



EXPLORING THE RATIONALE FOR MAINSTREAMING VOCATIONAL EDUCATION FROM MIDDLE CLASS: AN ECONOMIC PERSPECTIVE SUPPORTED BY GLOBAL BEST PRACTICES

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Article DOI: <https://doi.org/10.36713/epra28813>

DOI No: 10.36713/epra28813

ABSTRACT

India is facing disjunction between skill mismatch and labour market requirements. In view of this, National Education Policy 2020 was introduced aligned with need and aspirations of 21st century. This policy restructured the school education by introducing 5+3+3+4 structure. In this structure, exposure of vocational education is started from the primary classes in the form of prevocational capacities. Formally provision of vocational education is introduced from middle class/ class 6, supported by 10 days of bagless periods, internship with local practitioners, and project based vocational skill exposure. This paper attempts to explore the economic rationale for this early mainstreaming of vocational education through cost analysis framework informed by global best practices. This study is qualitative in nature and analysed existing literature, policy documents such as NEP 2020, National Curriculum Framework for School Education (2023), Handbook for Key Functionaries on Vocational Education (NCERT), and reviews of vocational education and training (VET) systems in successful contexts such as Germany, Japan, and Switzerland. This study also presents comparative analysis of global best practice on early exposure of vocational education. Countries are chosen by purposive sampling based on their distinct but successful approaches to early vocational orientation and career education. The findings of this paper suggest that international literature supports NEP's and NCF approach of early exposure, Introduction and integration rather than early specialization. From the economic cost-benefit standpoint, this practice represents a relatively low-cost intervention with high long-term returns. This study highlights the need for India specific longitudinal evidence to assess long term economic returns.

KEYWORDS: Vocational Education, Middle Class, Cost-Benefit Analysis, International VET Model.

INTRODUCTION

India is facing disjunction between skill mismatch and labour market requirements. To aligning this mismatch and fulfilling the needs and aspirations of 21st century, The National Education Policy (NEP) 2020 revised and revamped all the aspects of education. According to the Economic Survey 2024-25 only 8.25% graduates are employed in roles matching to their skills and qualifications, revealing a deep-rooted mismatch between education and labour market needs in India. Earlier education system emphasis academic achievement and developmental aspects only and often failed to ensure job security as well as alignment between educational outcomes and requirements of labour market. This condition leads to long term economic pressure and economic challenges in form of educated unemployment, underutilization of skills, significant skills mismatch and low-income scale for individuals.

To synchronize education outcomes with industry requirements NEP 2020 mainstreamed the vocational education from very early age or middle classes, supported by 10 days of bagless periods, internship with local practitioners and project based vocational skill exposure. From an economic perspective, such an early exposure to vocational education has the potential to enhance productivity, improved employment outcomes, enhance labour market outcomes, and ensure increased returns on public investment in education.

This study explores the economic rationale for mainstreaming vocational education from middle class and reviews international experiences of Germany, Japan and Switzerland. To examine the extent to which global best practices of these countries reinforce the policy intent of NEP 2020.

Vocational Education and Training

Vocational education is defined by UNESCO in 1997 by distinguishing general education and vocational or technical education in international standard classification of education, former one is designed to lead students to a deeper understanding of subjects and later one is designed to lead students to acquire necessary practical skills, know-how and understanding necessary for employment in a particular occupation or trade. Vocational education is primarily practical oriented on the other hand general education is theoretically oriented. Carnegie (2000) defined vocational education and training (VET) as competency-based learning/assessment focus, it emphasises what an individual can do, not just what they know. According to Carnegie, VET is not assesses an individual's performance relative to other in a group rather it concerned with training and assessment of industry standards. Organisation of Economic Co-operation and Development (OCED, n.d.) defines VET as a mix of practical oriented and



employability skills to promote workforce integration and adaptability to change. According to the National Curriculum Framework for School Education (NCF-SC) (National Council of Educational Research and Training [NCERT], 2023) vocational education helps students to become productive participant in the world of work and develop respect for Gandhi's 3H that is head-hands-heart and dignity for labour.

