensioners, a lower fertility rate, a long pension family cycle, and an annual pension increase rate quotes (Nektarios & Tinios, 2019)**.**

In response to policymakers' acknowledgment of inherent issues in DB pension plans, numerous countries have been working towards transitioning their DB pension systems to privately-owned DC - pension systems, in line with the principles outlined in Pillar 2 of the World Bank's pension model (James et al., 2002).

The Greek attempt during the year 2010 to 2018 implemented reforms in little steps & cuts in pension payments [10]**.** The China worked very hard to find out the solution for Pension crisis [12] and declares not to support to run the pension system and started with reforms (Liu & Sun, 2016). The China shifted all the public sector employees in a scheme where employees contribute 8% and employers may pay 20% against gross income, somewhere 11% to 20% and in some regions 8% to 11% against the gross income of employee (Liu & Sun, 2016) . The Govenrment of Pakistan has recentily stopped DB – pension system for new employees appointed from 1st July 2024 & onwards called Contibury Pension Scheme – CPS (Minister, 2024).

The Indonesia Government changes in the retirement age & reforms in tax design to cope up with pension problem (Fedotenkov, 2016). The France Government has also moved for pension reforms to avoid any financial crises (Macron's, 2023).

Like other countries the Pakistan Government is also facing same problem, the Government declared DB- Pension System is not sustainable (Prime Minister, 2020) . The World Bank's projected civil service pension will cross the salary expenditures by 2023 in Punjab Government, Sindh Government by 2028 and Federal Government by 2050 (Rehman, 2021).

The HEI's also faces crises in payment of pension expenditures (Ahmed et al., 2021) . The University of Sindh, Jamshoro has conducted actuarial valuation shows near future they will face financial crisis in pension payments (Nauman Associates, 2021).

The Sindh Government has introduced the amended Pension Act 2024. Under this new legislation, employees appointed on or after 1st July 2024 will contribute 10% of their salary, while the Institute will contribute 12% toward their pensions. This new system will be known as the Defined Contributory Pension Scheme (DCPS), effectively replacing the Defined Benefit (DB) pension system for newly appointed employees (GoP, 2024). .

To ensure the sustainability of pension funding, the Government of Pakistan has also introduced a Non-Banking Finance Company – NBFC (Haider, 2025).

Concerning DB - Pension System plans in Pakistan, up until recently; Public-Sector employees did not feel the need to actively save for retirement, as their pension benefits were assured by the Government. However, owing to the growing challenges posed by DB, such as funding uncertainties and the resolution by the advocating the transition from DB to DC pension systems, a significant number of HEI's are now shifting from DB to DC pension schemes (Pay and Pension Committee, 2008).

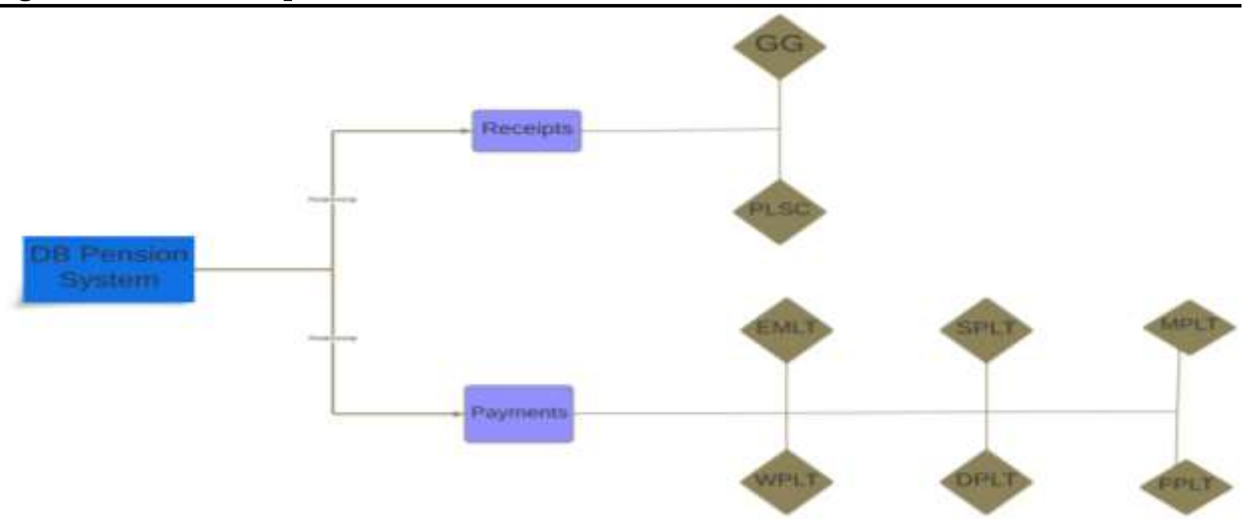
Several factors contribute to the unsustainability of the DB pension system payments 1. Ad-hoc and retrospective increments. 2. Commutation and restoration facilities. 3. Early retirements. 4. Generous survivorship benefits. 5. A high replacement rate. For the initial stage these themes are considered for payment side reforms (Rehman A, 2021).

