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Introducing New Books

Reimagining Mothercraft in Colonial India
Saurav Kumar Rai

Introducing New Book

Reimagining Mothercraft in Colonial India

Ranjana Saha, *Modern Maternities: Medical Advice about Breastfeeding in Colonial Calcutta*, Routledge, London and New York, 2024, xvi + 274 pages, Rs. 1295/-

Saurav Kumar Rai

Motherhood in Indian society occupies a deeply respected and emotionally powerful place. It is often viewed not only as a biological role but also as a moral, cultural, and spiritual ideal. Across centuries, Indian literature, religion, folklore, cinema, and social traditions have celebrated the trope of motherhood in myriad ways. An integral aspect of motherhood is the nurturing role embodied through breastfeeding. So powerful is the image of the breastfeeding mother that Indian literary and cultural traditions celebrate not only the biological mother but also the 'wet mother' or 'wet nurse', who breastfeeds and raises another's child with maternal affection and devotion. Colonial India not only witnessed the continued importance accorded to the mother's breastfeeding role, but also saw its intersection with emerging notions of 'global domesticity' and related developments such as the professionalisation of midwifery and childbirth practices. The present book by Ranjana Saha is a novel attempt, first of its own kind, to trace medical advice about breastfeeding in colonial Calcutta and related discourse.

The colonial medical manuals and discourse around breastmilk, as delineated by Saha, never saw it merely as an essential food for the newborn, rather it was deemed as bearer of racialised, gendered, classed and caste-ridden biocultural qualities. Similarly, deriving from Foucauldian framework, Saha views breastfeeding as a biocultural experience that deserves the attention of social scientists (p.3). It is noticeable that the colonial state posed itself as the liberator of India's 'suffering daughters'. In this regard, the high maternal and infant mortality of India became a handy pre-text of the 'civilising mission' in the second half of the nineteenth century. Following this, traditional untrained *dais* (midwives) and 'ignorant' mothers were held particularly responsible for the high infant mortality rates of India. 'Scientific' breastfeeding which puts a lot of emphasis on timely feeding of the infant was introduced by the colonial medical manuals of the time to restrict high infant mortality rates, mainly from diarrhoeal deaths. This, according to Saha, was instrumental in introducing modern clock-based workforce discipline in the inner spaces of the homes as well (p.4). Naturally, there was a nationalist opposition of such colonial invasion of inner spaces. Consequently, a lot of medical manuals appeared during the same period carrying nationalist consciousness often deriving sanctity from 'indigenous' medical notions as contained in Ayurveda and Unani. In short, in the late nineteenth and early twentieth century, argues Saha, medicalised motherhood as 'mothercraft' emerged as a corollary of contestation between imperial, colonial and nationalist ideals and pursuits, aspects of which have been dealt in separate chapters of the present volume.

The whole book is divided into five chapters along with an 'Introduction' and 'Conclusion'. Chapter 1 looks at the colonial anxieties related to wet nursing in India. Colonial medical manuals often problematised tropics as having adverse impact on lactating capacity of the English women, thereby making use of bottled milk or wet nurses mandatory for the English household. Race, class and gender figured prominently, argues Saha, in colonial assumptions about the nursing of European infants in the 'tropics' (p. 29). While biological superiority of 'whiteness' in mothering was emphasised in these manuals, danger arising from native nurses were also discussed. In fact, extensive guidelines as well as detailed medical checklist were delineated in these manuals regarding how to choose an 'ideal' native wet mother for a European infant (p.37). It led to

'scientific' scrutiny and commodification of the wet nurse's milk premised upon preserving the health and vigour of the 'white' 'imperial race' in the tropics. Such was the colonial apprehension regarding native wet nurses that, by the early twentieth century in colonial India, the increasing availability and popularity of commercially manufactured infant foods led medical practitioners and popular childcare manuals to occasionally discourage European memsahibs from employing native wet nurses. The ensuing debate between artificial infant foods versus wet nursing has been comprehensively examined by Saha in the concluding section of this chapter (pp. 40-54).

Chapter 2 is particularly focussed on the practice of *dai* or midwifery so far as their role in childbirth was concerned. Incidentally, both the colonial as well as 'indigenous' medical practitioners promoted 'clean' and 'scientific' midwifery and voiced the urgent need to either replace or medically train the 'ignorant' and 'dirty' *dais* (p.69). It is noticeable that by the late nineteenth century traditional midwives were demonised and held responsible as 'purveyors of death' for the high infant mortality rate of India. Consequently, the colonial government pushed for the professionalisation of *dais* and their training in western methods of child birth. Here it is interesting to note that although it was the colonial government which initiated the process of demonisation of the *dais* and their subsequent replacement by professional midwives trained in western methods, the Indian upper caste/middle class reformist elites provided the catalytic force to this entire project. One can find a middle class/upper caste urge to get rid of 'lowly' midwives in the name of their professionalisation. Likewise, the colonial racialized understanding of wet nursing was subsequently reconfigured into a casteist framework within upper caste/middle-class social and cultural imaginaries. In doing so, Saha transcends the conventional historiographical framework of 'colonial difference' by revealing how colonial authorities and indigenous elites could, at times, converge in their attitudes and practices towards the oppression of socially marginalized groups.

Chapter 3 delineates the intrusion of modern western medical sensibilities so far as breastfeeding and mothering is concerned into Indian household. In doing so it looks as the process of pathologisation and medicalisation of 'Indian mothers' in colonial Bengal. Chapter 4 situates the question of infant breastfeeding within the broader context of contemporary debates on the female and maternal body, sexuality, conjugality, and infant mortality. These discussions unfolded against the backdrop of major social and political controversies surrounding the Age of Consent Act, 1891, the Child Marriage Restraint Act, 1929, and the publication of *Mother India* by Katherine Mayo in 1927.

Lastly, Chapter 5 focuses on an in-depth study of the Health and Child Welfare Exhibition held in colonial Calcutta in 1920. Aimed at educating mothers to look properly after their children hoping to reduce illness and mortality, these series of exhibitions were launched by the vicereines of India motivated by the transnational exhibitory baby health week propaganda initiative. Focussing on select lectures about 'clean' midwifery and 'scientific' motherhood delivered at Calcutta Exhibition by famous Bengali medical practitioners and other prominent professionals, Saha shows that how these lectures primarily focused on the making of an 'ideal' Indian nursing mother or *bhadramhaila* mother, who was traditional yet modern both at the same time. These *bhadramahila* mothers, argues Saha, were burdened with rejuvenating community and national health and vigour (p. 189).

Overall, the present book is a compelling and meticulously researched study that examines motherhood and child rearing as sites where gendered expectations, social norms, political discourses and familial and community-oriented responsibilities intersect. This book will be of considerable interest to scholars and readers engaged in gender studies, as well as to those interested in the social history of health and medicine in colonial India.

Burning Inequality, Caste, Cremation Labour, and Occupational Health among the Dom Community of Varanasi

Anuradha Singh,
Rana Abhayendra Singh &
Pratik Gupta

This paper examines the structural relationship between caste, occupation, and health by focusing on the Dom community engaged in cremation labour in Varanasi district, Uttar Pradesh. Although cremation work occupies a central place within Hindu ritual life and religious economy, the Dom community remains socially marginalized and disproportionately exposed to severe occupational health risks. The paper argues that the health vulnerabilities of Dom cremation workers must be understood not as individual misfortune or occupational accident, but as structurally produced outcomes of caste-based labour assignment. By conceptualizing occupational illness as a form of caste violence, the paper highlights how ritual economy, urban governance, and state neglect combine to ignore and therefore simplify physical harm among Dom people and render their suffering socially absent.

Keywords : Occupational health, cremation labour, dom community, musculoskelatal disorder, substance dependence.

In India, occupational health is rarely analyzed through the lens of caste. Public health concerns generally attribute health disparities to poverty, lack of awareness, poor hygiene, or inadequate healthcare infrastructure. While these factors are undeniably relevant, such explanations obscure the deeper structural logic through which caste assigns particular forms of labour to specific social groups, thereby exposing them to systematic and long-term bodily harm. It is true that some discussions are in the academic arena but they are mostly focused on scavenging jobs. Cremation labour often ignored from that site or is generally covered with cultural enthusiasm. However, this labour, performed by the Dom community in Varanasi represents one of the clearest and most enduring examples of how caste, occupation, and health intersect to produce entrenched inequality.

This paper examines the structural relationship between caste, occupation, and health by focusing on the Dom community engaged in cremation labour in Varanasi district, Uttar Pradesh. Although cremation work occupies a central place within Hindu ritual life and religious economy, the Dom community remains socially marginalized and disproportionately exposed to severe occupational health risks. Drawing upon caste theory, occupational health studies, and, political economy, the paper argues that health inequality among Dom cremation workers is not accidental or incidental but somehow structurally produced through caste-based labour regimes that normalize or ignore physical harm. Continuous exposure to fire, smoke, toxic fumes, physical strain, and psychological stress has resulted in chronic respiratory illnesses, dermatological conditions, musculoskeletal disorders, substance dependence, and mental health vulnerabilities. Yet these conditions remain largely unrecognized by the state and public health institutions due to the ritual normalization of death work and the informal, caste-governed nature of cremation labour. Using secondary literature, sociological studies, policy reports, and critical theory, this paper situates occupational illness among the Dom community as a

form of slow and normalized caste violence, revealing how the governance of death in a sacred city relies upon the gradual erosion of marginalized bodies.

Varanasi occupies a unique position in Hindu cosmology as a city of death, salvation, and liberation. Cremation along the banks of the Ganga - especially at Manikarnika and Harishchandra ghats - is believed to ensure *moksha* and freedom from the cycle of rebirth. While upper-caste mourners and priests perform ritualized symbolic acts, the physical and hazardous labour of death - handling corpses, arranging funeral pyres, managing firewood, and sustaining cremation fires - is carried out almost exclusively by the Dom community. Despite their indispensability to the ritual process, Doms remain among the most stigmatized caste groups, facing persistent social exclusion, economic insecurity, and extreme occupational health risks.

This paper argues that the health vulnerabilities of Dom cremation workers must be understood not as individual misfortune or occupational accident, but as structurally produced outcomes of caste-based labour assignment. By conceptualizing occupational illness as a form of caste violence, the paper highlights how ritual economy, urban governance, and state neglect combine to ignore and therefore simplify physical harm among Dom people and render their suffering socially absent.

This study adopts a qualitative, sociological research design to examine the intersection of caste, occupation, and health among the Dom community engaged in cremation labour in Varanasi district, Uttar Pradesh. Given the ritual, experiential, and deeply religious nature of cremation work, a qualitative approach is most appropriate to capture lived experiences, embodied suffering, social exclusion, and everyday negotiations with caste power. Mostly the cremation work done by Doms is highly embedded in Hindu rituals that sway between the line of purity and impurity of human body and soul and only Doms are given the responsibilities to handle this job to maintain the purity of all human being. However they themselves are only due to this job are considered impure. Hence, quantitative methods alone are insufficient to explain how occupational illness is normalized and rendered invisible through ritual ideology and caste hierarchy. Therefore, this research emphasizes interpretive, relational, and critical methods to understand how health inequality is socially produced.The study is grounded in critical caste theory, political economy of labour, and medical sociology, treating occupational health not as an individual biomedical condition but as a structural outcome shaped by caste-based labour regimes. The methodology is designed to foreground marginalized voices while remaining attentive to ethical concerns surrounding research in spaces of death and ritual vulnerability. The research focuses on Varanasi district, with particular attention to cremation sites such as ManikarnikaGhat and HarishchandraGhat, which function as major ritual and economic centres of death in North India. These ghats are not only religious spaces but also informal labour sites governed by hereditary caste norms rather than formal employment regulations. The concentration of cremation labour in these sites makes Varanasi a critical location for examining how caste-based occupation shapes health outcomes over time. The relationship between caste and occupation has been a central concern of Indian social thought. Classical sociological accounts emphasize how the caste system institutionalized a rigid division of labour, in which occupations associated with physical impurity, waste, and death were assigned to particular communities and rendered hereditary (Dumont 1970). This division was not merely economic but deeply moral, sustained through the ideology of purity and pollution. Occupational roles became markers of social worth, with certain forms of labour, especially those involving death, producing permanent stigma for the communities that performed them.

Theoretically, B. R. Ambedkar's critique of caste remains foundational in understanding occupational inequality. Ambedkar (1936) argued that caste is not simply a division of labour but a division of labourers, in which social hierarchy precedes and determines occupational assignment. From this perspective, occupational suffering cannot be separated from caste domination. Later scholars such as Gopal Guru (2009) extended this argument by emphasizing humiliation as a constitutive element of caste experience, wherein bodily labour becomes a site of everyday degradation. These theoretical insights are crucial for understanding cremation labour as a caste-imposed occupation rather than a freely chosen livelihood.

The Dom community has historically been associated with death-related labour across North India, particularly cremation, corpse disposal, and management of funerary spaces. Colonial ethnographers such as Crooke (1896) and Risley (1908) documented the hereditary role of Doms in cremation practices, often portraying them through racialized and essentialist lenses. Such accounts naturalized their association with death, framing cremation labour as a cultural trait rather than a socially enforced condition.More recent anthropological and sociological studies have challenged these representations by situating Dom labour within broader structures of caste power. Jonathan Parry's ethnography Death in Banaras (1994) provides one of the most detailed accounts of cremation practices in Varanasi, highlighting the ritual centrality of Dom workers while also noting their social exclusion. Parry demonstrates how Dom labour is indispensable to the production of ritual purity for upper-caste mourners, yet the workers themselves remain symbolically polluted and socially marginalized.

Subsequent studies have extended this analysis by examining how cremation labour functions as a closed occupational system regulated through caste norms rather than formal labour contracts (Sharma 2024). These works emphasize that the Dom monopoly over cremation grounds is not a source of empowerment but a mechanism of confinement, preventing occupational mobility while legitimizing exploitation under the guise of tradition. The concept of ritual economy has been particularly useful in analyzing death work. Parry (1994) argues that cremation in Varanasi operates within a moral economy where religious necessity masks economic relations. Payments to Dom workers are framed as customary fees or ritual obligations rather than wages, obscuring the labour process and denying workers recognition as skilled or hazardous labourers.

This ritual framing has significant implications for occupational health. Because cremation labour is seen as a religious service rather than work, the physical risks involved are normalized and depoliticized. Scholars such as Dirks (2001) have shown how colonial and postcolonial governance reinforced these distinctions by regulating ritual spaces without addressing labour exploitation. As a result, the suffering of Dom workers becomes an invisible cost of maintaining religious order.

Public health literature in India has increasingly recognized caste as a determinant of health inequality, though often in limited ways. Studies by Qadeer (2011) and Baru et al. (2010) demonstrate that Scheduled Caste communities experience higher morbidity, lower life expectancy, and reduced access to healthcare. However, much of this literature treats caste as a demographic variable rather than a structural mechanism shaping exposure to risk. Critical scholars argue that caste directly organizes bodily vulnerability by assigning hazardous labour to marginalized groups (Gupta 2015). From this perspective, occupational illness among cremation workers is not an outcome of poverty alone but a result of caste-based labour stratification. The absence of protective equipment, health insurance, and legal recognition reflects the social devaluation of Dom bodies.

Occupational health studies in India have largely focused on industrial labour, mining, and construction, with limited attention to informal and caste-based occupations. Scholars such as Ramasubban and Qadeer (1997) note that informal workers remain outside regulatory frameworks, making their injuries and illnesses statistically invisible. Cremation labour exemplifies this invisibility. Despite clear exposure to heat stress, smoke inhalation, toxic fumes, and physical strain, cremation workers are not recognized under hazardous occupation categories. Sharma (2025) documents widespread respiratory illness, skin disorders, musculoskeletal pain, and substance dependence among Dom workers in Varanasi, yet these conditions rarely translate into institutional intervention.

The normalization of pain emerges as a recurring theme in occupational health studies of marginalized workers. Farmer's (2004) concept of structural violence is particularly relevant here, as it highlights how social structures systematically produce bodily harm while rendering it ordinary and acceptable. This stigmatization has direct health consequences. Illness among Dom workers is often interpreted as an extension of their polluted status rather than as evidence of occupational injustice. As a result, both society and the

state remain indifferent to their suffering. Although cremation labour is male-dominated, feminist scholars emphasize the indirect health impacts on women within Dalit households. Rege (2013) and Rao (2020) highlight how women bear the burden of caregiving, economic instability, and social stigma associated with caste-based occupations. Intergenerational transmission of cremation work further entrenches health vulnerability across lifetimes. While existing studies provide valuable insights into caste, ritual, and health, significant gaps remain. There is limited integrated analysis of caste, occupation, and occupational health in the context of cremation labour. Most studies either focus on ritual practices without addressing health or examine health inequality without situating it within caste-based labour regimes. This study seeks to bridge this gap by offering a sociologically grounded analysis of occupational health as caste violence.

The Dom community is classified among the Scheduled Castes and has historically been associated with occupations deemed impure within the Hindu caste order, including cremation, sanitation, disposal of animal carcasses, and informal manual labour (Crooke 1896; Risley 1908). In Varanasi, Doms have exercised hereditary control over cremation grounds for centuries, forming a closed occupational system regulated by caste norms rather than formal labour contracts or market competition. Colonial ethnographic writings frequently portrayed Doms as naturally suited for death-related work, reinforcing occupational determinism and legitimizing caste hierarchy (Dirks 2001). Such representations framed cremation labour as an inherited cultural trait rather than a socially imposed condition, thereby depoliticizing exploitation. Colonial municipal reforms regulated cremation spaces for public health and urban order but did not dismantle caste monopolies. Instead, they institutionalized them by recognizing Doms as hereditary death workers essential to the functioning of the sacred city. In the postcolonial period, constitutional guarantees abolished untouchability and promised equality before law. However, these legal reforms failed to dismantle caste-based occupational segregation in practice. Cremation labour remains largely hereditary, informal, and stigmatized. Even when Dom individuals attempt occupational mobility through education or alternative employment, caste stigma continues to shape social interactions, residential segregation, and access to resources. This persistence reveals that occupation and caste identity remain deeply intertwined.

Cremation labour is inherently hazardous and physically demanding. Workers are exposed daily to extreme heat from open funeral pyres, thick smoke, ash, and toxic fumes generated from burning wood, cloth, plastics, and chemically treated bodies. Prolonged inhalation of smoke and particulate matter significantly increases the risk of respiratory diseases. The handling of partially burnt corpses and bodily fluids exposes workers to infections and dermatological conditions. Moreover, after all these issues they generally receive very less attention from the professionals of health department. Generally their habitat near the ghats of Varanasi is considered an impure and closed area and activities of health activists are very limited there. Then again, cremation labour involves intense physical strain. Workers routinely lift heavy corpses and large quantities of firewood, often without mechanical assistance. Long working hours, irregular schedules, and lack of rest exacerbate musculoskeletal injuries and chronic pain. And as the case of negligence of a proper dress code prevails in all over the country, the absence of protective equipment such as gloves, masks, boots, or heat-resistant clothing, is also common here and further intensifies bodily vulnerability. Despite these risks, cremation labour is not recognized as hazardous work within India's occupational safety frameworks. Because the work is performed in informal, caste-regulated spaces rather than formal industrial settings, it remains excluded from labour protections, insurance schemes, and health surveillance. Injuries and illnesses are normalized as inevitable aspects of work rather than treated as preventable occupational hazards.

Existing studies and our field observations from ghats of Varanasi reveal a disturbing pattern of occupational illness among Dom cremation workers. Chronic respiratory conditions such as asthma, bronchitis, and tuberculosis are widespread, exacerbated by constant exposure to smoke and pollutants. Skin disorders, burns, eye irritation, and vision impairment are common due to prolonged contact with ash, fire, and chemical residues. Musculoskeletal disorders resulting from repetitive lifting and prolonged standing are widespread, often leading to early disability. Alcohol consumption is frequently reported as a coping mechanism used to

endure physical pain, heat exposure, and psychological stress. Substance dependence, in turn, compounds health problems and economic instability. Mental health issues remain largely undocumented but deeply significant. Constant exposure to death, grief, and decaying bodies produces emotional exhaustion, desensitization, anxiety, and depression. Social stigma and humiliation further intensify psychological distress, yet mental health services remain virtually inaccessible to Dom workers.

Cremation labour operates within a ritual economy where religious necessity legitimizes exploitation (Parry 1994). Payments to Dom workers are framed as *dakshina* or customary fees rather than wages, masking labour relations and denying workers the status of skilled or hazardous labourers. This ritual framing transforms occupational risk into religious duty. Upper-caste mourners depend entirely on Dom labour to complete funerary rites, yet this dependence does not translate into dignity or protection for workers. Instead, ritual exchange reinforces hierarchy: the mourner achieves ritual purity and spiritual fulfillment, while the Dom absorbs physical risk and social stigma. The normalization of harm is thus embedded in everyday religious practice.

The ideology of purity and pollution plays a central role in shaping occupational health inequality. Dom bodies are marked as permanently polluted, making their exposure to death, fire, and filth appear natural and inevitable (Ambedkar 1936). Illness and injury are perceived as caste fate rather than social injustice. Unlike industrial workers whose injuries provoke legal or moral concern, Dom workers' suffering is rendered invisible through ritual logic. The body becomes the site where caste hierarchy is repeatedly inscribed, transforming health inequality into a normalized social condition. During crises such as pandemics or mass mortality events, Dom workers become hyper-visible and essential. Yet this visibility does not translate into rights or recognition, revealing how necropolitical governance renders certain bodies expendable. Although cremation grounds are dominated by men, Dom women experience layered health vulnerabilities through poverty, care burdens, and informal labour. Women manage households affected by chronic illness, addiction, and premature disability, while also engaging in poorly paid and stigmatized work. Gender intersects with caste to intensify health inequality and social exclusion (Rege 2013). Urban modernization projects, including electric crematoriums, are often presented as solutions to health hazards and caste stigma. However, these interventions frequently displace Dom workers without rehabilitation or alternative employment. Moreover, caste stigma persists even when traditional cremation labour declines, revealing the limits of technological solutions in addressing structural inequality. Occupational illness among Dom cremation workers can be seen as a form of slow and normalized caste violence. It seems obvious that the health issues are not incidental but structurally produced through ritual ideology, caste hierarchy, and state neglect. Health inequality thus becomes a concrete instance through which caste order is reproduced across generations. The Dom community's occupational health vulnerabilities expose how caste-based labour regimes sacrifice marginalized bodies to sustain ritual, religious, and urban order. Addressing these inequalities requires more than medical intervention; it demands a fundamental challenge to caste logic embedded in labour, religion, and governance.