Human Capital Formation and Vocational Education

According to Goode (1959), human capital comprises knowledge, skills, aptitude, attitudes and other traits which contributes to production. Blundell, Dearden, Meghir, and Sianesi (1999) states that early ability (acquired or innate) and skills gained through formal education and training at workplace are two key components of human capital. Schultz (1961) proposed that expenditure on human capital is a form of investment. Expenditure on education, on the job training and healthcare are major components of human capital investment by the individual and government. Backer's (1964) theory of human capital shows that there is a positive relationship between human capital and future earnings. This theory suggests that skills and training enhance productivity of an individual and this will lead to higher chances of getting jobs as well as higher salaries. Vocational education is more specific to enhance such productive skills and provides job centric education and training opportunities. Countries with well-developed vocational education system have strong alignment between education and employment and get benefits of higher returns on their human capital. In this direction, NEP 2020 took remarkable step to break the hard separation of general and vocational education in schools from the very early stages and promoting vocational capacities from early ages.

Skill Mismatch

According to UNESCO, World bank, the International Labour Organization (ILO) (2023) joint study, labour market needs and skills of the people specially in low and middle-income countries are not matching. Indian labour market is also facing the same problem of skill gap, skill mismatch and structural unemployment. *"Educated youth have higher rates of unemployment, reflecting a mismatch with their aspirations and available jobs"* (India Employment Report 2024, p. 6). This report further states that unemployment rate among youths is 18.4 percent who have completed secondary education and it is 29.1 among graduates having higher education degrees. Lower pay, lost productivity, underutilization of human capital, and reduced wellbeing are the potential consequences of this problem. The report on National Skill Gap Study for High Growth Sector (Ministry of Skill Development and Entrepreneurship & National Council of Applied Economic Research, 2025) highlights that outdated education and training system, shortage of qualified trainers, technological advancement and changing industrial needs, weak academia and industry linkages are some reasons of skill mismatch. UNESCO stated that 2 in 3 young adult workers in developing economies hold qualifications that do not match well to their job. By strengthening VET and introducing vocational education in early age can mitigate this problem by fostering career awareness and providing exposure of job relevant competencies. Vocational training for a specific skill can reduce

friction in labour market and improves the chances of getting industry ready labour who can fully utilize the skills and training of an individual at their workplace.

Research Methodology

This study follows an exploratory and comparative research design to analyse NEP 2020, NCF-SC (2023) and reviews global best practices to get insights about economic implications of mainstreaming vocational education in early age. This study is qualitative, descriptive, and analytical in nature relied on secondary data. It interprets and evaluates policy documents such as NEP 2020, NCF-SC 2023, reports published by ministry of education and ministry of skill development and Entrepreneurship, UNESCO, OCED, and other related literature. Data is analysed by conducting thematic analysis, wherein policy documents and literature were coded and recurring themes like human capital formation, skill mismatch, increase in employability skills were interpreted using economic perspective. Comparative analysis between the global best practice in vocational education is done by selecting countries with purposive sampling method.

Recommendation of NEP 2020 on Mainstreaming Vocational Education from Middle Class

Vocational education in India faced structural, social, and economic limitations. Status of vocational education is marginalized and out of mainstream schooling except senior secondary. Despite many structural changes vocational education outcomes failed to address persistent labour market aspirations. NEP 2020 highlights issues concerned with vocational education such as low dignity, marginalized status, low enrolment, low learning outcomes, unfulfilled aspirations, skill mismatch, etc. To address skill shortage, employment issues and marginalized status of vocational education, NEP 2020 introduced decisive policy shift by repositioning vocational education within general school system and introducing vocational education capacities from foundational stage and mainstreaming it from middle school level (Class VI-VIII).