A study conducted to understand the preferences of faculty members regarding pension options, specifically whether they preferred 1) staying with the DB - Pension System, 2) switching to the DC – Pension System, or 3) Opting for a Hybrid Pension System.

The findings indicated that the DB – Pension system is not in a position to run more, a study shows the faculty members preferred DB pension system (Wahab et al., 2020) as compare to other pension systems. One hand HEIs are struggling to sustain this system, while on the other hand, employees are reluctant to switch to an alternative pension system. The choices of employees vary for different categories of people (Alserda, 2017). Here need is to alter the current pension system by altering the benefits with the help of employees rather to take any decision in isloation.

It is imperative to evaluate and overhaul the current DB – pension system to ensure its sustainability for both HEI's and employees. Various countries have explored different approaches; including shifting employees to alternative pension schemes or introducing methods like sharing PLSC. In some instances, the retirement age for pensioners has been increased. In the context of Pakistan, this research paper revisits the current DB pension Receipts. The ideas and thoughts of actual working team members have never been gathered to address the issues. After an extensive literature review, several themes related to DB pension receipts have emerged, subsequently interview sessions with core team members conducted, aiming to delve deeper and incorporate additional insights will serve to validate and reinforce the conclusions drawn. The incorporation of diverse data sources will contribute to the overall robustness of the results, enhancing their credibility and dependability, as recommended by (Dey, 2003). This process contributed to the development of the pre-empirical framework. The themes drove from literature align with relevant field in figure 3.

Figure 3: The Pre-empirical Framework



Research Methodology

To comprehend employees' retirement payments, we employed a multiple-case strategy as suggested by (Yin, 2003). The data was gathered from key team members within HEIs. The study design comprises two essential components: a pre-empirical and a post-empirical coded framework. The framework can be developed through either an 'inductive' (bottom-up approach), where themes are extracted from interviews, or a 'deductive' (top-down approach), where a pre-empirical framework is applied based on previous literature or theory (Braun & Clarke, 2006). According to (Fornero, 2013) , an effective pension reform should prioritize the diversification of financial risks. Additionally, the reform should aim to augment overall savings within the economy while simultaneously enhancing benefits for individuals reaching retirement age.

In our methodology, the pre-empirical framework was initially developed from existing literature, aligning with (Yin, 2003) recommendation to avoid entering the field with an empty mind for guiding data collection. Open-ended and broad-natured interview questions were formulated based on themes identified from the literature.

A total of 19 in-depth interviews were conducted using the snowball technique from the Board of Governors - BOG Members of the HEC, Directors of Finances in HEIs, Incharge Pension Departments of HEI's, and Auditors from the Accountant General of Pakistan. After an interview session the participants were asked to recommend other relevant members in the field.

The interview session analysed line by line by coding the similar concepts, from those coding the themes were created by aligning the same one. The abbreviations of the themes were generated and themes were aligned with the same category of leading to the construction of a framework for the receipts of the pension system called Thematic Analysis (Miles & Huberman, 1994). In the end post-empirical frameworks have been developed for each category and a comprehensive framework has been developed.

Explanation of Empirical Framework

Explanation of the Pre-Empirical Framework

The DB -Pension System (Receipts)

What are the primary sources of pension receipts for Higher Education Institutions (HEIs) to meet their pension liabilities?