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Student Financial Aid in Higher Education in India

Karthika Gopal S. &
Sunija Beegum N.

The study examines India's higher education expenditure and student financial aid between 2014-15 and 2023-24,a period marked by a strategic push toward a "Viksit Bharat" by 2047.By employing a descriptive methodology based on secondary data from official Government of India websites and budget documents, the research aims to analyse expenditure trends and evaluate the role of financial aid in promoting educational equity. The findings reveal that while total higher education spending more than doubled in absolute terms from 33.61% to 44.90%, student financial aid witnessed a dramatic decline, falling from 8.55% of the higher education budget in 2015-16 to just 2.49% in 2023-24.The study concludes that India's funding model is shifting toward institutional infrastructure and self-sustaining models, often through mechanisms like HEFA,which may impede the National Education Policy 2020's goal of a 50% Gross Enrollment Ratio by placing an increasing financial burden on economically disadvantaged households.

Keywords: Higher education, higher education expenditure, national education policy, student aid, India.

Introduction

A complex balancing act between rapid development and the stalking of global quality characterises the current time of deep upheaval in India's higher education environment. India's demographic dividend and its enormous youth population represent both a unique chance for economic domination and a formidable challenge for public policy as the most populated country in the world. The sustainability of a system that must support more than 40 million students across more than 50,000 institutions while synchronously raising the standard of infrastructure and research is at the core of this problem. India's higher education spending situation reflects the country's strategic aspirations rather than just being a financial issue. Although the Ministry of Education's allocation in the Union Budget increased significantly in 2025 to almost Rs. 1,28,650 crore,the financial situation for higher education is yet complicated. A continuous disparity is apparent when comparing the National Education Policy (NEP) 2020's aspirational benchmarks,which call for education spending to achieve 6% of GDP with inflation adjustments. India currently spends between 2.7% and 2.9% of GDP on education, which puts it below many of its BRICS counterparts and international rivals.

The sector as a whole has been affected by this financial shortfall. As the state moves towards a "self-sustaining" model, publicly supported institutions,including esteemed organisations like the IITs, NITs, and Central Universities,continue to receive the majority of government support, but they are under growing pressure to find other sources of income. This change has resulted in the "massification" of higher education, where the private sector, which currently makes up the majority of institutions and student enrolments, is driving enrolment growth. However, the exorbitant cost of private school frequently causes high-quality education to become a lap of luxury rather than a right. At this point, student financial aid plays a crucial role.Financial aid is the main means of guaranteeing justice and social mobility in a society characterised by pervasive economic inequality. As noted in contemporary educational policy research (e.g., Karna & Swain, 2022), the

'talent loss' from underprivileged and economically disadvantaged communities poses a catastrophic risk to a nation's long-term development in the absence of robust scholarship programmes and accessible loans.

In India, student financial help has developed from a charitable act to a crucial part of educational policy. To give deserving students from low-income households a safety net, the government has unveiled a number of flagship programmes, including the Central Sector Scheme of Scholarship for College and University Students and the Pradhan Mantri Uchchatar Shiksha Protsahan (PM-USP). Additionally, "credit-linked" help, such as the PM-Vidyalaxmi initiative, which intends to offer collateral-free, interest-subsidised loans to lakhs of students annually, has been given commentary attention in the 2024-25 and 2025-26 budgets. However, bureaucratic obstacles, poor awareness in rural regions, and a growing disparity between the aid given and the real cost of living in urban educational hubs sometimes undermine the efficacy of these initiatives. As educational economists have noted when the 'hidden costs'-hostel fees, books, and digital tools-rise faster than overall inflation, a scholarship that merely covers tuition is rendered sparse and insufficient for true social mobility.

Furthermore, the qualitative change in how money is spent must be taken into consideration in the discourse on expenditure. The emphasis is now more on "expenditure on outcomes" (employability, research output, and innovation) rather than just "expenditure on inputs" (buildings and wages). Attempts to align expenditure with institutional performance and regional equity may be seen in the National Research Foundation (NRF) and the Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA). However, the reliance on student loans has increased due to the increasing expense of technical and professional education, raising concerns about the nation's graduates' long-term debt load. In contrast to many developed nations, the Indian job market is immensely unstable, and the pressure to repay loans frequently causes students to choose high-paying but possibly less personally rewarding business positions over research and social sciences. In conclusion, India's spending on higher education is at a turning point. Even though the government has shown a dedication to raising nominal expenditures and broadening the scope of financial assistance, structural financing shortages continue to be a hindrance to realising the goal of "Viksit Bharat" (Developed India) by 2047. This paper seeks to provide a deep-dive analysis into these financial dynamics and examine the trend in government spending in higher education and the role of student financial aid.

Review of Literature

Zhu, Choi, and Meng (2021) examine how no-loan policies affect economic diversity at public four-year colleges. These policies replace student loans with non-repayable institutional financial aid to enhance access for low-income students. Using a difference-in-differences design and synthetic control methods with Mobility Report Card data, the researchers found that no-loan policies increased enrolment of students from the bottom two family income quintiles at public institutions. However, the increase was minimal for students from the lowest income quintile, notably at prestigious universities. The findings suggest that while no-loan policies enhance affordability, additional interventions are needed to address the dogged underrepresentation of students from the lowest income distribution.

The relationship between government financial aid and student success outcomes at a public university was investigated. Their difference-in-differences analysis reveals that need-based scholarships (NBS) significantly and positively correlate with student success outcomes, while merit-based scholarships (MBS) do not show the identical outcome. The empirical evidence indicates that male students receiving NBS improve their academic performance by approximately 4% in subsequent semesters. Scholarship recipients also demonstrate increased class engagement and reduced financial dependence on parents. The positive effects of NBS extend to retention, skill development, and employment success. The authors recommend that the Pakistani government continue supporting need-based programs like HEC while adopting sustainable financial models similar to the BEEF programme in Baluchistan and the PEEF programme in Punjab (Ahmed Barkat and Ullah, 2022)

Leslie (1984) analyses student funding profiles from 1973-1974 through 1979-1980 using NLS 72 and CIRP data. The research documents a significant decline in student self-support alongside increases in family and scholarship/grant support. The findings reveal that students pay substantially less than the actual attendance expenses reported by institutions. The study highlights both middle-class financial pressures and the critical importance of student aid to private universities during this period.

The complex theoretical and practical challenges of funding higher education in India were addressed in this article. The government traditionally covered approximately 75% of total costs, making higher education predominantly state-funded. However, non-governmental funding sources like fees and voluntary contributions were declining. Given the rapid expansion of higher education demands and the inadequacy of public funds, especially when basic education sectors lack essential resources, various policy alternatives have materialised. While some advocate for "privatisation," Tilak's critical examination suggests that the Indian higher education system is not yet ready for such transformation. The study emphasises exploring alternative approaches, including student fees, student loans, graduate taxes, and measured privatisationefforts (Tilak, 1993).

The evaluation of how financial aid influences prospective students' college enrolment decisions is presented in this article. Traditionally, financial aid served two purposes: rewarding accomplished students or supporting needy ones. With newer policies aimed at increasing college enrolment, Jackson's research concludes that financial aid has limited effectiveness in shaping prospective students' opinions. Moreover, the study reveals a critical inefficiency: students who would have enrolled without aid receive the majority of aid designated to attract new students, suggesting misallocation of resources (Jackson, 1978).

The fundamental question of who should bear the costs of higher education resources through a general equilibrium model of the labour market with three skill levels is analysed here... The model examines how individuals of varying intelligence levels can become high-skilled, medium-skilled, or low-skilled workers. The analysis demonstrates that distinct subsidy rates on training costs for highly skilled individuals maximise welfare for each group within given tax structures. Interestingly, the researcher finds that in various scenarios, groups directly benefiting from training demand lower subsidy rates compared to groups with lower intelligence levels (Johnson, 1984).

Student loan programmes are cost-sharing tools in Ghana's higher education system, despite their controversial nature. The research discusses funding challenges and analyses the Student Loan Trust Fund (SLTF) policy while critiquing the Social Security and National Insurance Trust (SSNIT) Student Loans Scheme. The study critically examines implementation issues and questions the viability of procedures of the new policy framework. Atuahene concludes that an effective student loan program must carefully balance borrower aversion against lender risk, providing practical policy recommendations for improvement (Atuahene, 2008).

Jandhyala B.G. Tilak (2004) analyses the rationale for government subsidies in education amid increasing budgetary constraints that have led many nations to question and reduce public funding for social and economic services. The study examines arguments both supporting and opposing public subsidies, with particular focus on higher education, where conflicts are most pronounced. Using India as a case study, Tilak reviews public expenditure patterns, cost recovery estimates, and subsidy rates. The analysis covers various educational subsidies, including free education, tax exemptions, textbooks, and lunches. Key issues addressed include subsidy amounts, universal versus targeted approaches, and cost recovery techniques. The research demonstrates that compared to other developed and developing nations, India's educational subsidies are neither exceptionally high nor its cost recovery rates particularly low. Additionally, certain specialised education subsidies are shown to be delivered equitably and progressively.

It is revealed from the review of related literature that there is a lack of studies related to current trends in student financial aid in higher education in India. In this context, the present study is relevant.

Objectives and Methods

The present paper attempts to study the status of higher education expenditure and student aid in India.

The data for this study were collected from the available secondary resources. The study uses data from the official website of the Government of India and budget documents. The descriptive method was used for the analysis of the data gathered from the secondary sources.

The Objectives of the study are

- To analyse the trend in expenditure on higher education in India
- To examine the role of student financial aid in expenditure on higher education in India.

Expenditure on Higher Education and the Role of Student Financial Aid

Global tertiary education costs are on the rise, making higher education spending and ensuring the role of student financial aid a crucial topic for policy and economic discourse. The resources available for high-quality instruction, research and infrastructure are determined by higher education spending, which is financed by an intricate combination of public subsidies, private donations and tuitionfees. Student financial aid, which includes grants, scholarships, loans and work study programmes, is an essential tool as the financial burden transfers more and more to people and families in many countries. Its main purpose is to improve equity and access by lowering financial barriers to low-income students. This encourages social mobility and guarantees that institutional investment results in a workforce with the necessary skills to proper economic growth.

Expenditure on Higher Education in India

Government expenditure on higher education in India (both centre and state) has been rising in absolute terms in recent years. Nevertheless, public investment in higher education often remains at approximately 1% of GDP, which is deemed insufficient for national objectives. This expenditure is predominantly allocated via the Ministry of Education and supports essential institutions like IITs, IIMs and central universities. Notwithstanding the increased budget, the allocation continues to fall well short of the 6% of GDP advised for the comprehensive education sector by the National Education Policy (NEP) 2020.

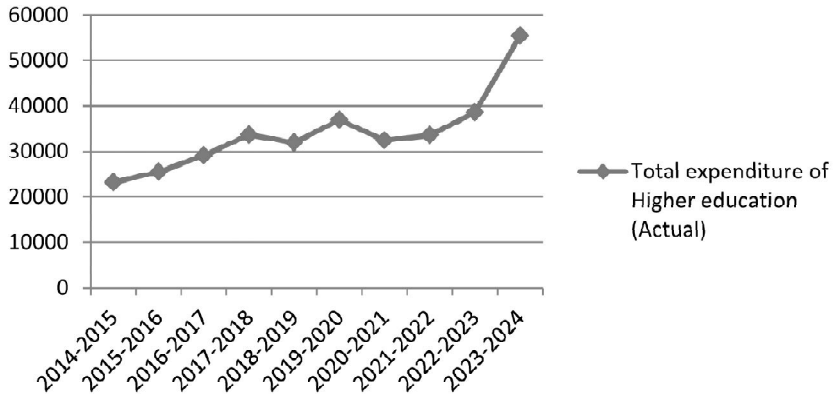
Table 1: Total Expenditure of Higher Education in India (2014-2015 to 2023-2024)

Year	Total expenditure of Higher education (Actual)	Year	Total expenditure of Higher education (Actual)
2014-2015	23152.48	2019-2020	36916.37
2015-2016	25439.24	2020-2021	32377.76
2016-2017	29026.33	2021-2022	33530.91
2017-2018	33614.23	2022-2023	38556.80
2018-2019	31904.27	2023-2024	55392.68

Source : Expenditure budget document of various years : PRS

Table 1 presents the Actual Total Expenditure on Higher Education in India over a period of ten financial years from 2014-2015 to 2023-2024. The data shows a general upward trend in the expenditure on higher education over this decade, indicating an increasing financial commitment to the higher education sector. From 2014-2015 to 2017-2018, there is a consistent and significant annual increase in expenditure, but there is a noticeable decrease in 2018-2019 compared to previous years due to various reasons, like budget realignments or policy changes. After that year, the expenditure showed a strong recovery and jump from the previous year. In 2020-2021, there is a sharp decline in expenditure on higher education is likely attributable to the COVID-19 pandemic, which led to nationwidelockdowns, deferred expenses, reduced infrastructure spending and a shift to online learning models, impact it.In the year 2023-2024, thereis a massive surge in expenditure due to major education policies.

Fig 1 :Total expenditure of Higher education
(Actual in crores)



Source: Expenditure budget document of various years: PRS

The given line graph in Figure 1 shows the total amount spent on higher education (actual in crores) during ten years, from the fiscal years 2014-2015 to 2023-2024. In the early years, the spending generally increased, rising steadily in 2014-2015 before peaking for the first time in 2019-2020. After that, during 2020-2021 and 2021-2022, there was a brief period of stagnation or minor decline in spending, staying slightly above the target. The biggest shift, however, happened in the last two years, when spending increased dramatically. From 2022-2023 to 2023-2024, it was the highest amount ever recorded, indicating a significant recent increase in investment or spending on higher education.

Student Financial Aid in India

In India, scholarships, grants and education loans are the main forms of student financial aid that guarantee access to higher education for all students, regardless of their financial situations. Targeting deserving and economically disadvantaged students, the Indian government sponsors a number of programmes, including the PM-Vidyalaxmi Scheme and the Central Sector Scheme of Scholarships (CSSS).Unlike bank-provided student loans, which have a set payback schedule with interest, scholarships are frequently awarded on the basis of merit or need. Students can apply for various education financing programmes using the portal. In order to advance justice and inclusivity in the nation's educational system, financial aid is essential.

Table 2: Student financial aid in India (2014-2015 to 2023-2024)

Year	Total expenditure of the student's financial aid (Actual) In Crore	Year	Total expenditure of the student's financial aid (Actual) In Crore
2014-2015	1801.00	2019-2020	2069.95
2015-2016	2177.13	2020-2021	1834.17
2016-2017	2090.49	2021-2022	1872.36
2017-2018	2217.64	2022-2023	1602.98
2018-2019	1896.51	2023-2024	1384.00

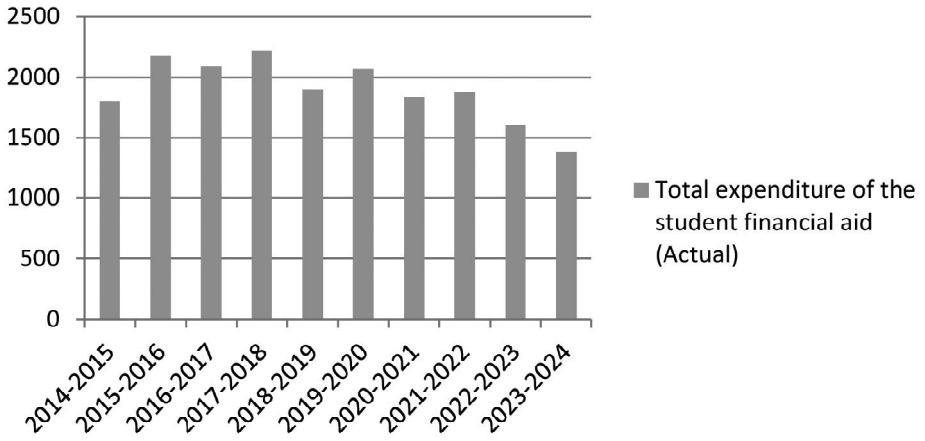
Sources: Expenditure budget document of various years; PRS

Table 2 detailing the Actual Total expenditure on Higher Education from 2014-2015 to 2023-24, reveals a decade of volatile financial commitment to the sector. While the overall trend is upward, year-on-year analysis highlights significant policy shifts and external shocks.

The government intensified the use of HEFA (Higher Education Financing Agency), an extra-budgetary

mechanism that provides loans for infrastructure and research, rather than direct grants. Here, the data show initial growth, a mid-decade structural adjustment, a severe external shock (COVID-19), and a final year of unprecedented financial outlay, signalling a new high investment phase for the country's universities and institutions.

Fig 2 :Total expenditure of the student financial aid (Actual)



Source: Expenditure budget document of various years: PRS

The total annual spending on student financial aid, expressed in crore, from the academic years 2014-2015 through 2023-2024 is shown in the bar graph (Fig. 2). For the first four years, spending was comparatively steady and high, reaching a minor peak of Rs. 2,100 crore in 2017-2018. Following 2019–2020, there was a discernible fall, and the quantity continued to drop each year following that. In 2019-2020 and 2022-2023, spending decreased. The last year displayed, 2023-2024, shows a notable decline, with spending reaching a multi-year low.

Financial Aid's Growing Share: A Percentage of Total Higher Education Spending (2014-2015 to 2023-2024)

The portion of total higher education spending allocated to financial aid has notably increased, reflecting a major shift in how college is financed. This growth is primarily driven by the escalating cost of tuition, which has consistently outpaced family income and inflation. As public funding for institutions has often lagged, colleges spent more on tuition revenue, subsequently dedicating a greater share of that revenue back to students as institutional grants. Consequently, financial aid has become a crucial zone, managing the gap between the high cost of attendance and what students can afford. This trend underscores a system where grants and scholarships are increasingly necessary to maintain access and affordability for students.

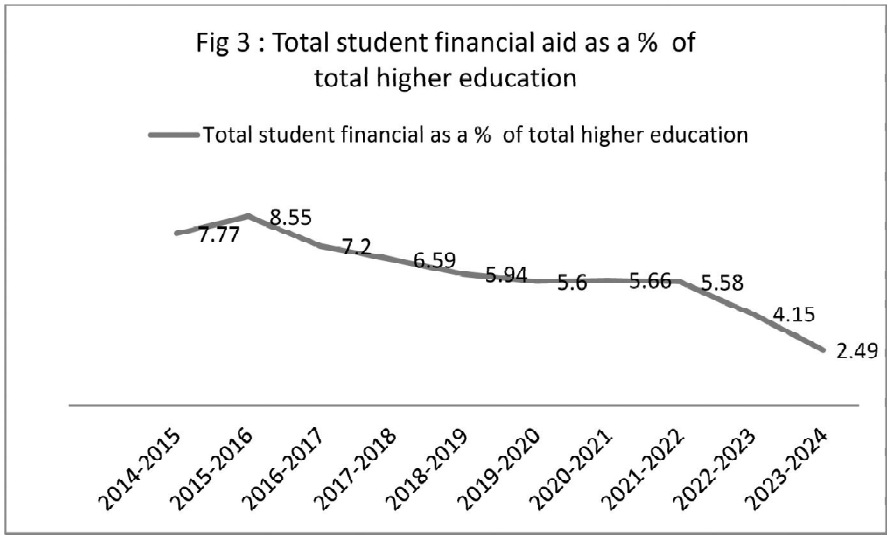
Table 3: Total student financial aid as a % of total higher education

Year	Total expenditure on Higher education (Actual)	Total expenditure of the student's financial aid (Actual)	Total student financial aid as a % of total higher education
2014-2015	23152.48	1801.00	7.77
2015-2016	25439.24	2177.13	8.55
2016-2017	29026.33	2090.49	7.20

2017-2018	33614.23	2217.64	6.59
2018-2019	31904.27	1896.51	5.94
2019-2020	36916.37	2069.95	5.60
2020-2021	32377.76	1834.17	5.66
2021-2022	33530.91	1872.36	5.58
2022-2023	38556.80	1602.98	4.15
2023-2024	55392.68	1384.00	2.49

Sources: Expenditure budget document of various years; PRS

The table 3 illustrates a significant, yet contrasting,trend in higher education expenditure over the decade from 2014-2015 to 2023-2024, While the Total Expenditure on Higher Education has more than doubled and the Total Expenditure on Student Financial Aid has experienced a dramatic decline in its share, falling from a high of 8.55% of the total budget in 2015-2016 to a mere 2.49% by 2023-2024.This indicates a clear shift in spending priorities, where the overall investment in higher education infrastructure and administration is growing substantially, but direct financial support for students is being sharply and consistently reduced in its relative importance, culminating in a near-negligible allocation in the most recent year.



Source: Expenditure budget document of various years: PRS

The trend of total student financial aid as a percentage of overall funding for higher education from the academic years 2014-2015 to 2023-2024 is depicted in this line graph (Fig. 3). Starting at 7.77% and then a small turn up at 8.55% in 2015-2016 and progressively falling to 5.58% by 2022-2023, the percentage generally exhibits a declining tendency during the period. Between 2020-2021 and 2021-2022, there was a slight uptick in this steady fall. Between 2022-2023 and 2023-2024, there was the biggest decline, falling from 5.58% to a low of 2.49%. Overall, the data show that during these nine years, the proportion of higher education funding allotted to student financial aid decreased significantly and more quickly.

Higher Education Share: A Percentage of Total Education Spending (2014-2015 to 2023-2024)

The share of higher education expenditure within the total national education budget is a fundamental metric for assessing a country's investment priorities. Globally, while compulsory primary and secondary education often consumes the largest portion, tertiary education consistently commands a significant, albeit smaller, share. This percentage reflects the higher cost per student at the university level due to specialised faculty, advanced infrastructure, and research activities. In many developed and developing nations, higher

education usually accounts for approximately 25% to 35% of overall education spending. Fluctuations in this share often signal policy shifts, such as increased focus on achieving mass enrolment targets or prioritising foundational schools.