NEP 2020 places vocational education to the core of schooling system rather than a parallel track. Prolonged academic-vocational divide has been addressed by mainstreaming vocational education. This policy recognizes that mainstreaming vocational education is equally important for human capital formation, employability, and economic participation.

This policy emphasises *"Beginning with vocational exposure at early ages in middle and secondary school, quality vocational education will be integrated smoothly into higher education. It will ensure that every child learns at least one vocation and is exposed to several more. This would lead to emphasizing the dignity of labour and importance of various vocations involving /Indian arts and artisanship."* (NEP 2020, p. 44). This statement reflects that NEP does not frame vocational education as early labour market tracking, rather early vocational exposure is intended to:

1. Build foundational skills along with academic learning and
2. It tends to improve career awareness among students and lead to informed educational choices



3. Fill future gap between education-employments skill mismatch

At middle school level, early vocational exposure is taken as exploratory and experiential learning practice, consistent with child development principles.

Recommendations on implementation:

NEP 2020 defined Middle stage of school education as class VI-VIII covering students of age group 11 to 14. This is the age of early puberty.

- **Ten Day Bagless Period:** NEP 2020 recommends practice-based curriculum for middle class. It proposed Ten bagless periods, which provides students an opportunity to intern with local vocational experts by performing various tasks associated with different vocations. Through economic perspective, this effort provides hands-on experience of different vocations at early age. By working in real world work environments students develops understanding of vocational skills necessary for a successful future.
- **Local industry and education alignment:** This policy strongly recommends providing exposure of local vocations such as metal work, carpentry, gardening, pottery making, electric work etc. This deliberate effort exposes students to local labour market by this they value the efforts of craftsman and revive Indian handicraft and promote local industry participation.
- **Online vocational courses:** NEP 2020 states “*Vocational courses through online mode will also be made available.*” (NEP 2020 p. 16). This effort will make vocational exposure scalable and cost effective.
- **Smooth transition to higher vocational education:** NEP 2020 proposed that early exposure of vocational education helps students to understand different vocation, make them choose and pursue further skill-based courses after school.
- **Online course for mentors:** NEP 2020 recommends BIETs and DIETs to prepare short term courses for local mentors responsible for providing local business and arts knowledge to the students. These mentors can anybody like carpenter, potter, electrician, brass worker or any person associated with vocation and willing to demonstrate and provide knowledge of their work. This step provides lifelong learning to the mentors and students with trained teachers.

Overall, by mainstreaming vocational education at middle class NEP 2020 reshaped how children engage with work and skills.

NCF-SC 2023 on Vocational Education for Middle Class

NEP 2020 envisions to transform school education system to attain quality, equity and inclusion. NCF-SC is developed to function as the operational and curricular instrument through which the vision of NEP 2020 can be implemented systematically in the classroom-level practices. To implement the recommendations of NEP 2020, NCF-SC 2023 reformed curriculum through setting learning standards, content, assessment, pedagogy reform across stages. NCF-SC integrated vocational education in school education in planned and age-appropriate manner as recommended by NEP 2020.

NCF-SC highlights that middle classes are transactional stage where students begin to form attitudes towards work and careers. Vocational education intends to develop capacities

sustenance, sensibility towards physical and dignity of labour from early age which formalised in middle age. At middle age vocational education not directly train students for skill but aims to develop fundamental understanding of work. This early exposure helps them to understand how economic activities functions in daily life. Class VI-VIII are exploratory and experiential phase not a training phase. Diverse vocation exposure helps students to understand diversity in local and other vocations before making future choice about their careers and education. Economically, this reduces misallocation of human capital. Holistic exposure suggested by the NEP 2020 increases efficiency in later skill investment and boost alignment among individual abilities and labour market needs. NCF-SC suggests exposure at middle stage leads students to choose specialized vocation at secondary stage. This gradual specialization avoids uninformed decision making for career, also ensures investment in formal vocational training at later stages yields higher returns, as students opted specialized tracks with clear understanding and preparedness.