Participants provided various insights on pension receipts and funding sources. One participant noted that a primary source of pension receipts is the PLSC (P3). Different HEIs use distinct formulas for PLSC contributions, with some contributing 33%, others 18%, and a few 30% of basic pay, based on financial needs assessed through Actuarial Analysis (P9). Another participant highlighted that HEIs invest pension funds in endowments with various banks, using the generated profits for pension payments (P1), a theme identified as Profit on Investment of Funds (POIOF). Additionally, pension funds are invested in buildings and other assets, with rental income and returns (RROI) contributing to pension payments (P13). Lastly, Participant No. 13 mentioned that HEIs receive Government Grants (GG) from HEC to support pension payments.

HEI-PLSC: The Higher Education Institution Pension Leave Salary Contribution, the amount is contributed on behalf of current employees. The amount contributed by the HEI towards pension fund is used for payment of current pensioners' payment. This is in continuation to claim of (Arif U, 2010) that the DB – pension system is funded by the payroll taxes.

GG: The one of the major source to meet the pension payments is the Government Grant, the HEI receives grant from HEC on regular basis, the grant is allocated for payment of pensionary liabilities after getting approval from the Finance & Planning Committee, the Syndicate & the Senate.

PRIF Profit Received on Investment of Funds: The HEI receives funds from any source prepare endowment and funds are invested with banks and other institutions, the profit receives on such investments is used for payment of pensionary benefits.

RROI Return Received on Investment: The HEI purchases assets on different locations of the city, the assets are further given on rent in local market, the rent / return receives on investment is pooled to pension and payments are made to pensioners.

Explanation of the Post Empirical Framework

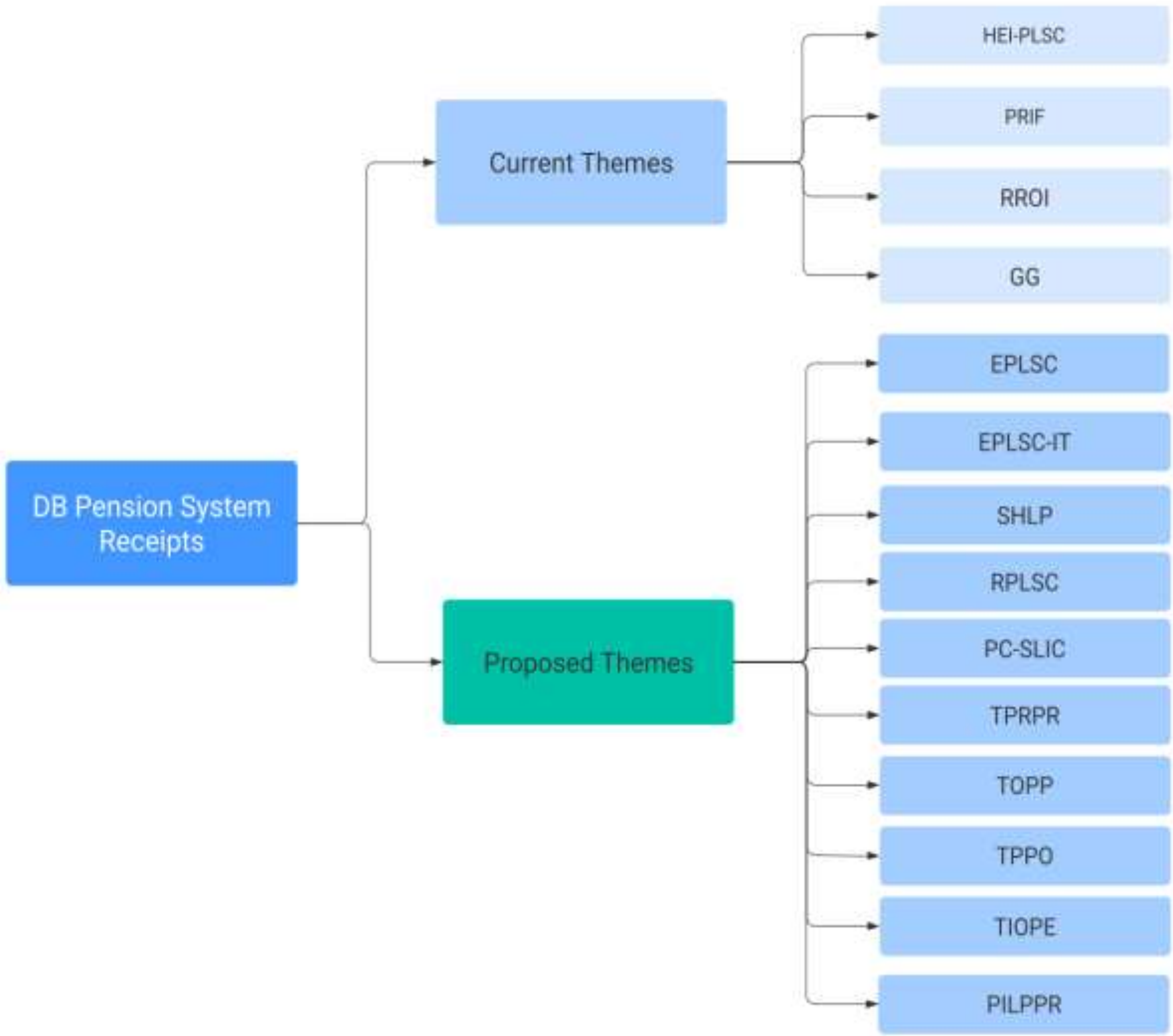
The DB -Pension System (Receipts)