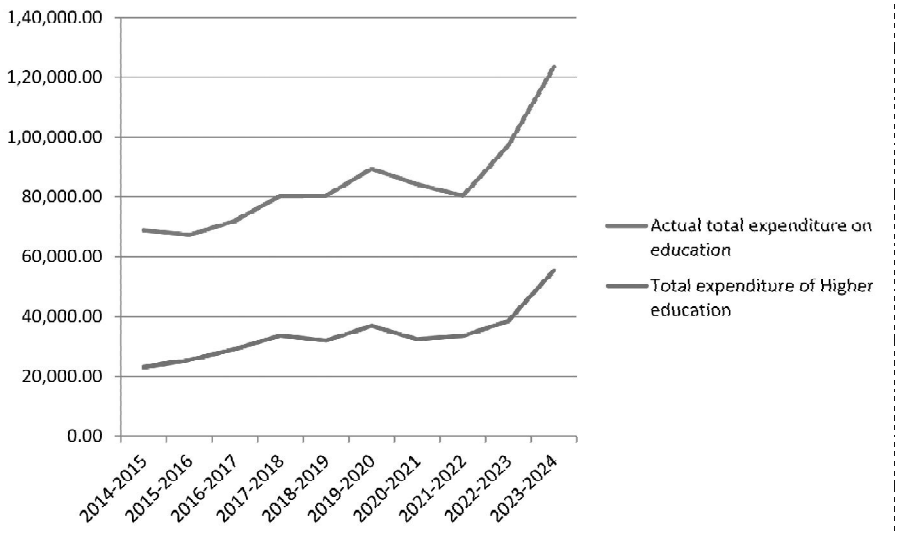
Table 4: Actual total expenditure of higher education as a % of total education

Year	Actual total expenditure on education	Total expenditure on Higher education	Actual total expenditure of higher education as a % of total education
2014-2015	68,874.89	23152.48	33.62%
2015-2016	67,239.15	25439.24	37.83%
2016-2017	72,015.76	29026.33	40.31%
2017-2018	80,214.67	33614.23	41.91%
2018-2019	80,344.84	31904.27	39.71%
2019-2020	89,436.56	36916.37	41.28%
2020-2021	84,219.40	32377.76	38.44%
2021-2022	80,352.42	33530.91	41.73%
2022-2023	97,196.36	38556.8	39.67%
2023-2024	1,23,364.96	55392.68	44.90%

Sources: Expenditure budget document of various years; PRS

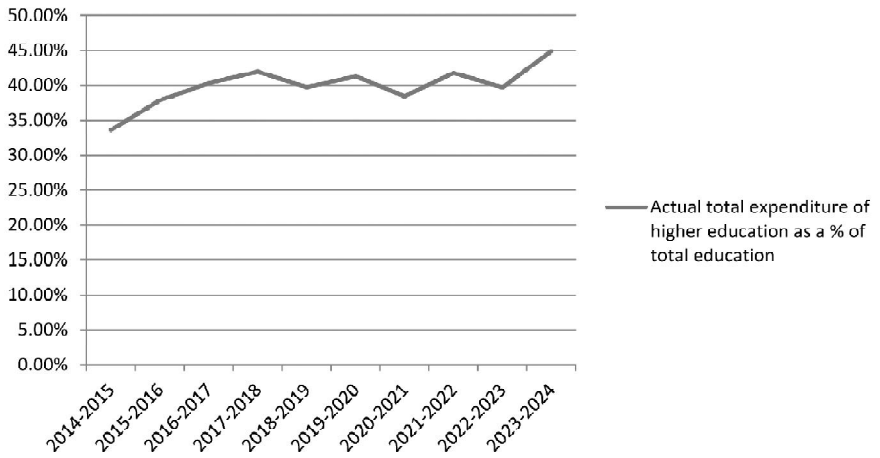
The table (4) points out that a significant and consistent increase in the actual total expenditure on education from 2014-2015 to 2023-2024, reflecting a near-doubling of investment in the sector over the decade. Here, the percentage allocated to higher education also showed a general upward trend, rising from 33.31% at the start to a peak of 44.90% in the final year, despite minor fluctuations such as the dip to 38.44% in 2019-2020. Here, we understand that while the overall commitment to education has grown substantially, there has been a notable and increasing emphasis on funding the higher education segment relative to the total education budget.

Fig 4: Total Expenditure on Education and Expenditure on Higher Education



Source: Expenditure budget document of various years: PRS

Fig 5 : Actual total expenditure of higher education as a % of total education



Source: Expenditure budget document of various years: PRS

The figure illustrates the financial trends in education spending from the 2014-2015 period through 2023-2024, showing a consistent long-term increase in both total education expenditure and the portion allocated to higher education. While the raw spending on higher education grew steadily (Figure 4), it experienced a notable sharp surge in the final year, mirroring a spike in overall education spending. Figure 5 shows that higher education's share of the total budget has not remained stagnant; it grew from approximately 34% to nearly 46% over the decade. This upward trend in the percentage indicates that higher education is becoming an increasingly significant priority within the broader education budget.

Findings

Between 2014-2015 and 2023-2024, the total amount spent on higher education generally increased, more than doubling in absolute terms. From 33.61% in 2014-2015 to a peak of 44.90% in 2023-2024, the percentage of the total education budget allocated to higher education has also significantly increased. This suggests that, in comparison to the overall education budget, subsidising the higher education sector is becoming increasingly prominent. Public funding, private donations, and significant family expenditures are all involved in the complex financing of higher education; private spending (by families) is estimated to be roughly 2.5% of GDP. Strong financial assistance is required to tackle the fairness and affordability concerns because of this reliance on private funding and growing expenses. Scholarships (such as the Central Sector Scheme of Scholarship (CSS) for College and University Students and Post-Matric Programs), interest subsidies (such as the Central Sector Interest Subsidy Scheme-CSISS), and loan guarantees (such as the Credit Guarantee Fund Scheme for Education Loans-CGFSEL) are the main sources of financial aid for students. Most importantly, there has been a sharp decline in the total amount spent on student financial aid relative to the total amount spent on higher education. By 2023-2024, this percentage had dropped from a peak of 8.55% in 2015-2016 to just 2.49%. This steep decline in relative importance points to a clear shift in spending priorities, with direct financial support for students continuously and drastically decreasing while overall expenditure in administration and infrastructure is increasing. This structural change is further demonstrated by the government's increased usage of the Higher Education Financing Agency (HEFA) for infrastructure loans as opposed to direct grants. The effectiveness of current programmes is limited by administrative problems like payment delays, complicated procedures, and a mismatch where the aid value is frequently less than the actual maintenance and living costs, even if financial aid plays a crucial role in guaranteeing access and equity. Additionally, a significant percentage of the target populations are not reached by scholarship programmes, according to multiple studies.

Conclusion

The technique used bears serious dangers to fairness and affordability, notwithstanding India's rising responsibility to higher education, which is demonstrated by the country's nearly two fold increase in total expenditure on higher education over the past ten years and its growing share of the overall education budget. India's National Education Policy (NEP) 2020 aims to increase the Gross Enrolment Ratio (GER) to 50% by 2035 because it believes that higher education is essential for socioeconomic growth and global competitiveness. However, public spending on higher education frequently amounts to only 1% to 1.3% of the GDP, meaning that the fundamental objective of dedicating 6% of the GDP to the education sector is routinely missed. Students from economically disadvantaged families are disproportionately affected by cost-sharing schemes that raise maintenance and tuition costs as a result of this gap. With private education spending estimated at 2.5% of GDP, the result is a substantial and growing burden on households. Financial aid, which includes loans, scholarships, and interest subsidies, is important in this setting to ensure access and equity. Most importantly, the data shows a dramatic and alarming change in funding priorities: direct fiscal support for students is continuously and sharply declining in relative importance, despite the government's overall investment in the higher education sector having risen significantly in absolute terms. From 8.55% in 2015-2016 to just 2.49% in 2023-2024, the total amount spent on student financial aid as a percentage of the overall budget for higher education has drastically decreased. The effectiveness of programmes like CSISS and Post-Matric Scholarships is severely limited by this drastic drop in direct financial support, as well as ongoing operational challenges like insufficient coverage, payment delays, complicated application processes, and a low maintenance allowance that falls short of the true cost of living. Financial barriers continue to jeopardise the national goal of equitable growth and reaching the 50% GER target under the current funding model, which seems to prioritise institutional and infrastructure investment (often through extra-budgetary mechanisms like HEFA) over direct, need-based student support.

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Does the Use of Home Appliances Reduce Women's Double Burden of Work - A Study on Working Women in Malappuram District of Kerala

Lubna A P. &
Ratheesh C.

The study examines whether the usage of labour-saving home appliances in unpaid domestic work reduces the double burden of work facing the working women in the Malappuram district of Kerala. Primary data is used to understand the rural–urban differences in working women's time allocation and the extent of labour-saving technology used in unpaid work. The findings reveal that urban women use labour-saving devices slightly more intensively than rural women, but it does not significantly reduce their time allocation on unpaid domestic and care work. The working women face the problem of maintaining the work-life balance. They compromised the time used for leisure, social time, and personal care to perform both paid and unpaid housework

Keywords: Working women, paid work, unpaid household work, time use, labour-saving devices.

I. Introduction

Globally, the economic lives of women have changed remarkably in the recent decades. The women's work participation has increased, and it has remained more stable than men's (Chaudhary and Verik, 2014). However, in families, the unpaid domestic work and caregiving responsibilities are still considered the primary responsibility of women, and men are considered the main breadwinners of the family. The unequal distribution of unpaid non-market domestic work between men and women is one of the most important causes of gender inequality (Janiso et al., 2023). While the household maintenance and care work are vital in supplying many of the basic needs and conveniences of life, in most of the developing countries, these works are not properly measured and valued. Thus, women's contributions to the well-being of family and social development are invisible in these countries.

In developing countries, the unequal distribution of domestic and care work between men and women creates adverse repercussions on women's time allocation on paid work, personal care, social and cultural activities, and recreational activities. In India, the gender disparity in time use on unpaid domestic work is considerably high. On an average, women spend nearly ten times more time on domestic and care work compared to men, though slight variations in this trend persist across the Indian states, including Kerala (Indian Time Use Survey, 2019). The southern state of Kerala is well-acclaimed for its higher ranks in socio-economic indicators compared to the other Indian states. However, Kerala has continuously failed to integrate the women into the labour force. Thus, the female labour force participation reported in Kerala is lower than the neighbouring States and the national average. One of the main reasons for the lower labour force participation of women reported in Kerala is the low influx of married women into the labour market. Moreover, if the women entered into the labour force, they were obligated to do unpaid domestic and care work along with paid work. Therefore, the working women experience a "double burden of work," and thus they are facing the problem of work-life balance.

In this scenario, adoption of labour-saving technologies in household tasks offers a promising solution to reduce the burden of domestic work of women. The recent advancements in robotics and artificial intelligence

present new opportunities to automate routine domestic tasks and care-related activities (Hertog et al., 2023). However, the impact of automated household appliances on household work and the time use of women in developing countries received little attention; most of the studies focus on the effects of automation on paid work.

II. Literature Review

Over the years, the division of household labour on unpaid work has remained unchanged. Women bear the primary responsibility for routine household maintenance and care work such as cleaning, cooking, and caregiving, and men typically contribute to less frequent or irregular domestic activities (Kan et al., 2011). While traditional patterns of division of labour on unpaid domestic work persist, there is a shift from the traditional trends reported in developed countries like Europe and the United States, where gender convergence emerged in unpaid work and women are spending less time on housework and men are increasing their involvement in unpaid domestic tasks. (Pailhe et al., 2021). The gender gap in doing paid and unpaid work has also narrowed in developed countries. However, even with such changes, women still spend less time on leisure activities. (Sayer, 2005).

In India, women bear a significant share of unpaid domestic and caregiving work that negatively affects their participation in the labour force. Thus, to improve female labour force participation and tackle jobless growth, it is essential to create more non-agricultural job opportunities and promote female education and employment and reduce the gender gap in the division of household labour in unpaid work (Bhuta & Muralidharan, 2020). In India, gender-based time-use patterns on unpaid work are shaped by socio-economic factors such as household size, location, marital status, and educational level, creating a complex landscape of time allocation. (Gupta & Pattanaik, 2023). Reducing the burden of unpaid domestic and caregiving work, regardless of women's education or income levels, could enhance female labour force participation. (Srija & Vijay 2020).

While the southern State of India, Kerala has achieved remarkable ranks in various socioeconomic and demographic indicators, most of which are on par with the developed countries, the State is still experiencing a gender gap in paid and unpaid work, and its intensity is more in the domain of unpaid domestic work. This enduring gender disparity in household responsibilities reflects deep-rooted patriarchal norms that marginalize women's contributions. (Anjana & Prasad, 2022). Addressing this issue is crucial not only to focus on increasing employment opportunities for women but also on improving the quality of those opportunities. Thus, ensuring that women have the time and space for personal well-being and recreation is essential for their socioeconomic empowerment. Therefore, reducing the burden of heavy domestic responsibilities is key to promoting a more balanced lifestyle and improving the overall well-being of women (Fourteenth Five-Year Plan, 2022-2027).

Recent advancements in robotics and artificial intelligence offer exciting possibilities for automating routine domestic tasks that potentially help to reduce the intensity of the burden of house hold chores that rests with women and help to improve their efficiency in doing such tasks. However, the findings of empirical studies are inconclusive about whether the automation of unpaid household tasks reduces the time spent by women in doing such work or not. The findings of some studies show that automation could save significant time in handling unpaid tasks, enabling women to work more outside the home and enjoy greater leisure time. The findings of the study conducted in Japan and the UK indicated that 50-60% of unpaid household tasks performed by women are automatable, potentially saving approximately three hours per day. This could help women to pursue paid employment and provide more opportunities for relaxation and recreation. (Hertog et al., 2023). The study conducted in West Bengal examines the factors underlying the low labour force participation of women. The results show that the availability of labour-saving household appliances, such as washing machines and refrigerators, significantly reduces women's domestic workload. This reduction in domestic responsibilities potentially enables women to participate in paid employment. The use of labour-saving devices in unpaid work not only simplifies household chores but also facilitates the redistribution of

responsibilities of unpaid work within the household, thereby creating opportunities for women to engage in the workforce. (Deshpande, & Kabeer, 2019).

Similarly, as women are paid workers, households use services and appliances to save time on domestic tasks. Higher-income families are also more likely to outsource tasks like using domestic help, dishwashers, and microwaves. These options save time, especially for women, with dishwashers and domestic help being the most effective (Van der Lippe et al., 2004). The future of unpaid domestic work is closely linked to technological advancements in automation, but it is equally influenced by social and cultural factors. The findings of the studies also indicated that while a significant portion of domestic tasks may become automatable in the coming years, societal attitudes, particularly around gender, will play a critical role in determining the pace and extent of this transformation (Lehdonvirta et al., 2023).

However, the findings of some studies point out a diverse view of the automation of unpaid work and women's time allocation on such work. While use of domestic appliances reduces physical effort,they do not significantly decrease the time spent on unpaid household tasks, particularly for women. However, automatic washing machines and dishwashers were found to significantly reduce the time spent on clothes preparation and food preparation (Australian Bureau of Statistics 1998b; Knapková&Považanová, 2021). It indicated that domestic appliances may reduce physical efforts, but they do not necessarily reduce women's time allocation on household chores. This is so because the use of household appliances often leads to higher standards of cleanliness or food preparation, which may offset the time saved. (Bittman et al., 2004). Thus, the findings of the previous studies show that the direction of relationships between automation of unpaid household tasks and women's time use on such work and its intensity in different social classes are inconclusive. In this context the study tries to examine the time-use pattern of working women belonging to the rural and urban areas and how the use of labour-saving technology influences the time-use pattern of working women in Kerala.

III. Data and Methodology

This study is based on primary data collected from the Malappuram district of Kerala. A multi-stage random sampling method was employed to identify both the study area and units of inquiry. In the first stage, the fourteen districts of Kerala were arranged in ascending order based on the number of regularly salaried female workers. In the second stage, five districts with the highest numbers of female regular salaried workers - Kottayam,Pathanamthitta, Malappuram, Ernakulam, and Thrissur -were identified.In the third stage, among these five districts, three districts - Ernakulam, Thrissur, and Malappuram - were selected based on the higher concentration of working women in both rural and urban areas. In the next stage, Malappuram district was randomly chosen for a detailed inquiry. Finally, from Malappuram district, one ward from the Amarambalam village and Nilambur municipality was selected for the detailed inquiry, and107 working women were selected for the detailed inquiry.

A questionnaire and light time-use diary were used to understand the time use pattern of working women on diverse activities on each day. To analyze time-use patterns, the study follows the framework of the Indian Time Use Survey (TUS) 2019, in which individual's time use on various activities in a day is grouped into seven main categories: (a) time spent on employment-related activities, (b) time spent on production of goods for own final use, (c) time spent on unpaid domestic services for household members, (d) time spent on unpaid caregiving services for household members, (e) time spent on self-care and maintenance, (f) time spent on learning, and (g) time spent on socialising and culture (Socializing and communication, community participation and religious practice, and culture, leisure, mass media, and sports practices).

The study focuses only on the time-use pattern of working women in a normal working day, that helps to understand the double burden of work facing working women in their daily life. It also provides insight about the extent to which the time spent by working women on visible as well as invisible work that affects their time allocation on non-work activities such as personal care and various socio-cultural activities. However,

in modern society the invention of various automated household gadgets reduces the time intensity of doing the various time-consuming unpaid household work. To understand the extent of the use of labour-saving technology on various unpaid domestic tasks such as cooking, washing clothes, doing dishes, cleaning, and shopping of working women, a structured scoring method was developed. The household appliances commonly used by the working women in performing unpaid work were identified and assigned a weight on a 5-point automation scale, such as 1-manual, 2-semi-automated (Basic), 3-automated (Advanced), 4-fully automated, and 5-artificial intelligence enhanced, reflecting their level of technological advancement. Then the respondents were asked to indicate their use of each listed appliance with a binary response: 1 = used, 0 = not used.

The Labour-Saving Technology Use Level (LSTUL) in each activity was calculated using the following formula:

Labour Saving Technology Use Level in i^{th}activityLSTULi =

$$\left[\frac{\max(Uij \text{ x } wij)}{wi\ max} \right] \text{ x } 100$$

Where $LSTUL_i$= Labour saving Technology use levelin i^{th} activity, U_{ij} = use status (0 or 1) of appliance j in the i^{th}activity (1 if appliance *j* is used under *i*th activity is used, and 0 otherwise)W_{ij} = weight of activity *iand*appliance*j* (1 to 5) which indicate the technology advancement level of each appliance j for ith Activity, and *Wi*max : Maximum possible weight for activity *i*

Overall Household Technology Use Level (HTUL) =

$$\sum(LSTUL_i \times d_i \times f_i / \sum d_i \times f_i)$$

LSTULi= labour-saving technology use level for ith Activity

d_i = Amount of human labour (hours) for activity i

f_i = Frequency of activity (in a day)

$\sum(d_i \times f_i)$ =Total human labour across all activities, weighted by frequency

The important determinants of overall Household Technology Use Level(HTUL) in unpaid domestic work among working women is estimated by using the following model.

$HTUL = \alpha + \beta 1 Indic_i + \beta 2\ Housc_i + U_i$

$Indic_i$ = Individual characteristics of i^{th} respondent

$Housc_i$ = Household characteristics of i^{th} respondent

U_i = Error term

The individual socio-economic characteristics influence the time allocation of working women on unpaid domestic work. Thus, the study used the individual and household-level variables to understand the socio-economic characteristics of the respondents. The individual characteristics, such as age, education status, and employment status, may significantly influence the use of time-saving gadgets in doing various unpaid work. Similarly, the household-level characteristics, such as household income, area of residence, nature of the family, and family size, may also influence the quantum of unpaid work and the use of labour-saving devices to perform such time-consuming work.

Table1. Descriptive Characteristics of Sample Respondents Source: Primary data

Descriptive characteristics	Category/Range	Percentage
Area of residence	Rural	56.6
	Urban	43.4
Age	22-29 years	20.0
	30-39 years	68.0
	45-47 years	12.0
Educational qualification	Higher secondary	4.0
	Graduate	26.0
	Post-graduate and Professional	68.0
	Others	02.0
Employment status	Education sector	40.0
	Health sector	12.0
	Govt. jobs other than teaching	20.0
	Banking	8.5
	Others	14.0
Household income	Up to 40,000	52
	40,001-100000	35
	Above 100000	13
Nature of family	Nuclear	66.0
	Joint	34.0

The area-wise classification of sample respondents indicates that of the total sample respondents, 56.6 percent are residing in the rural areas and 43.4 percent are residing in the urban areas. The age-wise classification indicates that the majority of the working women belong to the middle-age category (30-44 years). The proportion of younger working women is also relatively higher compared to those belonging to the age category of 45-47 years. Education-wise, the classification of sample respondents indicates that many of the working women are well educated; among them, 26 percent are graduates and 68 percent are postgraduates. The sector-wise employment status indicates that of the total working women, 40 percent are employed in the education sector, 12 per cent are employed in the health sector, 20 percent are employed in non-teaching jobs,8.5 percent are employed in the banking sector, and 14 percent are employed in sectors other than education, health, banking, and non-teaching areas. Classification of sample respondents according to the monthly household income indicates that more than half of the working women (52 percent) reported monthly household income up to Rs. 40,000, with 35 percent belonging to the category of Rs.40,001–Rs.100,000, and 13 percent having monthly household income above Rs.100,000. The nature of the family indicates that nuclear families (66 percent) are relatively more common among the working women compared to extended families (34 percent).

IV. Results and Discussion

Kerala has achieved remarkable progress in gender development indicators, as one of the Indian States reporting the lowest gender gap in socio-development indicators such as education and health status. However,

the gender disparity still prevails in Kerala society in some areas, particularly the labour market outcomes - labour force participation rate, work participation rate, and unemployment and unpaid work. Its prevalence is relatively higher in the domain of unpaid work; in most of the households the unpaid domestic work rests on the shoulders of the women family members. If the women are employed, they need to perform paid and unpaid work. It affects their overall time allocation on various activities; particularly, they are compelled to reduce their time allocation on personal care and leisure that directly affects their personal well-being. Moreover, the availability and use of labour-saving substitutes in doing unpaid work also influence the time allocation decision on personal, discretionary, and social activities. The availability of the technical substitutes of unpaid work varies with the region in which the working women are living and its affordability.