Middle stage provisions of NCF-SC for vocational education reflects a well-sequenced economic planning. Early exposure to vocations, holistic understanding, hands-on practice, value formation and gradual specialization strengthens human capital formation, improves labour market alignment, and improves productivity and economic potential of India's youth.

Global Evidence on Early Vocational Exposure

Globally, most of the education system does not introduce former motivational training from early ages but instead they rely on vocational orientation, career education, and practical exposure before students make critical decision for their higher education and career. Cross-country comparison provides insights evidence to assess the relevance of early vocational exposure. The objective of this comparison is to examine how different countries implement and conceptualise early exposure of different vocations, skills and capabilities and how this exposure supports smoother transition to vocational education and the entry of labour market.

In this study, India's NEP 2020 idea of early vocational exposure is compared with Germany, Switzerland and Japan. These countries were selected purposely for there well documented and institutional distinctive approach to vocational orientation and career education add at middle school. Germany is recognised for dual vocational education system, Switzerland has most successful vocational education and training system in the world with very low youth unemployment, and Japan is known for its career education and work awareness practice. The form of vocational education is not identical in all these countries rather each represents a different but complementary model through which early exposure to skills and work is utilised to enhance educational transition and labour market integration.

Germany adopts a system in which vocational exposure is associated with highly structured apprenticeship. At lower secondary level career guidance workplace exposure and short-term internships begins where students develop understanding of occupations and work environments.

Switzerland's educational system does not start early vocational training instead they prepare students for systematic



career orientation and vocational preparation at lower secondary level. This strategic step helps students to take informed decision to choose vocational education for their future education voluntarily. The outcome of this approach is seen by high participation and low dropout rates, and efficient investment in skill formation in Switzerland.

Japan run a totally distinct model, for vocational education at early age it provides early career education and

practical learning at lower secondary level. Japan's model shows that early exposure to vocations, skills and career can co-exist with general education. In career education at lower secondary stage (12-15 years) students introduced to structured career education, practical and technical subjects, problem solving skills with the objective to prepare them for work skills for future independence.

Dimension	India	Germany	Switzerland	Japan
Age	11-14	11-15	12-15	12-15
Nature of Vocational Exposure	Vocational orientation, Workplace visits, internship	Career orientation, school internship	Vocational orientation, Workplace visits	Career education, practical subject
Early Specialization	Limited	No	Limited	Limited
Industry Linkage	Strong (Local artisans, businessman, community experts)	Strong (Dual system)	Very Strong (employer-led VET)	Moderate (School based and guidance)
Output	-----	Low youth unemployment, skill matching	Very low youth unemployment	Smooth school-work transition
Curriculum Integration	Strong (NCF-SC)	Moderate	Moderate	Strong
Introduction of Formal Vocational Training	Secondary/Higher Education	After lower secondary (apprenticeships)	Upper secondary	Upper secondary
Equity and Inclusion	Universal Exposure	Depends on tracking decisions	Strong social acceptance of VET	Universal Career Education
Expected outcome	Reduction in misallocation of resources, low retraining cost	Low youth unemployment, high productivity	Efficient skill investment	Smooth transition, low friction

This table represents the comparative analysis of early vocational exposure to learners among India, Germany, Switzerland and Japan. This comparison shows that NEP 2020 and NCF-SC 2023 approach is not an outlier rather it aligns with best practices at global level where early exposure of vocational education is utilized to prepare, orient, and inform learners rather than to train them prematurely for employment. The finding of this comparison indicates that early exposure of vocational skills improves decision-making, reduce skill and employment mismatch, and provide strength to the future vocational training returns.

Cost-Benefit Analysis

From the economic perspective, the specialized vocational training requires extensive training for skill development, resources for workshops and training, specialized institution fee, and employer funded apprenticeships, but early exposure is low-cost intervention initiated in the form of curriculum integration, bagless days activities, short internships, community participation, and utilization of existing expertise. This early exposure reduces future expenditure on remedial skilling and retraining by building early awareness and informed decision-making before entering higher education and labour market.