What strategies can be implemented to manage and control pension receipts effectively within Higher Education Institutions (HEIs) for optimal financial stability?

The PLSC contributions made by HEIs vary but do not exceed 30%; however, the study suggests that HEIs must contribute a minimum of 50% to strengthen pension receipts (P15), introducing the concept of Revised Pension Leave Salary Contribution (RPLSC). Additionally, there is a need for employees to contribute to pension leave salary contributions (EPLSC) (P1, P5, P6, P7, P6). Supporting this model and China's pension system, Participant No. 9 proposed that HEIs introduce a PLSC payment model for employees, with a gradually increasing contribution rate, ensuring the employees' share remains lower than that of the institution, termed as Employees Pension Leave Salary Contribution with Increasing Trend (EPLSC-IT). HEIs could also transfer current employees' PLSC contributions to third-party organizations for investment, allowing employees to receive pension benefits upon retirement under the supervision of the Government of Pakistan, similar to the State Life Insurance model, referred to as Third Party Pension Organization (TPPO) (P1). Taxes on pensioners could be implemented, but the collected amount should remain with the concerned HEI to generate an endowment (P3, P5), aligning with China's DB Pension System, known as Taxes on Pension Payments (TOPP). Regarding pension restoration, Participant No. 6 highlighted that retirees receive pension restoration at an age when their responsibilities have diminished, benefiting dependents rather than the pensioner. If this restoration amount were redirected into pension inflows, it would strengthen the system, a concept called Transfer of Pension Restoration to Pension Receipts (TPRPR), aligning with Rehman (2021), who identified pension restoration as a key issue in the sustainability of the DB Pension System. Newly established HEIs, facing low fertility rates, could adopt profit commission-sharing policies from insurance companies, pooling returns from State Life Insurance into pension receipts, a model termed Profit Commission State Life Insurance Corporation (PCSLIC) (P6).

The Finance Minister of Pakistan stated that multiple pensions are not allowed for BPS-17 and above, suggesting a focus on higher-grade employees' pensions. Participant No. 7 noted that HEIs may struggle to enforce this due to weak systems and employees' reluctance to disclose multiple pensions. As an alternative reform, employees receiving two pensions could surrender half of their lowest pension (SHLP) to be pooled into pension receipts. Additionally, universities benefit from industry-linked projects secured by professors, who receive honorariums for their contributions. Participant No. 7 proposed allocating a percentage of such funds toward pension receipts, forming an endowment under the Industry Linkages Projects to Pension Receipts (PILPPR) (P6). Many newly established HEIs refrain from contributing to or maintaining PLSC due to a lack of immediate pension liabilities (P13). However, a general lack of awareness among HEIs has led to irregular investment in PLSC, increasing pension liabilities over time and creating challenges at retirement. To mitigate this, there is a need for the Timely Investment of Pension Endowment (TIOPE).