Table 2.Rural-Urban-Wise Difference in Time Use of Working Women

Category	Average Daily Time Spent by Working Women (Rural)	Average Daily Time Spent by Working Women (Urban)	(P-value)
Employment Related Activities	8.13(1.09)	7.47(0.95)	P < .05
Production of Goods for Own Final Use	0.15(0.33)	0.17(0.26)	P > .05
Unpaid Domestic Work	3.76(1.52)	3.31(1.34)	P >.05
Unpaid Care Work	1.17(0.85)	1.39(0.97)	P > .05
Personal Care & Maintenance	8.11(1.10)	8.16(1.18)	P > .05
Learning	0.0515(0.18)	0.14(0.29)	P < .05
Socialising & Culture Activities	2.5982(1.77)	3.36(1.84)	P < .05

Source: Primary data

Figures in parenthesis show the values of standard deviation

Table 2 shows that the women belonging to the rural area spent 8.14 hours in a day on paid work, whereas it was 7.47 hours in a day for the women belonging to the urban areas. It indicates that in both urban and rural areas, on average, 8 hours are spent by the women on work-related activities. A slight difference in time allocation of women on paid work between rural and urban areas exists (23 minutes); it is an outcome of the difference in travel time taken by the women to reach the workplace. Most of the formal employment is situated in and around the urban canters. Thus, the women who live in the rural areas needed to be travel relatively more distance to reach the workplace compared to those who live in the urban areas. The longer commuting time is also added the time burden of working women and decreased their residue time spent on other activities such as personal care and leisure activities, which are closely connected with individual well-being. Regarding the average daily time spent on unpaid domestic and care work in both rural and urban areas, the working women spent more or less the same hours (3.76 hours and 3.32 hours in a day), and the difference between the working women who live in rural and urban was not statistically significant. The finding indicates that despite variation in the use of labour-saving devices and availability of substitutes of unpaid work, lifestyle, and consumption patterns between rural and urban areas, the primary responsibility of household chores bears on the women although they are full-time workers. Similarly, there is no significant difference in average daily time spent by working women in rural and urban areas on unpaid care work. The working women who live in urban areas spent relatively more hours on unpaid care work compared to those who live in rural areas. One of the reasons for this finding is that the respondents who live in nuclear families are relatively more in urban areas compared to rural areas. Moreover, there is no significant difference reported in average daily time spent by the working women on personal care and self-maintenance activities. On an average, all the respondents spent 8 hours for personal care and self-maintenance

activities. However, although a minimum of 8 hours of sleep being required to maintain good physical and mental well-being of an individual, an allocation of an average of 8 hours for all personal care and self-maintenance activities is inadequate to maintain good health. The sleep deficiency experienced by working women indirectly indicated the time poverty experienced by them in the context of the double burden of work.

Although, both in rural and urban areas, working women spend very little time on learning activities, those belonging to the urban areas spend slightly more time of learning compared to their counterparts, and the difference was statistically significant. Moreover, working women's time allocation on social and cultural activities, encompassing socializing, community involvement, religious practices, leisure, mass-media consumption, and sports, shows a clear urban-rural divide. Urban working women spent on an average 3.37 hours in a day on these activities, whereas the working women who live in rural areas allocated on an average of 2.60 hours in a day to such activities, and the difference was statistically significant. It also indirectly indicated that the working women in both rural and urban areas experience time poverty to a certain extent.

IV. I. Rural-Urban Disparity in Use of Labour-Saving Devices on Unpaid Work

In technologically advanced modern society, households use diverse labour-saving equipment to perform different labour-intensive tasks, especially the unpaid household chores. It helps the individuals to reduce the time needed to produce unpaid household goods and services for their own use as well as for the welfare of family members.

Table 3: Rural-Urban Disparity in Overall Technology Use in Unpaid Household Work

Place of Origin of Working Women	Overall Automation Level (Mean)	Std. Deviation	Std. Error Mean	t-value
Rural	46.32	8.71	1.07	-2.241
Urban	50.5	9.8	1.59	(P < .05)

Source: Primary data

A notable finding of the present study(Table 3) is that working women belonging to urban areas use more labour-saving devices in performing diverse unpaid household and care work than the working women who live in rural areas. The urban households reported an average labour-saving technology use level of 50 percent, marginally higher than that reported (40 percent) in rural areas. While this difference may seem marginal, it is statistically significant (-2.24, P < .05). However, irrespective of the place of origin, the use of labour-saving devices does not necessarily help to reduce the time spent by working women on unpaid work. Instead of that, their use in doing unpaid domestic work eases the physical burden or makes tasks more manageable. (Bittman, Rice, & Wajcman, 2004). It reveals that while the use of labour-saving technology in unpaid household tasks could improve the quality of such work, it does not always help the working women to reduce the time spent on unpaid domestic work.

Table 4: Rural-Urban Disparity in Use of Labour-Saving Technology on Different Unpaid Work

Different Unpaid Household Tasks	Extend of labour-saving technology used	
	Rural Mean (%)	Urban Mean (%)
Cooking	58.12 (15.42)	60.63 (13.91)
Doing Dishes	20.88 (7.15)	26.32 (19.14)
Washing	60.29 (22.75)	65.26 (18.27)
Cleaning	41.47 (8.52)	46.32 (17.26)
Shopping	33.06 (13.07)	35.58 (12.82)

Source: Primary data

Figures in parentheses show standard deviation.

Both rural and urban households used different labour-saving household appliances such as washing machines, electric grinders, rice cookers, gas stoves, etc., in performing unpaid household domestic work (Table 4). However, the adoption of advanced technologies used to ease the time-consuming house and kitchen cleaning tasks, like the use of robotic vacuum cleaners or dishwashers, remains strikingly low and reflects how social, cultural, structural,and regional factors affected technology use. The difference is most noticeable in specific tasks - cooking and doing dishes. Both urban and rural households widely use basic tools like washing machines and rice cookers for tasks such as washing clothes and cooking. However, dishwashing and grocery shopping still rely mostly on manual methods.

The main reason for less intensive use of dishwashers and vacuum cleaners in rural areas is that older housing layouts with uneven flooring and compact spaces make the use of these devices impractical. Similarly, dishwashers remain unpopular, particularly in rural Kerala, where traditional cooking practices clash with the design of modern equipment like dishwashers. The traditional cooking practices of Kerala are also not fully suitable to the use of dishwashers. In Kerala, meals are often prepared in *chatti* (clay pots) or aluminum pots, leaving residues like carbon, coconut oil, or curry stains that dishwashers struggle to clean effectively. Even in urban areas, only a small fraction of households uses such gadgets in performing unpaid domestic work, pointing out that the use of most modern gadgets in doing unpaid domestic work is an issue of practicality rather than resistance to innovation.

The analysis indicated that the use of households appliances does not significantly reduce the overall time spent by working women on housework. It may help to lessen the physical effort involved in housework rather than reduce the time devoted to household tasks. The finding of a previous study also supported this argument (Bittman, Rice, & Wajcman, 2004). Thus, the true liberation of women from the domain of the double burden requires redistributing these responsibilities within the household and not just upgrading tools used to do household tasks.

IV. II. Factors that Influence the Automation of Unpaid Household Work of Working Women.

The automation of household work influences the individual and household characteristics of individuals who are doing such tasks within the households. Thus, in the present study, to identify the important factors that influence the automation of household work of working women, a regression model is estimated. The main findings are given in table 5.

Table 5 : Regression Analysis of Socio-Demographic Predictors of Labour-Saving Device Usage of Working Women

Independent Variables	β	t-values	p-value
(Constant)	21.958	3.793	.000 **
Age	0.221 (0.13)	1.596	.114
Number of Children (< 3 years)	7.604 (2.60)	2.827	.006 **
Number of Children (3–5 years)	2.124 (2.19)	0.968	.335
Number of Children (> 18 years)	-4.742 (2.66)	-1.779	.078
Place of Residence (Urban/Rural)	4.503 (1.74)	2.585	.011 *
Income Level	1.671 (2.03)	0.821	.414
Hired Domestic Help	3.587 (2.23)	1.608	.111
Time spent on Paid Work (hrs)	1.008 (0.57)	1.756	.082

Time spent on Elderly Care (hrs)	2.199(1.84)	1.195	.235
Nature of Family	-0.779(1.43)	-0.544	.588
R square	0.291		
Adjusted R square	0.217		
F Value	3.946		

Source: Estimated from primary data

 # Figures in parentheses shows standard error values

**Significant at 5 percent ** Significant at 1 percent*

The linear regression estimation result indicated the model accounted for 29.1% of the variance (R^2 = 0.291), with an adjusted R^2 of 0.217, indicating moderate explanatory power. The overall model was statistically significant ($F(10, 96) = 3.946$, $p < .001$). Among the predictors, the number of children aged below three years influenced the automation of housework of working women (â = 7.604, p = .006), suggesting that mothers of very young children are more likely to adopt labour-saving devices in doing unpaid household work as compared to working women who have children aged 3-5 years and above 18 years old. Place of residence also showed a significant effect on automation of unpaid household work (â = 4.503, p = .011); its usage among working women was higher in urban areas compared to rural areas.

The independent variables, presence of adult children (β = –4.742, p = .078) and time spent on paid work (β = 1.008, p = .082),are influenced by the automation and their use in doing unpaid domestic work of working women. However, the variables of income level, respondent age, type of family, and time spent on elderly and childcare are not significantly influenced the automation of unpaid housework of working women. The non-significant influence of the variables - income and age in the use of labour-saving devices challenges the conventional assumptions related to its use in unpaid work and highlights the complex interplay of cultural, structural, and practical factors in the demand and use of labour-saving devices in unpaid housework. Despite expectations that higher income would facilitate purchase of household appliance purchases, the field experience shows that even lower-income households prioritize the demand of essential devices such as pressure cookers, mixers, air fryers, ovens, and washing machines due to severe time constraints, particularly when care is demanded for young children in the family. This may reflect Kerala's high literacy and credit accessibility, enabling families to acquire appliances through instalment plans or familial support, regardless of immediate income. The main reason the age of the working women is not significantly influencing the use and automation of unpaid housework among working women is that most respondents (68%) fell within the age group of 30–44years; they are technically less familiar with the use of sophisticated household appliances.

V. Conclusion and Policy Implication

The study highlights that while Kerala has achieved remarkable progress on different social-economic and demographic indicators that are comparable with developed countries, the gender disparity still exists in some areas, and its intensity is relatively higher in the domain of unpaid housework. The finding of the study indicates that there exists rural-urban disparity in the time use among working women in the Malappuram district of Kerala. There is little regional disparity among working women in time allocation on unpaid housework; the working women who live in both rural and urban areas shoulder nearly identical burdens of domestic and caregiving work. It highlights that there is little change in the reduction and redistribution of the burden of unpaid work, which rests on the shoulders of women even if they are employed. In this context, the working women face the problem of maintaining the work-life balance. They compromised the time used for leisure, social time, and personal care to perform both paid and unpaid housework. The automation of unpaid housework among working women is significantly influenced by the variables of age of children and place of residence. These results suggested that technological solutions alone cannot address the double burden of work experienced by the working women. True progress in reducing unequal distribution of unpaid work

within the family and skewed to women requires improved rural infrastructure, redistribution of domestic responsibilities, and challenging the cultural norms that continue to define unpaid labour as women's work, regardless of their employment status or geographical location. Thus, promoting appropriate technology, reshaping gender norms, improving infrastructure, and enabling skills training together would help to break the persistence of the double burden resting with the women.

One of the limitations of the present study is that while the model identifies variables that influence the use of labour-saving technology in unpaid housework among the working women in Malappuram district of Kerala, the adjusted R^2 suggests that some omitted variables will influence the automation of housework. Thus, there is scope for future research in this area on the determinants of the use of labour-saving technology in unpaid work by incorporating the variables of psychological, cultural, and market-related determinants, such as attitudes towards labour saving devices, awareness, perceived utility, and local availability in the estimation of the regression model. These unmeasured variables may offer greater insight into the extent of use of labour-saving technologies among the working women.

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Ecotourism, Community and Sustainability : A Case Study of Munro Island

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Munro Island is located in Kollam district of Kerala, where the Kallada River meets the Ashtamudi Lake. It is a place rich in natural beauty, ancient traditions, and tourism. However, recently Munro Island has been facing serious challenges. The land is sinking, saltwater is intruding, fish and birds are disappearing, and farmlands are barely surviving. These changes are significant. This article examines the degradation of nature, the struggles of the local people, and how ecotourism can get out of hand. Mangroves need to be restored. Sand mining needs to be controlled. Water quality must be monitored. Locals must find new and sustainable ways to find a livelihood that can cope with climate challenges. This means that Munro Island needs everyone's support. While supporting each other, the community can preserve the natural beauty and vitality of the island. This message is particularly relevant to Kerala's broader plans to protect the climate, water resources, and local livelihoods, which are consistent with the Sustainable Development Goals.

Keywords : Eco-tourism, environmental conservation, munroe island, sustainability, community resilience.

Introduction

Munro Island is a tourist attraction in Kerala, located in Kollam district at the junction of Ashtamudi Lake and Kallada River. The main attractions are boating and nature of the area which attracts visitors. The island features mangrove forests, backwaters, a traditional coir industry, and cultural heritage. It is known as the sinking island due to ecological problems, and its name comes from Colonel John Munro, a former British Resident of Travancore (Nair, 2018). To fully understand the interaction between humans and nature, it is important to visit this island. It is currently experiencing severe environmental and social issues. The main problems are uncontrolled development, sand mining, and inadequate infrastructure projects. Recurrent flooding, erosion, and saltwater intrusion are also significant concerns (Soman, 2021). This region consists of eight minor islands that form part of the Ashtamudi estuary system (Saranya, 2022).

Background of the Study

The Island of Monro, eight islands that make up an archipelago, is located 25 km south of Kollam city. The economy of the island was based on the old industries of coir manufacturing, paddy and coconut cultivation. The construction of the Thenmala Dam as the Kallada Irrigation Project has, however, transformed the ecological balance of the island. It disrupted the island's ecosystem and led to increased salinity in the water bodies. According to recent developments, some parts of the island have become uninhabitable. Saltwater pollution in freshwater sources and agricultural land is increasing, and unscientific clay and sand mining has worsened soil erosion. Research indicates that many families have migrated, resulting in the loss of cultural and ecological heritage (PTI, 2022).

Objectives of the Study

1. To examine the key environmental challenges on Munroe Island, such as land subsidence, soil erosion, salinity intrusion and flooding.

2. To evaluate anthropogenic disruptions, including sand mining, tourism, and development activities.
3. To explore the socio-economic effects of environmental degradation on local livelihoods and cultural heritage.
4. To assess the effectiveness of current eco-conservation programmes implemented by government and non-governmental agencies.
5. To identify local ecological practices that have contributed to sustainable livelihoods and climate resilience.

Tourism Significance of Munroe Island

Kerala's Munro Island in the district of Kollam is a perfect example of ecotourism that cares for environment conservation, cultural preservation and community inclusion. The backwater region consists of a network of interconnected rivers, offering both leisurely experiences and opportunities for more intense activities, all accessible from any houseboat. It contains eight intertwined islands - patently lush with vegetation, weaving raving waterways; life runs through the strings that cover your eye blinking cyber life, Kerala farming, and civilization (Nair, 2018). The island's economy and society are significantly influenced by tourism. The backwater cruises, narrow canoeing in the canals, walking through mangroves, and bird watching on Munro Island attract tourists from India as well as outside (Kerala Tourism, 2022). The stunning landscape also delivers a rural experience that offers an alternative to mass tourism, highlighting environmental issues. Munro Island is "the ideal example of village tourism," adds the Kerala Tourism Development Corporation. Local families are actively involved in homestay programmes that showcase traditional food and coir making (Kumar & Joseph, 2020).

Cultural immersion is a key part of the island's tourism draw. Events like traditional boat racing, village walks, and local craft exhibitions link visitors to local ways of life and strengthen cultural identity (Soman, 2021). These efforts have not only broadened rural income sources but also revitalized traditional knowledge that focuses on ecological balance and self-sufficiency. The close connection between tourism and conservation highlights Munro Island's potential as a model for sustainable rural tourism. However, the rapid growth of tourism infrastructure creates ecological and social challenges. Problems like waste generation, pressure on groundwater resources, and unregulated construction threaten the island's delicate estuarine ecosystem (Rao & Pillai, 2019). Ongoing issues of land subsidence and saline intrusion, worsened by climate change, mean that tourism development must follow strong sustainability principles (KSSP, 2018; PTI, 2022). Sustainable ecotourism practices that combine environmental management with community resilience can help ensure that Munroe Island remains a lively tourism destination and a model of ecological care. The significance of Munroe Island in tourism lies in its natural beauty and its demonstration of how responsible tourism can coexist with environmental health and social inclusivity. The island illustrates Kerala's evolving ecotourism narrative, where conservation efforts and local livelihoods mutually reinforce one another within a fragile yet enduring ecosystem.

Environmental Challenges

Munro Island is facing severe environmental problems. The island's ecosystems and sustainable livelihoods require significant protection. Living on Munro Island demands proactive measures to safeguard the area. Research shows that environmental issues of the island have been exacerbated by both human activities and climate-related pressures, including sand mining, inadequate waste disposal, and unsustainable tourism practices. Munro Island needs climate-resilient and participatory development, mangrove ecosystem restoration practices, and sustainable livelihoods. The island is experiencing one of the world's most challenging climatic issues. Combined conservation efforts aligned with local development are essential for protecting the environment.

The environmental issues affecting Munro Island are interconnected and require effective policy support.

The island is becoming increasingly vulnerable to climate change, including erratic monsoons and rising sea levels. In addition, unscientific waste management, unsustainable tourism development, and unregulated sand mining are further reducing the resilience of land and water resources. The region's economy is also being disrupted by crises in Munro Island's agriculture. Environmental challenges pose not only physical, socio-economic, and cultural difficulties, but also other significant impacts. This is important to understand the reasons and effects of environmental degradation of the Munro Island to create effective and balanced human-ecological resilience.

1. Land Subsidence and Flooding

Man-made causes of environmental degradation have been a serious problem in the island. The threat of saltwater intrusion, water pollution, and flooding have made the island's environment volatile and jeopardised the wellbeing of its residents. Water quality has become a severe problem, and research reveals that pollution of water sources in the area is at a high level (Kumar & Joseph, 2020). Environmental degradation due to global warming has been severe in the island, as evidenced by land subsidence, flooding, salinity intrusion, and ecological imbalance.

These trends have been worsened by climate change, which causes gradual changes in rainfall patterns in the form of monsoons, rising sea levels, and surge events. A remote sensing project using satellites, implemented by the Kerala State Disaster Management Authority (KSDMA, 2020), indicates that salinity intrusion during floods accelerates the degradation of cement structures and reduces soil fertility. Furthermore, the haphazard construction of buildings, roads, and other structures for tourism, without proper drainage and flood management systems, has reduced the natural capacity of the soil to absorb water (Rao & Pillai, 2019). Mangroves and wetlands, which previously served as green barriers against tidal waves, have mostly disappeared, making the island more vulnerable to further environmental impacts.

Regular flooding disrupts social and economic conditions. Economically, families are forced to rehabilitate permanently to areas they consider safe. This migration compels them to leave their homes and alter their lifestyles. Flooding and unproductive land are not separate problems in Munroe Island, but are linked to the same factors: ecological imbalance, climate stress, and development issues. A solution can be found only through a multi-faceted approach.

2. Salinity intrusion and deterioration of water quality

The Island is gradually being affected by salinity in its rivers and groundwater, which is negatively impacting agriculture, drinking water quality, and the health of plants and animals within the ecosystem (Saranya, 2022). The island's water balance has changed significantly due to a reduction in the salinity of the Kallada River following the construction of the Thenmala Dam (Kerala Sastra Sahitya Parishad, 2018). Salinity intrusion has become one of the most pressing problems facing Munro Island. Consequently, soil salinity has increased, resulting in reduced paddy crop yields, lower coconut production, and a decline in fish farming. The surrounding communities depend heavily on the island for the economic benefits derived from these activities. The depositing of silt and mud has played a critical role in maintaining the balance between freshwater and saltwater. However, the water control measures implemented at the dam have disrupted the natural flushing and renewal processes. Consequently, the dam's water control measures are pushing saltwater further into Ashtamudi Lake (Kumar & Joseph, 2020).

The samples of water which were analysed through hydro-chemical analysis contained high levels of sodiumchloride, and total dissolved solids (TDS), which are higher than the permissible levels of the drinking water. Sewage causes contamination of the river due to presence of coliform bacteria. This puts the health of the inhabitants of grave danger (Hindustan Times, 2017). In addition, saltwater encroachment has negative environmental impacts. Invasive species that live in salt water have replaced native freshwater amphibians and fishes. The destruction of mangrove ecosystems that acted as organic barriers preventing saltwater invasion

and provided a rich reservoir of biodiversity also occurred due to the deterioration of water quality (KSDMA, 2020). These mangroves are essential as their disappearance increases the risk of exposure of the island to erosion and floods.

The impact that tourism has on the environment is enormous although tourism may be a significant contributor to development of a certain region. Although tourism has a positive economic impact locally, there have been un-managed disposal of waste materials as well as the development of homestays and resorts without wastewater treatment plants which have increased the pollution of water. Eutrophication has also taken place in most channels of the lake along with saltwater intrusion as indicated by the occurrence of algal blooms and depletion of dissolved oxygen. (Rao & Pillai, 2019).

Researchers suggest that a series of methods should be used to reduce saltwater intrusion and deterioration of water quality. These involve the installation of underground barriers to check saltwater intrusion, rehabilitation of mangroves as biological buffers as well as the decentralization of wastewater management systems. Community awareness, implementation water conservation and rainwater harvesting and environmental sanitation measures might be of great importance in sustaining the fresh water reserves in the island. Climate change, inadequate watershed management, and anthropogenic actions cause a more severe environmental imbalance. The answer to this problem is to strategize our water resources in a way that it determines the ratio between development and ecological well-being.

3. Environmental degradation and biodiversity loss

Munro Island has experienced a substantial decline in its biodiversity due to the escalating environmental degradation of the area. It has led to disequilibrium in the natural system that was supporting the traditional ways of life and sustainability in the island. The land was once a home to a wide variety of mangroves, aquatic plants, and wildlife, but it is currently experiencing critical habitat losses. The causes of this decline are changes in water flow, rise in salinity, and uncontrolled human activities (Kerala Shasta Sahitya Parishad, 2018).