The cost of this intervention involves curriculum redesign and development, teacher capacity building, and alignment with local artisans, enterprises, and service providers. This cost requires modest public funding which is less than large-scale post school skilling or retraining programmes and infrastructure development cost. Post school skilling requires a lot of resources and a high level of efforts therefore; it is cost ineffective compared to early vocational education exposure input costs.

At the benefit side, evidence from the successfully implemented system shows plausible economic gains for individual and society. At social level, it reduces prevalent educational problems of school engagement and dropouts, it aligns the required industry skills with education system, enhances the employment gaining skills, lowers unemployment. For individuals, it reduces the incidence of poorly matched educational choices and shorten the transition period between school and further education and employment. Hence, these outcomes translate into saving private and public expenditure. Furthermore, by improving alignment between labour market education, early exposure of vocational education improves employability and productivity, thereby increasing the returns to future investments in vocational and higher education.



The international literature and comparative analysis of given countries support the economic logic of early exposure but there is lack of India specific evidence thus, there is a need for longitudinal studies quantifying lifetime earnings or productivity gains from early exposure of vocational education. This lack does not imply weaker policy rationale but suggest the need for systematic evaluation and data collection as implementation progresses.

FINDINGS AND DISCUSSION

The findings of this study suggest that introducing vocational education from the middle class extends skill development and fundamentally linked to strengthening human capital formation and enhancing the efficiency of Indian education system. NEP 2020 and NCF-SE 2023 repositions vocational education as an integral part of mainstream education instead of view it as an alternative stream. This repositioning reflects a transition from a remedial approach to a preventive strategy, where early exposure enables students to develop career awareness, dignity and value for work, and make more informed career choices. From the cost and benefit perspective, the findings suggest that India's model has the potential to generate favourable long term returns with relatively modest initial investment. By reducing educational mismatch, encouraging informed decision-making, strengthening links between school and local economies, and promoting respect for skilled occupations, the NEP's initiative of early exposure of vocational education becomes the high benefit and low-cost intervention. However, the realisation of these benefits depends on effective and sustained implementation and rigorous empirical evaluation over time.

The comparative analysis provides the evidence of convergence between NEP 2020's vocational education vision and global vocational best practices, although the institutional models differs considerably in Japan, India, Switzerland and Germany but a common feature across these countries is that learners are introduced to the work before making significant educational decisions, which helps to improve transition efficiency rather than promoting early specialisation. This analysis reveals early vocational education exposure does not impair academic learning and academic achievement of the learners; instead, it complements and support cognitive development, critical thinking, skill development and practical intelligence. However, implementation of early vocational training and exposure requires investment in curriculum development which has been done by introducing NCF-SE 2023 in India, teacher training, school and community collaboration, and industry alignment with education.

CONCLUSION

The mainstreaming of vocational education from the middle classes represents a significant shift in Indian education system. NEP 2020 and NCF SE 2023 repositions vocational education as a foundational learning experience rather than viewing it as an alternative pathway for the limited group of learners. The comparative analysis presents that experience of Germany, Switzerland, and Japan indicate early exposure and early engagement with the work enables students to make informed educational decisions, facilitates smoother transition to higher education and vocational pathways, and strengthens

education and labour market alignment. This study further demonstrates that vocational exposure from class VI to VIII is economically relevant because it encourages early awareness of work, strengthens career exploration, and builds foundational competencies without restricting future academic choices. It is a preventive investment in human capital rather than an instrument for immediate workforce preparation. The outcome of early vocation exposure may contribute to improved workforce readiness, enhanced productivity, develop dignity for local vocations, and more efficient utilization of educational resource. Overall, NEP 2020 and NCF SE 2023 provides a foundation for integrating skills with schooling, and the success of this depend on how efficiently policy intent is translated into meaningful classroom and community-based experiential learning experiences.

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