Figure 4: The above chart shows current & proposed Framework of DB – Pension System – Receipt



The each theme is further explained as follows:

1. *EPLSC - Employees Pension Leave Salary Contribution:* The participant of the point of view that at present employer is contributing towards pension receipts, however there is need that employees must contribute towards pension system. The same concept has already been working in the China quoted by [4].
2. *EPLSC-IT - Employees Pension Leave Salary Contribution Increasing Trend:* The one of participant during the interview session recommended that contribution rate from employees side must be on increasing trend, like for first 5 year this should be 5%, for next 5 years this should be 8% and then on increasing trend.
3. *PILPPR – Percentage from Industry Linkages Program to Pension Receipt:* The faculty members hunt the different from Industry Linkages towards the HEI. The HEI allocates the some percentage and pays monthly Honorarium to run the project. A participant was of the version that from such projects a percentage in shape of amount may be allocated to pension receipts.

4. *RPLSC – Revise Pension Leave Salary Contribution:* Presently the HEI are contributing the PLSC in different percentages 18% to 30%. The participant says the PLSC must be upto 50% of BPS.
5. *SHLP – Surrender Half of Lowest Pension:* The Government of Pakistan has recently given a reform no double pension. He can draw pension of his choice but single one [25]. A participant stated that it would be difficult to control, because employees will not surrender nor show the double pension. Contrary HEI does not have as much capable system to point out employees drawing two of pensions. Here choice be given, if employee wishes to surrender his lowest pension, such half pension be pool to pension receipts and remaining half be paid to employee.
6. PCSLIC – Profit Commission State Life Insurance Corporation: The newly established HEI having no any pension obligation for pension payment. The death rate is also very low. The HEI gets life insurance of their employees from M/S State Life Insurance Corporation- SLIC. The SLIC pay back the amount to HEI after deduction of amount paid for death cases. This practice carried out every three year. Being new HEI the amount the SLIC returns the amount through Profit Commission, this amount needs to pool in pension receipts.
7. *TPRPR – Transfer of Pension Restoration to Pension Receipts:* The Restoration of pension is allowed after retirement / death. The restoration is allowed after certain time period depends on factor applied at the time of death / retirement. This pension be pooled to pension receipt rather paying back to pensioners. This is also in continuation to [15] who quotas that this restoration of PLSC burden on pension payments. By adding this reform this will benefit in double.
8. *TOPP – Taxes on Pension Payments:* The taxes be imposed on pensioners while paying them commutation and monthly pension; like salaried class pay. The taxes collected from pensioners may be retained with HEI create endowment / utilize for payment of pension payments.
9. *TPPO – Third Party Pension Organization:* At present HEI at own deals with payment of pensionary benefit. A participant recommended a separate entity be introduced all HEI's may transfer their current PLSC to such organization, the organization may invest the funds. When the employees of HEI retire from service or expire, they may approach such organization for payment of pensionary benefit.
10. *TIOPE – Timely Investment of Pension Endowment:* Due to a lack of awareness among HEIs it has been observed that the PLSC is not being regularly invested. This situation poses a potential challenge as it increases pension liabilities over time this may lead to complications when employees retire from their jobs.

Conclusion

This paper examines the growing threat that rising pension expenditures pose to the fiscal health and long-term economic stability of Higher Education Institutions (HEIs). Acknowledging the urgency of the issue, the study proposes comprehensive reforms for Defined Benefit (DB) pension receipts, informed by a thorough literature review and insights from open-ended interview sessions. The focus is on enhancing and diversifying pension revenue streams while maintaining financial sustainability within existing constraints. Key reform areas include the prudent utilization and management of pension funds to ensure their long-term availability and the strengthening of the current DB system, rather than its complete overhaul. The goal is to make the existing framework more efficient and resilient, preserving its essential role amid changing economic conditions. The study identifies four existing pension avenues and proposes ten additional reforms to bolster receipt generation. By implementing these strategies, HEIs can address financial vulnerabilities, ensure timely pension disbursements, protect the security of funds and contintey of DB - Pension System. Moreover, the framework developed through interviews will support institutions in operationalizing these reforms, mitigating employee concerns related to delayed pension payments, and ultimately contributing to the overall fiscal health and stability of HEIs.

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