4. Degradation of mangroves and habitat fragmentation

In the past, mangroves served as an ecological buffer in terms of tide stabilisation, soil stabilisation, and fish and crustacean breeding habitats. Nevertheless, the mangrove coverage on the Munro Island has greatly decreased due to salinization, land subsidence and land reclamation to build tourism infrastructures (Kumar & Joseph, 2020). It has been observed that lots of mangroves have vanished or are highly fragmented making their functions as coastal bio-shields less robust. Destruction of mangroves has interfered with the nesting and feeding habitats of some of the bird species of the region, the egrets, herons and kingfishers (Rao & Pillai, 2019).

5. Decline in aquatic biodiversity

The shift between freshwater and saltwater balance in the aquatic environment has adversely affected biodiversity. The productivity of plankton has reduced due to the reduction in river flow of freshwater, and the food web of fish, crustaceans and mollusks has been damaged. Conservative fish species such as Mistusgulio (long-whiskered catfish) and Atroplussuratensis (pearlspot) have significantly declined in population whilst invasive and salt-tolerant species have been on the rise (Saranya, 2022). Furthermore, fish fatalities have resulted from decreased dissolved oxygen levels caused by sedimentation and eutrophication, which have been made worse by sewage discharge and fertilizer runoff (Hindustan Times, 2017).

Over the past ten years, Munroe Island's bird populations - a crucial sign of the health of the environment - have drastically decreased. The loss of wetlands and mangrove ecosystems is the primary cause of the notable decline in both migratory and resident bird species observed in bird counts from 2010 to 2020 (Kerala State Disaster Management Authority, 2020). The causes of this decline are the loss of nesting habitats, reduction in food supply and overall degradation of the ecological balance at the island.

6. Anthropogenic pressures and unsustainable practices

Homestay and ecotourism have developed in the past few years, and this has led to commercialization of sensitive ecosystems as well as an improvement in the local economy. It is usual to have resorts, fish ponds and artificial backwaters constructed without proper environmental impact assessments. Consequently, natural vegetation has been destroyed and tidal flow has been disturbed. Moreover, improper solid waste and wastewater discharge at these facilities has led to the increase in water pollution that has led to algal proliferation and water toxicity (Rao and Pillai, 2019). Uncontrolled human actions, fragmentation of habitats, and destruction of ecology have created a cycle of biodiversity loss. This endangers the unique ecology of the island, besides jeopardy the sustainability of the tourism industry and the local economies.

Toward Ecological Restoration and Sustainable Management

Mitigating biodiversity loss in Munroe Island requires integrated ecosystem restoration strategies combining scientific, community-based, and policy-level interventions. Priority should be given to mangrove restoration and protection through community participation and eco-restoration schemes, establishment of biodiversity monitoring units to document ecological changes and promote adaptive conservation planning, promotion of sustainable livelihoods such as organic farming, responsible aquaculture, and eco-friendly tourism models aligned with local ecology.

A holistic, ecosystem-based management approach - supported by interdisciplinary research, environmental education, and policy coordination - is essential to halt the ecological decline of Munroe Island. The island's recovery depends on restoring the intricate balance between human development and environmental conservation, a balance that once defined its natural harmony.

Socio-Economic and Public Health Implications

The environmental transformations affecting Munroe Island have had deep socio-economic and public health repercussions, reshaping the livelihood patterns, settlement structures, and health outcomes of the local population. The interlinked crises of land subsidence, salinity intrusion, and ecosystem degradation have undermined traditional occupations, increased disease vulnerability, and generated acute livelihood insecurity for the island's inhabitants (Soman, 2021; Saranya, 2022).

Livelihood Vulnerability and Economic Displacement

Historically, the economy of Munroe Island was sustained by agriculture, coir-making, and inland fishing, activities inherently dependent on stable hydro-ecological conditions. However, recurrent flooding and soil salinization have rendered vast stretches of paddy fields and coconut groves unproductive (Kumar & Joseph, 2020). Fisherfolk have also reported declining catches due to altered aquatic biodiversity and reduced freshwater inflows (Rao & Pillai, 2019). Consequently, many residents have been compelled to seek alternative income sources, including wage labour, tourism employment, and seasonal migration to urban centers such as Kollam and Kochi (KSSP, 2018).

The loss of livelihood diversity has increased economic vulnerability and eroded the community's adaptive capacity to environmental shocks. Women, who play a central role in coir-making and fish processing, have been disproportionately affected by these shifts, facing both income insecurity and increased domestic burdens (Soman, 2021). The decline in agricultural productivity and fishing income has also reduced local food availability, intensifying dependence on market-supplied commodities and increasing household expenditure.

Housing Instability and Infrastructure Challenges

The compounded effects of land subsidence and recurrent inundation have made housing and basic infrastructure precarious. Many dwellings experience chronic waterlogging, leading to deterioration of building materials and unsafe living conditions (KSDMA, 2020). Public institutions such as schools, anganwadis, and health sub-centres are frequently disrupted by flooding, interrupting education and essential services. The

inadequate transportation network - particularly during high tides and monsoon seasons - has further isolated residents from mainland services and employment opportunities.

In the absence of comprehensive rehabilitation or drainage infrastructure, some families have relocated to higher ground within the island or nearby mainland areas, while others remain trapped in substandard housing due to financial constraints (KSSP, 2018).

Public Health Consequences

Environmental stressors have also resulted in significant public health challenges. The combination of salinity intrusion, inadequate sanitation, and stagnant floodwaters has created ideal conditions for waterborne and vector-borne diseases, including diarrheal infections, leptospirosis, and dengue fever (Hindustan Times, 2017). Frequent flooding contaminates drinking water sources - particularly open wells and ponds - with coliform bacteria and chemical pollutants (Saranya, 2022). Field interviews reveal that toilets often overflow during tidal flooding, spreading feces into courtyards and contaminating the area. Residents face an increased risk of stomach illnesses (Soman, 2021). Access to safe drinking water is limited, and hospitals and clinics are either distant or prohibitively expensive. When these factors combine, illness rates rise, particularly among children, the elderly, and pregnant women.

Institutional and Policy Dimensions

Despite the growing crisis, institutional responses remain fragmented. While some relief measures have been initiated through local governance bodies, such as temporary embankments and sanitation drives, these interventions are reactive rather than preventive (KSDMA, 2020). The absence of a long-term climate adaptation and rehabilitation framework has hindered comprehensive planning for housing, livelihood restoration, and healthcare accessibility. There is also a notable gap between scientific research outputs and policy implementation, leading to inadequate monitoring of groundwater salinity, ecosystem loss, and public health outcomes. Collaboration among environmental agencies, health departments, and local self-government institutions remain limited.

Recommendations for Sustainable Livelihood and Health Resilience

The socio-economic and health concerns in Munroe Island require a broad and multifaceted programme involving the restoration of the environment and the human development agenda. Key policy recommendations include :-

i. Enhancing health infrastructure through establishment of mobile healthcare stations particularly during monsoon and flood seasons.

ii. Enhancing water and sanitation, which needs to include rain water harvesting, domestic level purification technology and drainage systems that will sustain climatic problems.

iii. Sustainable tourism that diversifies livelihoods, handicrafts and sustainable aquaculture that is environmentally friendly and suited to the ecosystem of brackish water.

iv. Economic resilience can be developed through the implementation of special social protection of women, fisherfolk and small-scale farmers.

The strategies of relocation of the most vulnerable families will be incorporated in developing a climate adaptation plan under the Kerala State Disaster Management Authority (KSDMA). The concept of environmental literacy and community participation will promote the community participation in conservation, waste management, and early warning systems. These strategies have the ability to make Munroe Island adaptively resilient by linking environmental, health, and economic endeavours transforming it into a vulnerable region to an example of integrated island sustainability.

Policy Recommendations

i. A coordinated system to control the ecosystems needs to be implemented that would ensure that the developmental activities of the tourism are strictly based on the environmental standards and carrying capacities.

ii. Empower local communities through participatory governance, capacity-building programmes to adopt eco-friendly options such as organic farming, mangrove restoration, and sustainable aquaculture.

iii. Develop climate-resilient infrastructure - including elevated housing, improved drainage systems, and early warning mechanisms- to mitigate the impacts of flooding and sea-level rise

iv. Introduce more stringent policies regarding sand mining, garbage and reclamation of land. All tourism and development projects should be subject to periodic environmental audits and impact assessment that is made compulsory.

v. Establish long-term ecological monitoring stations in collaboration with universities and scientific institutions to track land subsidence, water quality, and biodiversity trends, enabling data-driven policy decisions

Conclusion

Munro Island is located in a delicate ecosystem and experiences existential problems- land subsidence, tidal inundation, saltwater intrusion, diminishing biodiversity, and pollution. Any of these predicaments prove to us that in order to achieve the balance of nature which is characteristic of sustainable development we have to go to critical levels. The region's ecosystem is rich in flora and fauna, making it a haven for birdwatchers and nature enthusiasts. It's a popular destination for birdwatching, as several migratory birds visit the area, especially during the winter season. The unique ecosystem in the island demands the joint efforts of the people of the island, environmentalists and policy makers. And in case, sustainable tourism and reforestation would be used to fight the pollution, it would help to restore the health of the Island as well as its economy.

What we require now is a transparent eco-conservation agenda which covers: mangrove restoration, wetland reclamation, sustainable land use, sustainable sand mining to the conservation of island ecology. Being embedded in the community and developing the capacity to determine the community level of governance and respecting traditional ecological knowledge by community in their planning will render conservation less technocratic and more culturally responsive.

In addition, resilient infrastructure, improved waste treatment and climate smart agriculture adaptation should be introduced in order to support livelihoods via climate change adaptation. Cooperation of NGO-s and local self-governments in actual monitoring of ecological changes, implementing awareness programmes and policy interventions are necessary. The environmental crisis in the island is rated to a universal lesson, where the twin variables of human satisfaction and ecological persistence can never be parted. Defending the Munroe Island should not be a matter of local activism but it should be a crusade of conscience that recognises the global commitment of universal harmony between man and nature towards sustainable satisfaction.

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Operational Dynamics of Haritha Karma Sena in Amballur Panchayat, Ernakulam District: Impact and Barriers

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The 2023 Brahmapuram fire exposed structural deficiencies in Kerala's solid waste management system, underscoring the need for decentralised, community-based interventions. Within this context, the Haritha Karma Sena (HKS) functions as a key institutional mechanism supporting local self-government institutions (LSGIs). This study examines the operational dynamics, institutional support and challenges of the HKS unit in Amballurpanchayat, Ernakulam District, recognised as the best-performing unit in the district. Using primary data from all thirty-two HKS members and key informant interviews, the study analyses work practices, socio-economic conditions and occupational risks. Findings highlight the importance of strong panchayat support, public cooperation and systematic operations, while also revealing persistent issues of inadequate income and irregular user fee payments. The study presents Amballur HKS as a replicable model for sustainable waste governance and women's empowerment.

Keywords : Haritha Karma Sena, decentralised waste management, local self-government institutions, women's empowerment, solid waste governance.

The 2023 Brahmapuram fire outbreak in Kochi exposed the persistent inefficiencies of Kerala's waste management system, highlighting systemic flaws rather than an isolated accident. Experts attribute the crisis to inadequate disposal infrastructure, weak regulatory frameworks and low public awareness regarding segregation and recycling (The Print:2023). The high economic and operational cost of mismanagement was evident, with the Corporation of Cochin spending Rs. 1.03 crore on emergency measures to prevent recurrence (Malayala Manorama:2023). Beyond immediate damage, the incident underscored the urgent need for structural reforms, reinforcing the importance of coordinated, community-driven approaches to sustainable solid waste management across the state.

Despite its serious environmental and public health impacts, the Brahmapuram crisis acted as a catalyst for political and administrative intervention, galvanising public attention and stimulating collective discourse on sustainable waste management. More significantly, it prompted decisive governmental action: on 15 March 2023, Chief Minister of Kerala, Pinarayi Vijayan, declared in the State Legislative Assembly the intention to transform the crisis into an opportunity to make Kerala a clean and garbage-free state (The Hindu Business Line: 2023). This policy commitment led to the formulation of a comprehensive seven-point Action Plan, designed to address waste management challenges in a systematic, decentralised and time-bound manner.

The Action Plan adopts a holistic approach to waste management, covering the entire waste lifecycle from generation to disposal. It emphasizes source-level treatment, efficient collection, segregation, storage and transportation, implemented through active engagement of local self-government institutions (LSGIs), communities and Haritha Karma Sena (HKS), alongside Kudumbashree, resident associations, youth clubs and other community-based organisations. The plan mandates establishing Material Collection Facilities (MCFs), streamlining door-to-door collection via HKS deployment, introducing user fees, and allocates Rs. 2,400 crore

to the 'Garbage Free Kerala' initiative, reflecting the government's reinforced commitment to sustainable, institutionalised, and community-driven waste management (Online Manorama:2023).

Kerala, which ranked eighth in population according to the 2011 Census, is projected to undergo rapid urbanisation, with nearly 90 per cent of its population expected to reside in urban areas within the next 10 to 15 years. In this context, inadequate waste management poses serious risks to public health, environmental sustainability and overall quality of life. HKS has been engaged in waste management activities for over four years in selected regions under the supervision of LSGIs. With approximately 30,890 members across the state (The Times of India:2023). HKS has emerged as a key institutional mechanism in Kerala's decentralised waste management framework, warranting closer examination of its role, challenges and future prospects.

HKS plays a critical role in enabling LSGIs to fulfil their statutory responsibility of solid waste management. By managing collection, segregation and preliminary processing at the grassroots level, HKS strengthens both institutional capacity and decentralised governance. Its engagement of women fosters income generation, financial self-reliance and participatory governance, reflecting Gandhian principles of empowerment. Despite extensive research on Kerala's waste management, the operational realities of HKS as a frontline institutional mechanism remain underexplored. This study addresses this gap by examining HKS functioning at the panchayat level to provide insights into decentralised, community-based waste management.

This study investigates the operational dynamics of HKS in Amballur Panchayat, Ernakulam District, evaluating its effectiveness in addressing local waste management challenges and the occupational risks faced by its members. Amballur's HKS unit, recognised by the Government of Kerala as the Best in the district during the 25th anniversary of the Kudumbashree Mission (Malayala Manorama:2023), offers an exemplary case for understanding best practices and the institutional conditions that enable effective grassroots waste management. The study has two primary objectives: to analyse the operational modalities, institutional support and performance outcomes of Amballur HKS for potential replication by other LSGIs, and to examine the socio-economic profile, occupational challenges and risks faced by its members. By integrating insights on both achievements and constraints, the study aims to inform the public, local governments and policymakers and to contribute to the strengthening of Kerala's 'Garbage Free Kerala Campaign'.

Haritha Karma Sena-its Origin and Objectives

Kerala, recognised for its social development, has emerged as a pioneer in solid waste management through decentralised, community-based frameworks emphasising source-level segregation and citizen participation. The Decentralised Solid Waste Management (DSWM) model prioritises composting and processing of biodegradable waste at the point of generation, facilitated by collaboration between LSGIs and community-based organisations such as Kudumbashree and HKS, promoting the seven principles of waste management-refuse, reduce, reuse, repair, repurpose, recycle and recover. HKS, launched in 2017 under the Kudumbashree Mission, serves as a frontline workforce, managing collection, segregation, recycling, and disposal of waste in coordination with LSGIs and the Suchitwa Mission, addressing systemic inefficiencies in grassroots waste governance (Government of Kerala:2017).

HKS members are selected and deployed by LSGIs, typically with two members assigned per ward. Each member is responsible for servicing a minimum of 250 households, primarily focusing on the collection of non-biodegradable waste. Prior to deployment, they undergo a three-day training programme by the Kerala Institute of Local Administration (KILA) under the aegis of the Kudumbashree Mission (Taenaz Shakir, N C Narayanan, René Véron:2020). Operationally, waste is collected door-to-door, first stored in Mini-Material Collection Facilities (Mini-MCFs) at the ward level, then transferred to LSGI-level MCFs for segregation, and finally sent to block-or municipal-level Resource Recovery Facilities (RRFs) for processing such as baling and shredding, converting plastics into recyclable resources for uses including road construction (Local-Self Government Department:2023).

Work calendars issued by LSGIs guide collection schedules across various waste types, including plastics, pharmaceuticals and used footwear, facilitating source segregation and easing operational burden (Ibid). Beyond collection, HKS promotes public awareness on waste minimisation, composting and eco-friendly practices, assisting households with waste estimation, composting devices, organic farming and the rental of environmentally friendly equipment (Government of Kerala:2017). Members generate income through LSGI-set user fees, sale of collected waste to government agencies or authorised private firms, Green Protocol activities at public events and the sale of agricultural inputs like seeds, saplings and organic manure (Ibid). Collectively, HKS functions as a crucial intermediary between decentralised governance institutions and communities, while also fostering women's employment, leadership and empowerment within Kerala's waste management framework.

Haritha Karma Sena of AmballurPanchayat, Ernakulam

This study, as has been stated earlier, examines HKS members in Amballur Grama panchayat of Ernakulam district, which comprises sixteen wards spread over 22.6 sq. km, with a population of 25,628, a density of 1,134 persons per sq. km under Mulanthuruthy Block panchayat (Census:2011).

A. Functioning of the HKS in Amballur Panchayat

The HKS unit of Amballur Grama Panchayat has emerged as a notable model of decentralised waste management in Ernakulam district. Recognised for its exemplary performance, the Government of Kerala awarded Amballur the Best HKS Unit in the district on 8th March 2023 during the 25th anniversary of the Kudumbashree Mission and International Women's Day celebrations, securing first position among 82 panchayats (Malayala Manorama:2023). This recognition underscores the unit's operational efficiency and institutional effectiveness.

Amballur Panchayat comprises 7,381 households and 928 commercial establishments. The HKS unit commenced operations on 2nd October 2018, with each of the sixteen wards assigned two members, forming a workforce of thirty-two. A formal HKS Consortium coordinates activities through an executive committee of fifteen members, including a President, Secretaryand Treasurer. All members underwent structured training on waste management systems by resource persons from KILA and the Kudumbashree Mission prior to assuming responsibilities for the panchayat's waste operations.

Institutional support from the panchayat has been critical to HKS effectiveness. Members are provided with essential safety and operational gears including uniforms, identity cards, gloves, masks, boots, raincoats, sanitisers and hand-held weighing machines. Health insurance coverage, a Grievance Redressal Committee, and periodic review meetings with panchayat officials and ward councilors further ensure occupational safety and accountability. Initial public awareness campaigns, conducted with ward councilors and Kudumbashree workers, sensitised residents to waste management practices, supplemented by regulatory measures, fines and legal action where necessary, eventually fostering broad-based cooperation.

Operationally, HKS members conduct monthly door-to-door collection of non-biodegradable waste from households and commercial establishments, charging Rs 50 and Rs 100 respectively. Waste categories include plastics, medicinal strips, footwear, paper, glass, textiles and electronic waste, as guided by a panchayat-issued work calendar. Collected waste is transported via trolleys to nine Mini-MCFs, with additional facilities planned, and then moved to the Main MCF at Thottara using an electric auto-rickshaw operated by an HKS member. At the MCF, waste is segregated, quantified and recorded before recyclable materials are sent to authorised agencies such as Clean Kerala Company, Eco Green, and North Amps, while non-recyclables are sent to the Block RRF at Arayankaavu. Amballur HKS is also pursuing acquisition and operation of the RRF to enhance institutional autonomy. To date, approximately 82 tonnes of non-biodegradable waste and 16 tonnes of glass have been processed (Interview conducted with the Secretary, Haritha Karma Sena:2023).

Amballur was among the first to implement the Smart Garbage Monitoring System. HKS members

were trained in the *Harithamithram* mobile application developed by Keltron, with QR codes installed across all households and establishments for complete digital enrolment. Financial assistance ranging from Rs. 8,000 to Rs. 10,000 was provided to fifteen members without smartphones to enable digital participation.

User fee collection has shown significant improvement, rising from below Rs. 1 lakh in early 2021 to Rs. 3 lakh by early 2023. Initially, only two wards (5 & 14) achieved full compliance; sustained efforts led to all sixteen wards attaining 100 per cent payment by July 2023, with each member earning an average monthly income of approximately Rs. 10,000.

Beyond collection, the HKS supports source-level waste management through the distribution of compost bins and biogas plants and by providing training for their effective use. To date, 267 household bio-compost bins, 75 household biogas plants and two community biogas plants have been installed, with plans underway to extend compost bin distribution to an additional 1,081 households. Members also supply composting inoculums and offers technical guidance to residents.

HKS activities extend to public events and community initiatives. The unit has implemented the Green Protocol during the *Chandanakudam* Feast at Kanjiramattom for the past two years, assisted election officials at polling booths and participated in state-wide campaigns such as *Valichaeriyal Muktha Keralam* under the State government's *Navakeralam* campaign. Collectively, these efforts highlight the pivotal role of Amballur HKS in strengthening decentralised waste governance while promoting women's employment, leadership and community participation at the grassroots level.

B. Socio-Economic Profile of the HKS members of Amballur Panchayat

Primary data is collected using a personally administered questionnaire served to all the 32 HKS members of the panchayat and also using a structured interview schedule served to the Secretary of the HKS Consortium of the panchayat. The socio-economic conditions of all the HKS members are collected and are presented in this section.



The age composition data analysis of HKS members of Amballur panchayat is shown in Fig 1. This is considered important inorder to understand which age category of members are more in HKS. Most members fall within the 51-60 age group (59.38%), followed by 41-50 years (31.25%). Smaller proportions belong to 31-40 years (6.25%) and 61 years and above (3.13%), with no representation from the 20-30 age group.

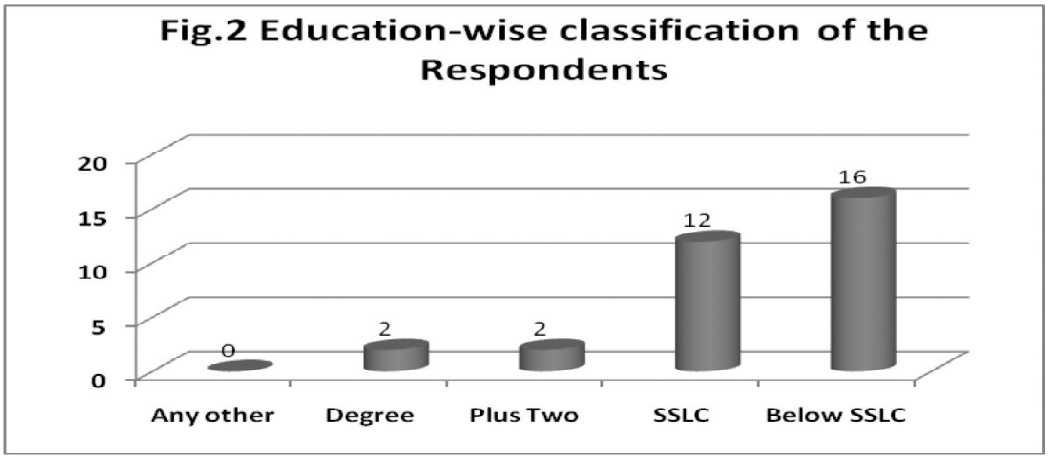
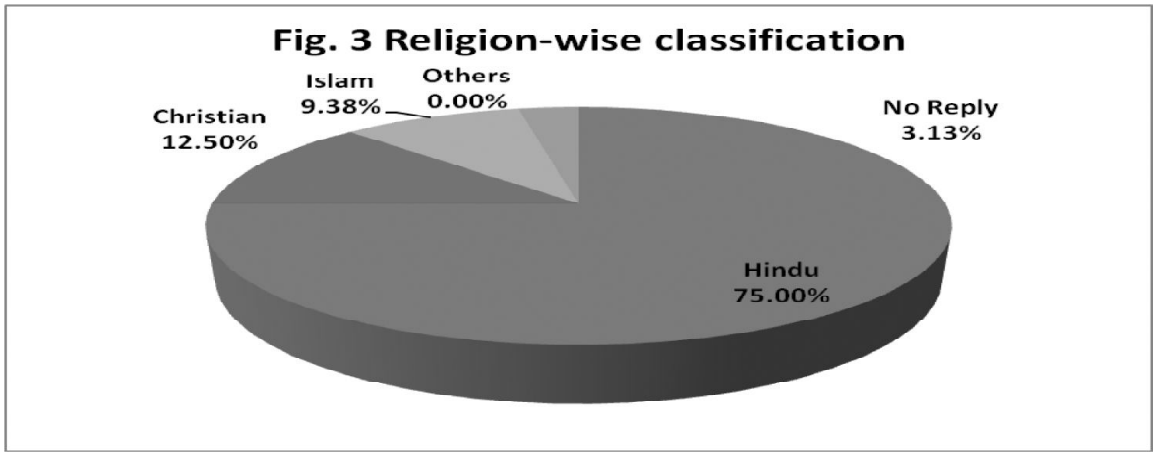


Figure 2 depicts the educational profile of HKS members. Half of the members (50%) have education below SSLC level. Those who completed SSLC constitute 37.5%, while Plus Two and graduate-level educated members together account for 12.5%. No members possess qualifications beyond these levels.



The religious and social category composition of HKS members was examined. As shown in Figure 3, 75% of members are Hindus, followed by Christians (12.5%) and Muslims (9.38%); one respondent did not disclose religion. Category-wise classification of members is presented in Figure 4.

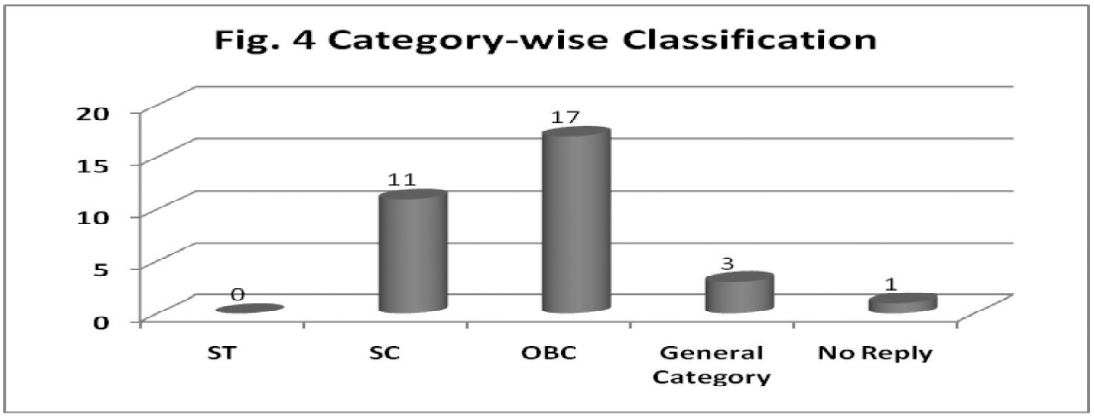
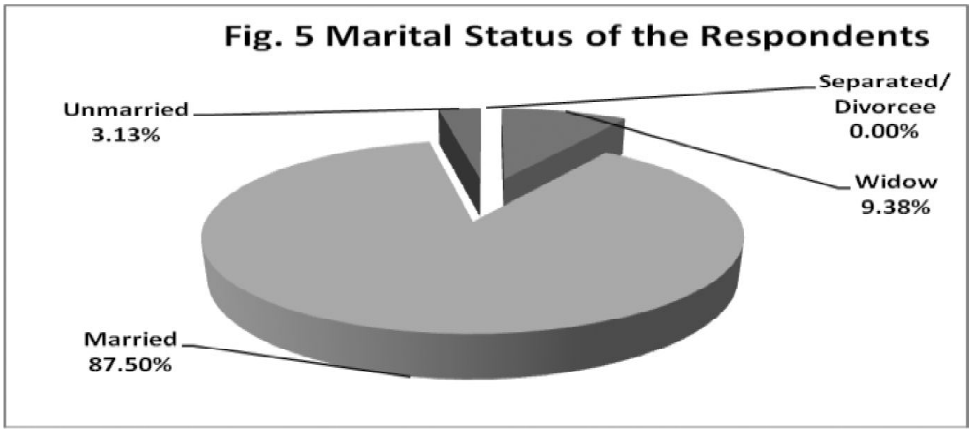
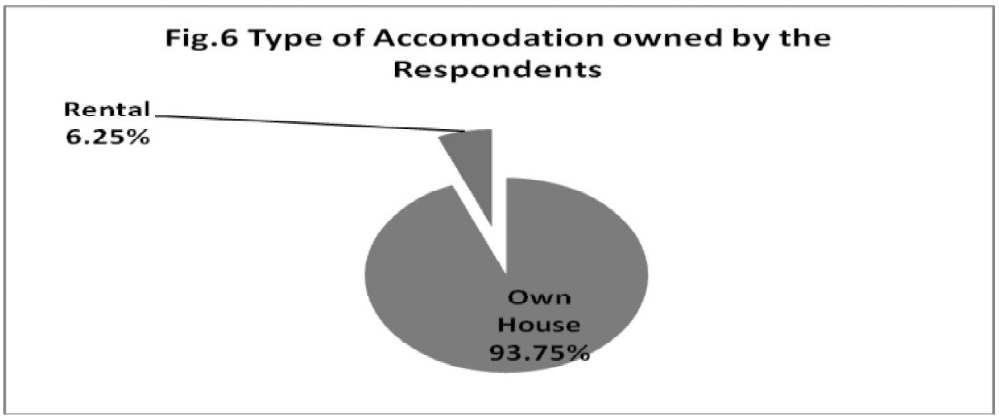


Figure 4 shows that 53.13% of HKS members belong to the OBC category, followed by Scheduled Castes (34.38%) and the General category (9.38%). None are from Scheduled Tribes.

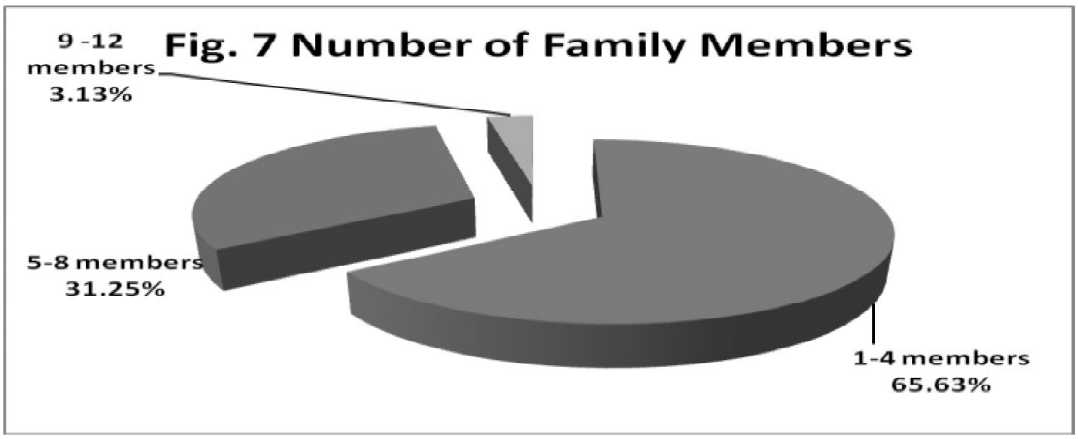
Marital status details are presented in Figure 5.



Analysis of marital status indicates that 87.5% of HKS members are married, 9.38% are widows, and one is unmarried, with no separated or divorced respondents.



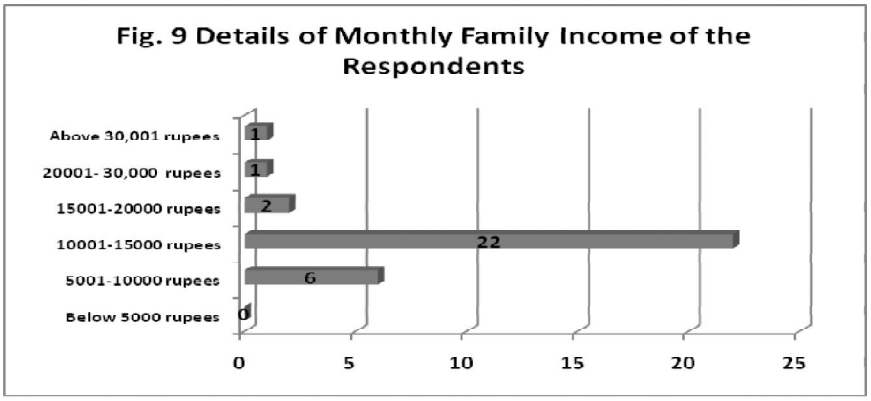
Information on HKS members' housing status is essential because accommodation type directly affects household expenditure. Members without home ownership must allocate part of their income to rent. As shown in Figure 6, 93.75% of respondents own their homes, while 6.25% (two members) reside in rented accommodation.



Family size was examined based on the assumption that it influences the economic status of HKS members. As shown in Figure 7, 65.63% of respondents have small families comprising one to four members, while 31.25% (ten members) have families with five to eight members. Only one respondent reported a family size of nine to twelve members, suggesting the presence of a joint family system. Additionally, the number of earning members was assessed (Fig. 8). The findings indicate that 96.88% of respondents have only one or two earning members, implying limited income sources. Only one respondent (3.13%) reported three to four earners, and none reported five or more.



To assess the economic status of HKS women, data on personal and household monthly income were collected and are given below in figures 9 & 10.



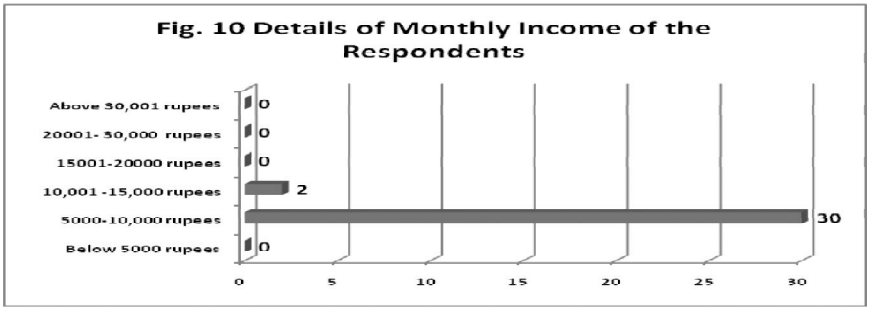
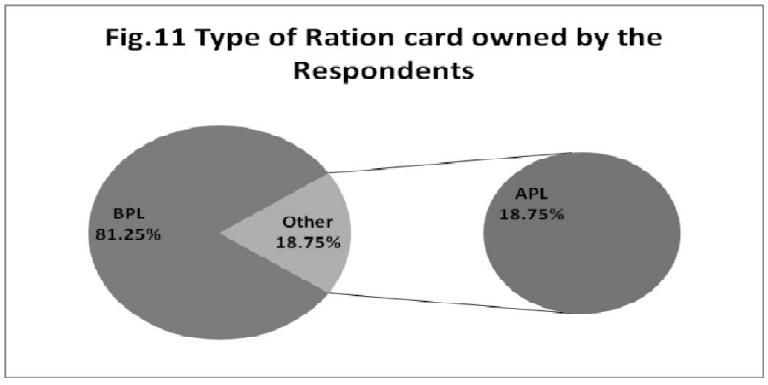


Figure 9 indicates that 68.75% of HKS women report monthly family incomes of Rs. 10,001-15,000, 18.75% earn Rs. 15,001-20,000, and only two exceed Rs. 20,000. Figure 10 shows that 93.75% of respondents earn Rs. 5,000-10,000 monthly, while 6.25% earn Rs. 10,001-15,000.

The type of ration cards owned by the HKS members is considered important and was asked about. Their responses to this question is recorded in Fig. 11 below. 81.25% hold government-issued BPL cards, while 18.75% possess APL cards, indicating above-poverty-line status.

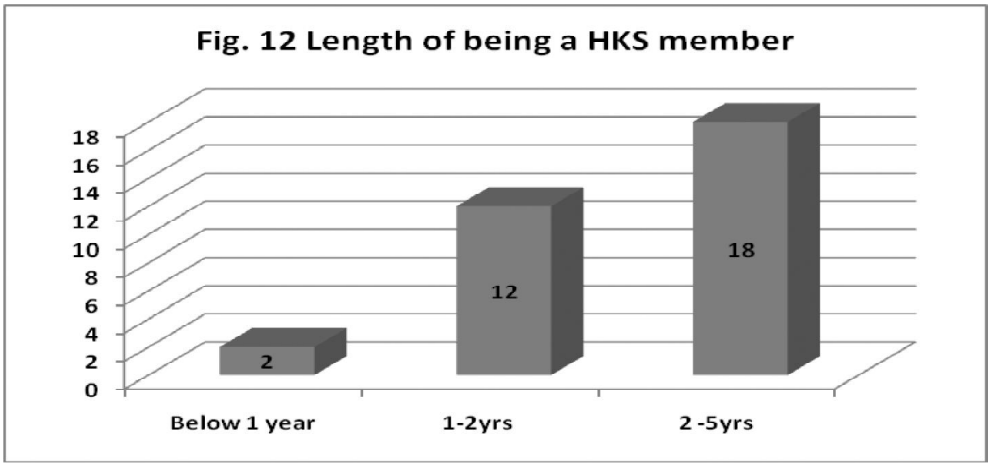


Another question examined the motivations for joining HKS, and the responses obtained are presented in Tab. 1, given below.

Tab. 1 - Motivations for joining HKS group		Responses	%
(a)	As a community service	3	9.38
(b)	Monetary benefits	8	25.00
(c)	Hope for more rewards and incentives out of this work	3	9.38
(d)	In the hope that this work would gradually be made permanent	7	21.88
(e)	All of the above reasons	11	34.38
(f)	Other reasons	0	0.00
	Total	32	100.00

Eleven respondents (34.38%) cited a combination of all listed factors motivating their membership, including social service orientation, monetary benefits, expectations of rewards and incentives and prospects of eventual permanent appointment. Eight respondents (25%) joined primarily for monetary benefits, while seven (21.88%) did so hoping the position would become permanent. Three respondents (9.38%) reported community service as their main motivation and another three (9.38%) joined anticipating additional rewards and incentives. Overall, the findings suggest that livelihood considerations play a significant role. Informal discussions further revealed preferences for the job's local nature, fixed working hours and assured remuneration.

The duration of association with HKS was examined, and responses presented in Fig. 12 indicate that 56.25% had two to five years of membership, 37.5% had one to two years' experience, and 6.25% were recent entrants.



C. Challenges Faced by theHKS members of Amballur Panchayat

In addition to questions on the socio-economic background of HKS members, the questionnaire included items aimed at understanding major workplace challenges, job satisfaction and work-related pressure. Their responses to these aspects are analysed in this section.

HKS forms an integral component of the State government's waste management system, whose inefficiencies could potentially lead to crises similar to the Brahmapuram incident. Consequently, the job satisfaction of these workers is critical. Their responses is marked in Tab. 2 provided below.

Tab.2 Level of satisfaction among the HKS members	Responses	%
(a) Yes, satisfied	29	90.63
(b) Not satisfied	0	0.00
(c) To some extent	2	6.25
(d) Cannot say	1	3.13
Total	32	100.00

A majority of HKS members (90.63%) reported being satisfied with their work, 6.25% expressed partial satisfaction, and 3.13% did not respond. Following this, additional questions were posed to explore the various challenges they encounter in their work and the responses are analysed in the sections below.

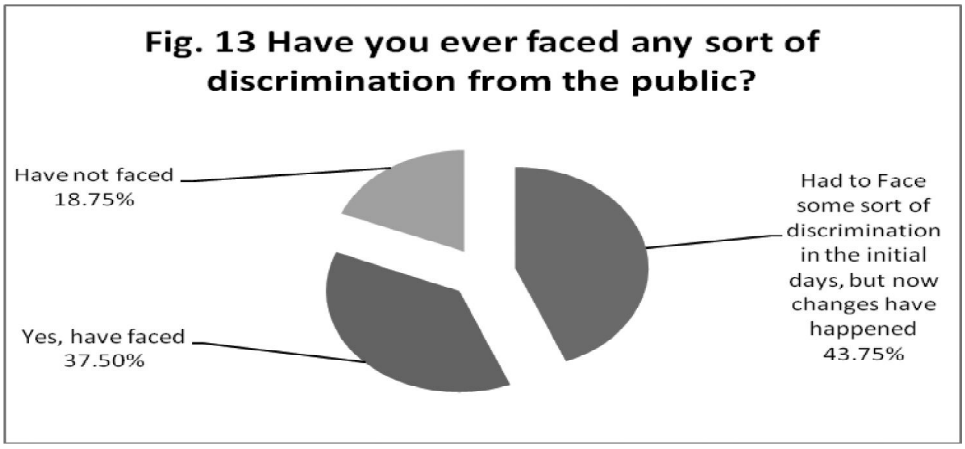
a. Inadequate income- The women were also asked whether their income from HKS work was sufficient to cover their expenses and the responses obtained are summarised and presented in Tab. 3.

Tab.3 Sufficiency of Earnings to meet Personal Needs	Responses	%
(a) Yes	2	6.25
(b) No	27	84.38
(c) To some extent	1	3.13
(d) Cannot say	2	6.25
Total	32	100

The responses regarding the sufficiency of income were analysed in the context of the HKS members' monthly earnings, as presented in Fig. 10. It was observed that thirty respondents (93.75%) earned between Rs. 5,000 and Rs. 10,000 per month, while the remaining two members (6.25%) earned between Rs. 10,001 and Rs. 15,000. When asked whether their income was sufficient to meet their needs, as shown in Table 3, only 6.25% indicated satisfaction, 84.38% expressed dissatisfaction, 3.13% responded "to some extent," and 6.25% were unable to provide a definitive answer.

These findings indicate that the income from HKS work is largely insufficient to support a satisfactory standard of living. Members noted that daily wage laborers often earn more, and that their own earnings are contingent on the irregular collection of user fees, which fluctuate based on public co-operation. In several wards of Amballur panchayat, locked households further reduce potential income. Despite these limitations, being an HKS member provides these women with a valuable livelihood. The panchayat president emphasized that the employment of such a large number of local women is a positive outcome and assured that efforts would continue to ensure more consistent payments to HKS members.

b. Indifferent Social attitude-Regarding experiences of public discrimination, 43.75% of HKS members reported facing some form of bias, particularly during the initial stages of their work, while 18.75% indicated they had not experienced discrimination (Fig. 13). Informal discussions revealed instances of public mockery, lack of cooperation, reluctance to pay user fees and occasional complaints lodged against the HKS women with the panchayat. In one case, HKS members, together with the Amballur panchayat, filed a complaint with the Mulanthuruthy police regarding a house owner's rude behavior. These findings suggest that societal attitudes toward the Green Army were initially unwelcoming and posed challenges to their work.

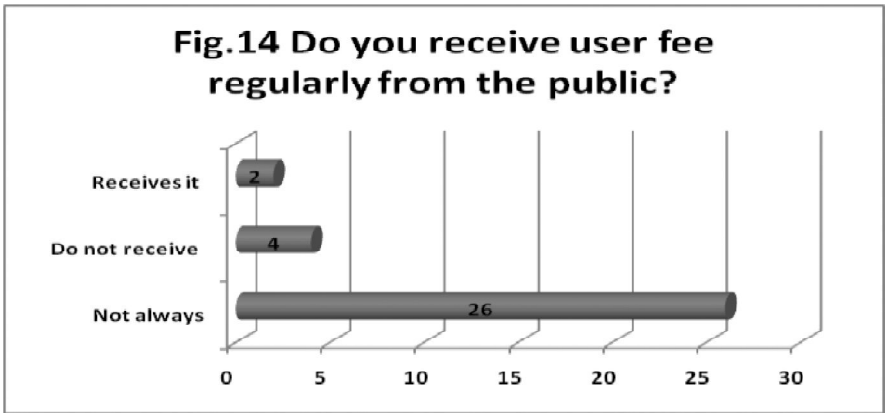


c. N**on-segregation of wastes by the public**-The Secretary of the HKS Consortium reported that, initially, the public was instructed by Amballur panchayat and Kudumbashree officials to properly sort and separate their waste. Leaflets were distributed and door-to-door campaigns were conducted to ensure compliance. Despite these efforts, many households remained ignorant or indifferent, often mixing hair, uncleaned milk and curd wrappers, tablet strips and even used sanitary napkins in their waste. In some cases, HKS members were required to segregate waste at the premises of the households, significantly increasing their workload and the challenges associated with maintaining proper waste management standards.

d. Irregular payment of User Fees-User fees for HKS activities, fixed by the LSGI, are collected monthly by HKS members from households during visits for non-biodegradable waste collection, serving as a primary source of income. Recently, the state government mandated user fee payment for HKS services from April 1, 2023. According to this order, any defaulting household must pay the outstanding user fee along with their property tax (The Times of India:2023). In Amballur panchayat, the fee is set at Rs. 50 per household and Rs. 100 for shops and other establishments.

When asked about the regularity of user fee collection (Fig. 14), 81.25% of HKS members reported irregular receipt, 12.5% indicated occasional failure to collect, and only 6.25% stated that they received the fee consistently. Some members highlighted operational challenges, including missing QR codes installed for tracking payments and households delaying payment for a month or consolidating payments over multiple months. Such irregularity directly affects the remuneration of HKS members, which is calculated based on the number of households covered under the assumption that users pay their fees. It can also disrupt systematic waste collection, as members may be inclined to stop collection of waste from non-paying households.

Interviews with the Secretary of the HKS in Amballur panchayat revealed that the LSGI actively enforces compliance by linking user fee payment to property tax obligations, access to benefits from Grama Sabha schemes and eligibility for Kudumbashree loans. These measures aim to ensure consistent revenue for HKS members and maintain efficiency in local waste management operations.



e. Co-operation from the LSGI-The HKS operates in close coordination with the Amballur panchayat, whose institutional support is pivotal to its effectiveness. All thirty-two HKS members confirmed sustained assistance from the panchayat, encompassing training, public awareness campaigns, provision of infrastructural facilities such as e-autos and management of the RRF at Arayankaavu by the HKS Consortium. Panchayat officials, including the president, secretary, ward members, standing committee chairpersons and the Village Extension Officer (VEO), actively address operational challenges. Recent initiatives, such as the HKS inoculum sale venture and provision of safety equipment, further demonstrate strong institutional backing, enhancing both efficiency and sustainability of HKS operations.

f. Mixing of Politics with the activities of HKS-To assess the influence of politics on HKS activities, members were asked whether political interference posed any challenges. All thirty-two respondents reported no such influence. Discussions revealed that from member selection to waste management operations, politics does not affect HKS functioning. Decisions are made collectively and members receive full support and co-operation from all relevant Amballur panchayat officials.

g. Work Pressure-Work pressure among HKS members was also examined (Tab.4). Only one respondent (3.13%) felt consistently stressed by the workload, fifteen (46.88%) reported no pressure, while another fifteen (46.88%) indicated feeling overloaded at times and one did not respond. Informal discussions revealed that each member typically covers 50-60 households daily, requiring 13-15 days to complete their ward, followed by tasks such as waste transportation, segregation, baling and plastic shredding. Their work is closely monitored by the panchayat and they must maintain efficiency to avoid public or administrative criticism, as this job provides their primary livelihood, contributing to occasional work-related pressure.

Tab. 4 Perceptions of workload among HKS members	Responses	%
(a) Yes	1	3.13
(b) No	15	46.88
(c) Some times	15	46.88
(d) Cannot Say	1	3.13
Total	32	100.00

h. Assigning of more members- HKS members were asked whether more than two members should be assigned to a ward for waste management tasks. Surprisingly, 96.88% (Table 5) responded negatively. While certain areas in Amballur panchayat have hilly terrain, making waste collection physically demanding, the majority felt that two members per ward were sufficient. Informal discussions revealed that members were concerned that adding more personnel would reduce their individual share of income. Given that their monthly earnings are already modest, just enough to meet basic needs, they preferred to retain their current workload to avoid further reduction in remuneration, despite the laborious nature of the work.

Tab. 5 Need for Assigning More Than Two HKS Members per Ward	Responses	%
(a) Yes	1	3.13
(b) No	31	96.88
(c) Cannot Say	0	0.00
Total	32	100.00

i. Health issues-Given the toxic nature of waste, the health of HKS members, engaged in collection, transport, segregation and plastic bailing, was examined. Responses (Tab. 6) showed that 93.75% reported no major health issues, while 6.25% indicated problems. Members utilise trolleys and e-autos provided by

the panchayat, reducing physical strain. They are also supplied with boots, masks, gloves, raincoats, sanitisers and uniforms, ensuring safety during work. Despite these measures, some members reported health concerns related to high temperatures, climatic variations and physically demanding tasks in hilly areas, where trolleys are less effective, requiring manual collection and causing shoulder pain and direct contact with waste.

Tab. 6 Health Issues Experienced by HKS Members Related to Their Work	Responses	%
(a) They face	2	6.25
(b) They don't face	30	93.75
(c) Cannot Say	0	0.00
Total	32	100.00

Conclusion

The steps undertaken by the Kerala government following the Brahmapuram crisis underscore the critical role of the HKS in the State's waste management system. With over 30,890 HKS members across Kerala, a comprehensive study examining their prospects, challenges, and contributions had not yet been undertaken. This study focused on the HKS group of Amballur panchayat, recognized as the best-performing unit in Ernakulam district, providing an exemplary model that other LSGIs could emulate to prevent crises similar to Brahmapuram.

The HKS of Amballur panchayat adheres closely to the objectives and operational targets established for the State's HKS groups. Their primary responsibility-collection of non-biodegradable waste-is carried out systematically according to a Work Calendar issued to the public in advance. Beyond plastic, the HKS members collect a wide range of wastes, including glass, e-waste, paper, medicinal strips, used sandals, bags and clothing. While many LSGIs prepare Work Calendars, they often lack provisions for collecting such diverse waste types due to storage constraints or the absence of specialized waste disposal agencies, highlighting the comprehensive nature of the Amballur HKS operations.

The success of the HKS group is closely linked to the active cooperation of the Amballur panchayat. From member selection to operational management, the panchayat provides extensive support, including training, procurement of essential equipment, public awareness campaigns, resolution of operational challenges and ensuring timely remuneration. Importantly, political interference does not influence HKS activities, allowing members to function efficiently and impartially. This level of institutional support is not commonly observed across all LSGIs.

The performance of the Amballur HKS is further reflected in the steady growth of user fee collection. Beginning with less than Rs. 1,00,000 in early 2021, collections reached Rs. 3,00,000 by early 2023. While only two wards achieved 100% user fee compliance initially, continued efforts by HKS members and Panchayat officials increased this to eleven wards by May 2023, and all sixteen wards achieved full compliance by July 2023. Consequently, each HKS member now earns an average monthly income of Rs. 10,000. This achievement demonstrates both effective community sensitization and public cooperation, reflecting a broader awareness of the importance of systematic waste management.

The study also highlights the role of HKS in women's empowerment. While the income generated through HKS work is modest, it provides women with financial independence, decision-making autonomy, and opportunities for leadership. Engagement in waste management enables members to participate meaningfully in society, gain control over their livelihoods and assume responsibilities that extend beyond household confines. In this context, the HKS initiative represents both environmental stewardship and social empowerment, aligning with broader developmental objectives.

Furthermore, the study identifies key strategies to enhance the effectiveness and sustainability of HKS

operations. LSGIs can alleviate work pressures and improve efficiency by providing adequate storage facilities, facilitating transport of collected waste, entering contracts with agencies for comprehensive waste disposal, establishing new eco-friendly income-generating ventures, sensitizing the public regarding proper waste segregation, enforcing timely user fee payment and ensuring adherence to the Work Calendar. These interventions collectively address operational challenges and contribute to long-term sustainability.

In conclusion, the HKS significantly strengthens the capacity of LSGIs to deliver efficient waste management. Its effectiveness, however, is contingent upon continuous institutional support. The sustainability of the Haritha Karma Sena project relies on adequate cooperation from LSGIs, without which the initiative cannot achieve its full potential. When effectively supported, the project contributes not only to a cleaner and greener environment but also to the empowerment of women, fulfilling the dual objectives of environmental conservation and social development as envisioned in Gandhian philosophy. The Amballur HKS thus exemplifies how well-structured community-based initiatives, supported by responsive local governance, can achieve measurable impacts in both ecological and social domains, offering a replicable model for other regions across the State.

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Reconceptualising Dissent: A Critical Assessment of India's Evolving Democratic Landscape

Revathy C. &
Biveesh U.C.

Dissent can be viewed as a panacea for democracy. Despite India's 78th year of independence, the right to dissent remains a contested terrain. A hallmark of democratic governance is the tolerance of criticism and the fostering of mutual respect among political opponents. The suppression of critical thought through repressive legislation has become a recurring pattern employed by successive governments. The assault on free speech, initiated during the emergency period, persists to this day. As social beings, individuals must actively engage in societal discourse. Democratic administrations are accountable to the citizenry, who possess the fundamental right to free expression. This study explicates the evolution of dissent in India and how the constitution has interpreted the right to dissent. It also interprets the legal provisions and judicial interpretations that hamper the curtailment of dissent.

Keywords: The right to dissent, hate speech bulldozer justice, draconian proposals, shramana traditions.

Introduction

Over the years, the concept of the right to dissent has been contentious to the core. The Preamble of the Indian Constitution asserts its citizens' freedom of thought, speech, and expression. The right to disagree is equally vital to the right to freedom of opinion. The art of questioning has been manifested in the evident changes in societal norms and systemic developments. The holistic development of a country, where its citizens' economic and civil rights are preserved, can only be fulfilled when dissent is granted. The soul of a vibrant democracy lies in the ultimate entitlement to disagree, i.e., the right to dissent. From 2021, India has been experiencing a decline in its democratic standing, transitioning from a 'free' to a 'partially free' nation, according to the Freedom House Index report 2024. The demise of freedom of speech and expression has been catered to by the repressive laws made by successive governments. Though the expression is paramount to the effective mechanism of democracy, the ambiguities regarding the term 'hate speech' have led to more cases against the dissenters. The archaic and repressive laws were incorporated into the constitutional provisions' vacuums, thereby criminalising the right to dissent through the provisions of the Indian Penal Code. The convicted dissenters constitute different strata of society, ranging from political opponents to activists, journalists, and university students. The fundamental rights got curtailed under the pretext of 'reasonable restrictions', where the dissent within the social media sphere is also curtailed. The idea of free speech has always been stuck in the debate on democracy. Under the ambit of national security, public order, and morality, the government has enough space for curtailing freedom. The study elucidates the conflict between personal liberties and national security. It also analyses to what extent the Indian criminal laws have been employed to suppress dissent. In conclusion, the study has significant implications for fundamental rights, freedom of speech and expression, and dissent in a democracy, making it a valuable contribution to the field of human rights.

Methodology

The study uses a qualitative approach, relying mainly on the analysis of historical events, constitutional

provisions, and legal cases related to dissent in India. The research draws information from primary sources such as the Indian Constitution, relevant laws, and important court judgements, as well as secondary sources like academic articles, reports, and news coverage.

Voices of Resistance : Tracing The History of Dissent in India

Being a pluralistic society, India has been a stage for a plurality of ideas to debate and discuss. The early traditions traced the dissenting trait of Indians. The enduring years of colonialism have fostered the dissenting nature of Indians. Dissent in India has deep roots, evolving across religious, social, and political spheres since ancient times. It has been woven into the fabric of Indian civilisation for millennia. Understanding this long tradition of dissent not only reveals the country's pluralistic ethos but also highlights the ongoing struggle for justice, equality, and reform (Thapar, 2018).

Whether in the form of philosophical debate, religious reform, or political resistance, the act of questioning authority and established norms has shaped India's social and political landscape. In the early Vedic period and later, dissent was often expressed through alternative philosophical and religious movements, such as the Shramana traditions - Buddhism, Jainism, and Ajivikas - which challenged the authority of Brahmanism and the ritual orthodoxy of the time (Thapar, 2018). These groups openly challenged the authority of the Vedas, the caste hierarchy, and the ritual sacrifices that defined Brahmanical Hinduism. From the earliest times, Indian society was marked by a spirit of inquiry and debate. The Vedic period, often associated with ritual orthodoxy, also saw the emergence of alternative voices. The Upanishads, for instance, are full of probing questions about the nature of reality, the self, and the universe - students and teachers engaged in open-ended discussions that laid the groundwork for later traditions of dissent (Indian Cultural Forum, 2018). The Buddha and Mahavira proposed paths to liberation based on ethical conduct and renunciation, rather than ritual or priestly mediation. Their teachings attracted followers from marginalised backgrounds, including women and lower castes, and led to the formation of alternative communities that stood apart from the mainstream (Janata Weekly, n.d.).

Dissent was not only philosophical or religious. Political resistance, while less frequently documented, was a reality. Ancient treatises like the Arthashastra reveal that rulers were deeply concerned about unrest and resistance. The state's coercive power is evident in the harsh punishments prescribed for dissenters, which included fines, exile, and even death (Indian History Collective, n.d.). Sometimes, those who disagreed with prevailing norms chose to leave their communities, form new sects, or embrace lives of renunciation (Tripura University, n.d.). Indian philosophical traditions even institutionalised dissent: debates between rival schools required the respectful presentation of the opponent's view (*purvapaksha*), followed by the proponent's response (*pratipaksha*) and a reasoned conclusion (*siddhanta*) (Open Edition Books, 2021). This pattern of argumentation, visible in Buddhist-Brahminical debates, demonstrates that dissent was not only tolerated but seen as essential for intellectual progress.

As Indian society evolved, so did the forms of dissent. The medieval era saw the rise of the Bhakti and Sufi movements, which offered powerful alternatives to establish religious authorities. Bhakti poets and saints - Kabir, Mirabai, and Ravidas, among others - spoke out against ritualism, caste discrimination, and religious exclusivity. Their verses, often composed in local languages, reached ordinary people and encouraged them to seek the divine directly, bypassing priestly hierarchies (Thapar, 2021).

Sufi mystics, too, emphasised love, equality, and direct experience of the divine. Both Bhakti and Sufi traditions fostered a culture of questioning and inclusion, challenging the social and religious order of their times (Open Edition Books, 2021). Political and economic dissent also surfaced. The Kaivarta rebellion in Bengal and the Damara uprising in Kashmir are examples of communities resisting oppressive authority, though such events were often localised and did not always have a lasting impact (Indian History Collective, n.d.). The *charan* tradition, where respected individuals would fast at the king's threshold to protest injustice, shows

that nonviolent protest as a form of dissent has deep roots in Indian society - foreshadowing later strategies like Gandhi's satyagraha (Open Edition Books, 2021).

Colonial rule brought new forms of exploitation but also new opportunities for resistance. The British imposed heavy taxes, disrupted traditional livelihoods, and introduced laws that favoured their own interests. In response, peasants and tribal communities rose up in revolts such as the Santhal rebellion (1855-56) and the Munda uprising (1899-1900), challenging both colonial authority and local elites (Indian History Collective, n.d.). By the late nineteenth century, dissent became more organised. The Indian National Congress, founded in 1885, began as a forum for debate and petition but grew into the centre of a mass movement for independence. Leaders like Gandhi, Nehru, and Subhas Chandra Bose brought together people from all walks of life, using methods from nonviolent protest and civil disobedience to revolutionary action (Thapar, 2021). Gandhi's use of fasting as a moral weapon against injustice drew on older Indian traditions but gave them a new political meaning.

Debate and disagreement within the freedom movement itself - over the best methods, goals, and visions for the future - show that dissent was not only directed at colonial rulers but was also intrinsic to Indian political culture (Open Edition Books, 2021). With the adoption of the Constitution in 1950, the right to free speech, association, and peaceful protest was enshrined in law. India's parliamentary democracy gave space to opposition parties, trade unions, and social movements, all of which played a crucial role in holding the government accountable (Thapar, 2021). Yet, the struggle over the boundaries of dissent continued. The Emergency of 1975-77 is a stark example: civil liberties were suspended, opposition leaders jailed, and the press censored. The public's resistance to this authoritarian turn eventually led to the restoration of democracy, showing that dissent remained a vital force in Indian society (Thapar, 2021). Since then, social movements have continued to challenge authority - whether on issues of land, environment, gender, or minority rights. At the same time, dissent has sometimes been met with repression, especially during periods of strict central rule or when governments have sought to silence critics (Sage Journals, 2022).

Dissent has always been an integral part of India's democratic ethos. The right to question, protest, and organise is written into the Constitution, and for decades, India was seen as a vibrant democracy where voices from all walks of life could make themselves heard. However, in recent years, the space for dissent has narrowed considerably, and those who speak out - whether they are activists, students, journalists, or ordinary citizens - often face significant risks and obstacles.

Observing the Landscape of Dissent: Legal Instruments, Social Movements, and State Power

For many Indians, dissent is not an abstract concept but a lived reality that can bring both hope and hardship. India's democratic promise includes the right to dissent, yet in recent years, this space has been increasingly constructed by a combination of repressive laws, state crackdowns, and weakening of accountability institutions. The government has systematically used broad and vague legal provisions to silence critics, human rights defenders, journalists, and civil society organisations, undermining the very foundations of democratic governance.

1. Legal Instruments of Repression: The Evolution and Application of Anti-Dissent Laws in India

The legal environment for dissent has become increasingly hostile. In 2024, India replaced its colonial-era criminal codes with new laws but retained problematic provisions such as sedition, which have long been used to silence critics (Amnesty International, 2024). The Unlawful Activities Prevention Act (UAPA) continues to be used to detain activists, journalists, and academics, sometimes for years without trial. According to the National Crime Records Bureau, 28 academics are currently facing sedition or terror charges under the UAPA (The Diplomat, 2025).

The crackdown on dissent has also extended to digital spaces. The government has blocked websites and social media accounts that document hate speech and violence against minorities, such as Hindutva Watch

and India Hate Lab (Human Rights Watch, 2024). Internet shutdowns, a frequent government response to protests or unrest, have become common - 40 were recorded in just one year, often affecting marginalised communities the most (Amnesty International, 2024).

The Indian government has deployed a suite of laws - some inherited from the colonial era, others newly enacted or amended - to target dissenting voices. The Unlawful Activities (Prevention) Act (UAPA), originally designed to combat terrorism, has become a tool for prolonged detention without trial, often against activists and journalists who challenge state narratives. Human Rights Watch (2025) highlights cases like Kashmiri activist Khurram Parvez, detained since 2021, and journalists Irfan Mehraj and Majid Hyderi, held since 2023 under UAPA, illustrating the law's misuse to suppress peaceful dissent

Similarly, the Foreign Contribution (Regulation) Act (FCRA) has been weaponised to choke civil society funding. Over 20,600 NGOs have lost their licences to receive foreign donations in the past decade, many of which worked on human rights and vulnerable communities' rights (Human Rights Watch, 2025; Amnesty International, 2025). This financial strangulation has crippled organisations advocating for marginalised groups, including Dalits, Adivasis, and religious minorities.

The Prevention of Money Laundering Act (PMLA) and the Jammu and Kashmir Public Safety Act (PSA) further extend the government's reach to detain and harass dissenters. The Financial Action Task Force (FATF) and the UN Human Rights Committee have urged India to amend these laws to prevent their abuse against civil society (Amnesty.eu, 2025; HRW, 2025).

2. Human Rights Defenders and the Chilling Effect: Arbitrary Detention and Legal Harassment

Human rights defenders have borne the brunt of this crackdown. Activists linked to the Bhima Koregaon case, accused of Maoist links, have languished in jail for years without trial, with courts repeatedly questioning the evidence against them (HRW, 2025). The death of one detainee in custody and the ongoing detention of others despite bail orders expose systemic failures and political interference. Journalists face harassment, arrests, and censorship. The situation is particularly dire in Kashmir, where media freedom is severely restricted. The Committee to Protect Journalists (CPJ) reports frequent detentions of journalists and the blocking of websites documenting human rights abuses (CPJ, 2025). The government's denial and revocation of visas for foreign journalists critical of its policies further isolates India's media from international scrutiny.

3. Institutional Erosion: The Weakening of Rights Protection Mechanisms

The National Human Rights Commission of India (NHRCI), constitutionally mandated to protect rights, has been rendered ineffective by political appointments and a lack of independence. The Global Alliance of National Human Rights Institutions (GANHRI) deferred NHRCI's accreditation for the second consecutive time in 2024, citing its failure to meet international standards (HRW, 2025).

Other statutory bodies tasked with protecting minorities, women, Dalits, and Adivasis remain largely non-functional due to political interference. This institutional weakening leaves victims of rights violations with little recourse and emboldens perpetrators.

4. Majoritarian Legislation and the Exclusion of Minorities

The enactment of the Citizenship Amendment Act (CAA) in 2019, which explicitly excludes Muslims from its provisions, has institutionalised religious discrimination. Coupled with the proposed National Register of Citizens (NRC), it has created widespread fear among Muslim communities of statelessness and disenfranchisement (USCIRF, 2025).

These laws have fuelled majoritarian nationalism, which in turn legitimises violence against minorities and dissenters. Vigilante groups operate with impunity, and state machinery often turns a blind eye or actively participates in repression. The demolition of Muslim homes under "bulldozer justice" campaigns exemplifies this trend (Amnesty International, 2025).

5. Suppression of Collective Action: State Responses to Peaceful Protest and Assembly

Peaceful protests have been met with disproportionate force and legal harassment. Following the anti-CAA protests and the 2020 Delhi riots, at least 12 Muslim activists remain imprisoned without trial, accused under UAPA on flimsy evidence (HRW, 2025). The police investigations have been described by courts as "shoddy" and "callous", yet detainees continue to languish in jail.

Mass detentions, internet shutdowns, and the use of new laws like the Bharatiya Nagarik Suraksha Sanhita (BNSS) to prevent protests further restrict the right to assembly. The recent arrests of activists Rona Wilson and Sudhir Dhawale, despite bail orders, underscore the ongoing repression (Civicus Monitor, 2025).

6. Academic and Press Freedom in Decline: State Intervention in Knowledge and Discourse Production

Universities and the press, once bastions of free thought, have come under increasing pressure. India's academic freedom index has plummeted, with the country now ranking in the bottom 15 per cent globally. The government has taken control of university appointments, curricula, and research agendas, discouraging research on sensitive topics such as Kashmir, caste, and Hindutva (The Diplomat, 2025).

Journalists, too, are feeling the squeeze. Foreign correspondents have had their visas revoked for "critical" reporting, and Indian journalists face legal harassment, raids, and even arrest. The government's willingness to silence critical voices has been noted internationally: India now ranks 151st out of 180 countries on the World Press Freedom Index, though this is a slight improvement from previous years (The New York Times, 2025).

7. Silencing the Subaltern: Legal Suppression of Dissent and the Denial of Rights to Dalits, Adivasis, and Religious Minorities

Religious and caste minorities face particularly severe risks. Christians, Dalits, and Muslims have all been targeted by vigilante violence, often with little accountability. In several states, laws against religious conversion have been used to harass Christians, especially those from Dalit and Adivasi backgrounds. Dalits continue to face violence and discrimination, and recent cases of brutality - including the forced drinking of urine and sexual assault - have shocked the nation but rarely resulted in justice (Human Rights Watch, 2025)

Despite these challenges, dissent is not dead in India. Farmers' protests, student demonstrations, and women's marches have continued to draw large crowds, even as authorities respond with internet shutdowns, mass detentions, and sometimes violence. In 2025, Professor Ali Khan Mahmudabad was arrested after he posted online about the dangers of war hysteria during the India-Pakistan conflict. His arrest, following a short-lived but intense military flare-up, highlighted how even moderate, patriotic dissent can be punished when it challenges the dominant narrative (The New York Times, 2025).

There are still moments of hope and resistance. In September 2024, the Bombay High Court struck down a government amendment that would have allowed authorities to label online content as "fake" and order its removal, calling it unconstitutional (Amnesty International, 2024). Public backlash has also forced the government to withdraw or revise some of its more draconian proposals, such as the draft Broadcasting Services (Regulation) Bill.

International organisations, including the United Nations and Freedom House, have continued to call attention to India's shrinking civic space. Freedom House downgraded India's status to "partly free", citing the use of laws, online harassment, and surveillance to discourage free expression (Freedom House, 2025). The UN Human Rights Committee has raised concerns about discrimination and violence against minorities, as well as the misuse of anti-terror laws (Human Rights Watch, 2025).

Conclusion

The history of dissent in India is a testament to the country's pluralism, resilience, and capacity for

self-renewal. From ancient philosophical debates to modern mass movements, dissent has been both a catalyst for change and a safeguard against tyranny. While the forms and contexts of dissent have evolved, its role as a driver of social and political transformation remains undiminished. The current reality of dissent in India is complex and often fraught. While the Constitution still guarantees the right to free speech and assembly, the state has developed a sophisticated toolkit for silencing critics, from legal harassment and financial pressure to digital censorship and outright violence. Yet, the spirit of dissent persists. The persistence of human rights is a testament to the enduring strength of India's democratic ideals.

India's democratic fabric is under strain as repressive legislation and state actions curtail dissent and erode fundamental freedoms. The misuse of laws like UAPA, FCRA, and PSA, combined with the weakening of human rights institutions, has created an environment hostile to activism, journalism, and peaceful protest. This shrinking civic space threatens not only the rights of marginalised groups but the health of India's democracy itself. International bodies and human rights organisations continue to call on India to repeal or amend abusive laws, restore institutional independence, and respect constitutional freedoms. The future of dissent in India depends on reversing these trends and reaffirming the right to speak, protest, and hold power accountable.

In reflecting on the current landscape, it is clear that the right to dissent in India faces unprecedented challenges. The expansion and misuse of repressive laws, the shrinking space for civil society, and the normalisation of state overreach have all contributed to an environment where expressing disagreement can come at great personal and collective cost. While India's constitutional framework promises robust protections for free speech and democratic participation, the reality is that these ideals are frequently undermined by legal ambiguities, institutional weaknesses, and a political culture that increasingly equates criticism with disloyalty. Yet, the persistence of those who continue to question, organise, and demand accountability - often at significant risk - reminds us that the spirit of dissent endures. Their courage is a testament to the unfinished project of Indian democracy: one that must continually strive to accommodate, rather than silence, the voices that challenge power.

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The Rise of the Algorithmic Economy: A Survey of Theoretical Foundations, Management Practices, and Socioeconomic Implications

Sindhuja M.

The advent of an increasingly algorithmic economy heralds a fundamental economic transformation where transactions are mediated by automated decision-making systems. This paper surveys the theoretical foundations, management practices, and socioeconomic implications of algorithmic systems across economic domains. Drawing from a multidisciplinary perspective, the study analyses how algorithms reshape traditional economic systems, creating new forms of management and control, and generating rapidly evolving opportunities and challenges. The paper contributes to understanding the complex dynamics of our contemporary economic landscape by analysing algorithmic management within the gig economy, platform capitalism and broader implications of algorithmic management of the economy.

Keywords: Algorithmic economy, algorithmic management, gig economy, platform capitalism, economic transformation

1. Introduction

The contemporary economy is increasingly characterised by the pervasive use of algorithms in decision-making processes that were traditionally the domain of human judgment.With the proliferation of e-commerce, algorithms have now become a fundamental infrastructure of modern economic life. Many of the staples of contemporary life - from ride-hailing, online food delivery and, seamless management of supply chains to content curation, personalisation and, customisation of services is possible only through algorithmic management. The ubiquitousness of algorithms in almost all avenues of trade can only be interpreted as a fundamental shift in how economic relationships work.

In the algorithmic economy, automated decision-making is adopted at all levels.As Latzer et. al. (2014) point out, “Algorithms now shape our lives and our worlds. They alter how we see the world, manage our decisions, affect our behaviours, and an important source of social order”. The advent of the algorithmic economy is not just about increased efficiency and speed. It raises fundamental questions about worker autonomy and the social fallout of new configurations of economic power.

Algorithmic systems are capable of enhancing or constraining human action; while they can generate novel economic configurations, they may also reproduce or accentuate existing inequalities. Achieving the highest possible systemic efficiency is one of the highest priorities of algorithm-based businesses. Algorithms’ relentless drive for optimisation may afford lower priorities to worker well-being and consumer rights, raising ethical and governance challenges. The lack of transparency and accountability of algorithmic systems is another matter of concern. This paper examines the theoretical foundations of the algorithmic economy, practical considerations, and wider implications for achieving economic and social accountability. This analysis uses current research from economics, management, sociology, and computer science.

2. Theoretical Foundations of the Algorithmic Economy

The emergence of algorithmic economies represents one of the most profound transformations in economic systems since the industrial revolution. With the start of information technology, vast sectors of the economy underwent a process of rapid algorithmisation, with decision-making power increasingly being delegated from humans to algorithms. Solove and Matsumi (2024) see this change as an extremely problematic one. They (2024) observe that, "making decisions about humans involves special emotional and moral considerations that algorithms are not yet prepared to make - and might never be able to make". This transformation has fundamentally altered the nature of economic activity, market dynamics, and competitive strategies across multiple industries. The impact of the change is now reflected in the nature of work, management practice and the market at large.The theoretical foundations of algorithmic economies draw from multiple disciplinary streams, including information economics, network theory, platform economics, and algorithmic governance.

Latzer et al. (2014) conceptualise algorithmic selection as the backbone of digital markets, structuring information flows, relevance assignment, and resource allocation across domains such as search, recommendation, advertising, trading, and content production, thereby constituting a general-purpose infrastructure of digital capitalism. In this view, algorithms function as gatekeepers and institutionalised rules that steer behaviour, reduce information overload, and generate new economic coordination capacities at a global scale.Just and Latzer (2016) theorise "governance by algorithms" as a form of institutional steering in which software-mediated selection constructs individualised realities, shaping perceptions and choices and thus serving as a source of social order analogous to but distinct from mass media.

An algorithmic economy can be defined as an economic system where algorithms mediate critical decision-making processes. This covers a range of areas including but not limited to consumer-facing interactions, pricing mechanisms, market allocation, and resource management. Whereas traditional economic models rely on human judgment and largely static norms, algorithmic economies operate through real-time, data-driven decision-making systems that dynamically adapt to changing market conditions. Some of the core characteristics of algorithmic economies are explored below.

2.1 Real-Time Decision Making

The hallmark of algorithm driven economies is their capacity for real-time decision making. Among the most powerful manifestations of algorithmic systems is in platform-based business models. Platforms use algorithms to manage complex multi-sided relationships. Algorithmic revenue management is an aspect of the diversification that has happened in the business sector over the last decade due to the influx of technology.This shift from static to dynamic decision-making represents a fundamental departure from traditional economic models. For instance, in the case of Lyft, one of the leading global ride-hailing platforms, researchers used "a novel online reinforcement learning approach that estimates the future earnings of drivers in real time...to find more efficient matches", resulting in a ridesharing matching algorithm that adapts in real time (Azagirre et al., 2024). Unlike brick-and-mortar retailers, large online retailers usually do not have fixed pricing. They also deploy platform-based systems to track the many intricacies of digital transactions. The price is dynamically determined by multiple factors including supply and demand, inventory levels, and market conditions.

The dynamic pricing model is one of the key features of an algorithmic economy. Pricing algorithms continuously modify pricing in response to real-time data. Manual manipulation of pricing will not be able to monitor the rapid transitions of economic variables with precision. Algorithms set up feedback loops and competitive responses generating new market behaviours. Algorithms enable companies to "offer low prices during low demand periods, while still guaranteeing high availability during high demand periods" (Lobel, 2020). Real-time responsiveness introduces new forms of market efficiency but also results in highly complex interactions between agents and systems, resulting in unpredictability and potential instability.

2.2 Algorithmic Mediation of Economic Relationships

Algorithmic economies imply the systematic mediation of economic relationships through computational systems. The platform economy exemplifies this transformation, where algorithms not only facilitate transactions but actively shape the conditions under which economic activity occurs. This algorithmic mediation extends beyond simple automation to encompass the complete restructuring of economic relationships. Muldoon and Raekstad (2023) describe how digital platforms create "new systems of algorithmic management [which] facilitated relationships of domination in which bosses could exercise uncontrolled power over workers."

As Pignot (2023) notes, workers become "glued to the algorithm" through various mechanisms that "prevent them, although not always, from considering genuine resistance to management". Another concerning outcome may be that the primacy given to algorithms may displace the place held by human voices and interests. Kougiannou and Mendonca (2021) notes that "online food delivery companies' over-reliance on algorithmic management and their online app drove couriers to silence". The power structures created by these algorithms are also skewed towards inequity. For instance, Edward (2020) notes that "a new form of algorithmic control is introduced where 'workers' are managed through on-line platforms, monitored indirectly and expected to produce measurable outputs.

An algorithmic economy fundamentally transforms labour markets through platform-mediated work and algorithmic management systems, affecting both gig workers and traditional employees. Algorithmic management creates new workplace control forms extending beyond traditional work hours and locations. Studies show that algorithmic systems affect when, where, and how people work by using rating systems, dynamic pricing, and ways to assign tasks. In an economy that is becoming more algorithmic, these changes should spark debates on workers' rights and social protection measures. Conventional labour protections intended for stable employment relationships may prove insufficient in tackling challenges posed by algorithmic management.

2.3 Data-Driven Value Creation

Data exists as the cornerstone of the algorithmic economy. The systematic collection, manipulation and application of data through algorithm governed processes result in value creation. This marks a shift from traditional production methods where material input and output dictated economic value. van Doorn and Badgers (2020) investigated this shift in the platform economy and termed it "dual value production", a phenomenon where "the monetary value produced by the service provided is augmented by the use and speculative value of the data produced before, during, and after service provision". Increasingly, gig-workers are seen as functionaries in system that produces data as a digital asset. As mentioned previously, the casualty is often worker rights which are relegated to the margin in algorithmic economies. Paradoxically, while the identities of workers face erasure, the abundance of data generated by algorithms enables new forms of personalisation and optimisation. In online retail, companies can personalise customers' experiences by, for example, showing different sets of products to different customers based on their predicted preferences. Such capabilities create new sources of competitive advantage but also raise important questions about privacy, fairness, and market concentration.

2.4 Algorithmic Selection and Market Dynamics

Latzer et al. (2014) provide a comprehensive framework for understanding algorithmic selection as "a process that assigns relevance to information elements of a data set by an automated, statistical assessment of decentrally*(sic)* generated data signals". This definition clarifies the diversified nature of algorithmic economies; the data signals that become part of the decision-making process may arise from sources as different as search engines, product catalogues and financial trading information. It is possible to categorise the main avenues where algorithms are deployed as follows: search applications, aggregation applications, observation or surveillance applications, prognosis or forecast applications, filtering applications, recommendation applications, scoring applications, content production applications, and allocation applications (Latzer et.al., 2019). In practical terms, the extent of these avenues brings almost all economic activity under their ambit, creating a pervasive

influence on production and consumption.This along with other algorithmic features like network effects and economies of scale, tends to create a growing appetite for more data which eventually results in the wider proliferation of algorithmic systems.

Latzer et al. (2014) also comments on how market concentration and competition result from the implementation of algorithmic selection. Algorithm based businesses tend to exhibit "concentration tendencies" whereby competitive advantages accrue to platforms with more data. Web search was one of the first global businesses in which algorithms played the central part. Due to the concentration of data in a few major global players, web search sector has exhibited strong tendencies toward market concentration. As Latzer et al. (2014) observe, "search markets are highly concentrated on a global scale, with regional market shares of Google Search up to 97%". This concentration shows the winner-take-all dynamics that are often linked to network effects and data advantages.Dominant platforms can use algorithms to change the way the market works in ways that hurt competitors, workers, or consumers.

3. Algorithmic Management in the Gig Economy

The gig economy exemplifies algorithmic management's prominence in contemporary economic life. Algorithmic management involves "the use of sophisticated artificial intelligence (AI) and machine learning (ML) algorithms to execute workforce activities (e.g., task allocations, performance evaluations, sanctions) that were previously overseen or coordinated by human managers" (Kadolkar et al., 2024). Parent-Rocheleau et al. (2024) conceptualise algorithmic management as a five-dimensional construct encompassing monitoring, goal setting, scheduling, performance rating, and compensation.

Algorithmic management operates through distinct mechanisms. Stark and Pais (2020) describe a "triangular geometry" where "platform owners co-opt the behaviour of providers and users, enrolling them in the practices of algorithmic management without managerial authority having been delegated to them." Platforms owners are able to leverage their control over algorithmic selection to exert great power over the other participants in the transactional process. One of the ways in which they ensure their indispensable position is by creating and maintaining information asymmetries. As Wood et al. (2019) notes, "ride hail and food delivery companies deliberately withhold key information from workers as part of a system of labour control."

3.1 Arbitrary Ranking Systems

Platforms create fluid ranking systems based on user ratings and algorithmic assessments. "Rankings can serve as feedback to inform providers about their own performance of various forms; and, importantly, these performance metrics are frequently available to other users" (Stark and Pais, 2020). These systems create competitive dynamics while providing behaviour influence mechanisms without direct command, using market-based incentives for compliance. Such rating systems are built into the gig platforms, creating reputational incentives where "workers were rated by their clients following the completion of tasks. Workers with the best scores and the most experience tended to receive more work due to clients' preferences and the platforms' algorithmic ranking of workers within search results" (Wood et al., 2019). Rating algorithms are often opaque, not allowing the worker or the client to dispute or rectify unfair ratings. Moreover, the existence of the rating system increases the perception of pervasive surveillance, leading to increased anxiety that every action is constantly under monitoring and may impact earnings.

The worker experience under algorithm governed gig platforms leave much to be desired. Despite promising flexibility, algorithmic management creates significant constraints. Wood et al. (2019) found workers faced "high levels of competition on the platforms for projects/tasks, which meant that it was difficult for them to raise rates. "Workers experienced having "formal control over where they work" while having "little real choice but to work from home, and this can lead to a lack of social contact and feelings of social isolation" (Mohlmann et al., 2021). Workers often "worked long hours as a result of combining gig work with alternative employment, study and caring," with weekly hours potentially reaching 70 hours or more. Dynamic pricing complicates outcomes, as "dynamic pricing is an important part of a system of labour control because it is

designed to keep workers from leaving the platform and to induce them to work at particular periods and to take on particular tasks" (Muldoon and Raekstad, 2023).

4. Platform Capitalism and Algorithmic Control

4.1 The Mobius Organisational Form

Stark and Pais (2020) introduce the "Mobius organisational form" to describe platform businesses, arguing platforms represent a fundamentally new economic organisation. Algorithmic management systems coordinate activities across platform ecosystems without traditional employment relationships.Unlike traditional hierarchies that employ workers or markets facilitating transactions, platforms "co-opt assets, resources, and activities that are not part of the firm." The organisational topology thus resembles a Mobius strip - a three-dimensional object with only one surface. Under algorithmic control, traditional hierarchies are subsumed under the overarching single control layer of algorithms.

This creates unique management challenges: "if much of the value that the platform captures is created 'on the platform' but outside of the corporate core, how can platform operators control the mission critical activities that occur there?" (Stark and Pais, 2020). Platform users exist in ambiguous relationships - "neither in nor out" - participating in value creation while remaining legally independent.

4.2 Instability of Rules as a Control Measure

Platform algorithmic management differs from traditional bureaucratic control. The ease with which algorithmic rules may be amended or changed outright poses a challenge workers and users. In the algorithmic economy, conditions and protocols evolve with the same ease that may be found in software updating. While platforms proliferate rules, these are characteristically unstable and frequently changing. "Frequent changes in terms, conditions, and protocols are a major source of uncertainty" rather than providing bureaucratic predictability (Stark and Pais, 2020). This instability serves control purposes: "the goal of the perpetual recoding of the institutional fabric, the shifting evaluation criteria, and the unpredictable 'updates' of terms and conditions is the production of uncertainty. The ongoing generation of such uncertainty - whether by instability or opacity - is a source of non-bureaucratic control" (Stark and Pais, 2020).

4.3 Revenue Management and the Algorithmic Economy

Revenue management, originally developed for "capacity management" in industries with fixed assets and perishable inventories, is now accomplished through algorithms which evaluate demand and performs marketplace management across diverse sectors.Lobel (2020) traces algorithm-reliant revenue management's evolution from its origins in the airline industry. Building on classic yield management, firms now couple high-frequency demand signals with capacity and service constraints to solve repeated pricing and assortment problems. Data gathered from various sources can be fed into dynamic policy updates or interventions. The result is a shift from static segmentation to individualised, time-indexed decisions that optimise margins. Yet algorithmic control introduces new risks: feedback loops that distort demand estimates, opacity that impedes audit, and robustness failures. Effective governance therefore requires experimentation with guardrailsand stress tests that probe tail scenarios.

4.4 Personalisation and Market Segmentation

Algorithmic economies rely on technologies that enable personalisation and segmentation. Platforms collect detailed data on customer preferences to tailor offers to each consumer based on past behaviour. In effect, each customer becomes a distinct market segment to whom customised products may be marketed. These practices make price discrimination and targeted marketing more efficient. They allow firms to capture a larger share of consumer surplus, expanding market power and altering how gains are distributed across market participants. It can change competitive dynamics as well as have an influence on consumer welfare. Tytarenko (2025) notes how "algorithms continuously analyse consumer behaviour and market trends to tailor

products and services instantly", achieving deep personalisation and real-time adaptability. Another significant gain through personalisation is "stronger loyalty and trust" among consumers (Tytarenko, 2025).

5. Algorithmic Fairness and Economic Bias

5.1 Sources of Algorithmic Bias

The quick transition to the algorithmic economy has raised concerns about fairness and bias in automated decision-making systems. Cowgill and Tucker (2020) identify several sources of algorithmic bias, including unrepresentative training samples, mislabelling of outcomes, biased programmers, and algorithmic feedback loops. Unrepresentative training data occurs when "performance outcomes about job candidates who are not hired, or about loans applications that are rejected, could be missing from engineers' training data" (Cowgill and Tucker, 2020). This selection bias can perpetuate or amplify existing discrimination in economic outcomes. Mislabelled outcomes are particularly relevant in economic contexts where "a worker facing discrimination by a supervisor may be wrongly labelled as low performing. Algorithms trained on this corpus would associate the worker's characteristics with low performance rather than discrimination" (Cowgill and Tucker, 2020).

5.2 Biased Algorithmic Objectives

Beyond prediction problems, algorithmic bias can arise from programmed objectives that are unfair in some way. Cowgill and Tucker (2020) distinguish between biased predictions and biased objectives, noting that "unfairness may arise from these objectives, even if predictions are perfectly accurate". In economic contexts, algorithmic objectives often prioritise efficiency or profit maximisation without explicit consideration of distributional consequences. Algorithms for dynamic pricing may maximise platform income while having detrimental effects on various employee or customer groups. As algorithms grow in complexity and scope, ever greater number of stakeholders become involved in their processes. The effort to balance conflicting interests among numerous stakeholders may not be always successful or fair. Algorithmic systems must negotiate difficult trade-offs with little transparency due to the triangular relationship between platforms, workers, and consumers. Algorithmic efficiency and innovation benefits may not be equally distributed across population groups. Platform workers may be exposed to multiple risk factors as platforms focus on capturing as much economic value as possible.

The algorithmic economy creates both opportunities and risks for economic inequality. While algorithmic systems can potentially reduce some forms of bias arising from subjective decision-making by individuals, they can also amplify existing inequalities or create new discrimination forms.

5.3 Feedback Loops and Algorithmic Amplification

Much of the efficiency and real-time adaptability of algorithms are a product of numerous feedback loops that feed output data back into the algorithms to manage future predictions. However, in the case of highly complex systems where human supervision may not be feasible, the existence of feedback loops may result in long-running inequities. For instance, algorithmic systems can create feedback loops that amplify existing biases or create new forms of discrimination. Cowgill and Tucker (2020) describe how "feedback loops" generate biased predictions by contaminating the training data. Feedback loops occur when the act of predicting causally affect the outcomes they are supposed to 'predict'. If an algorithmic system favours certain types of workers based on past data, this could lead to better performance metrics for those workers in the future, creating cycles that hurt other workers.

6. Future Directions and Policy Implications

6.1 Regulatory Challenges

Regulating algorithmic economies pose considerable challenges due to their unprecedented features that we have explored above. Existing regulatory frameworks were designed for static, human-mediated

transactions and operate at a scale far smaller than the algorithmic economy. To understand how the shift to algorithms will affect markets, policymakers and scholars need a sustained research programme. Rigorous empirical work can identify harms and recommend targeted interventions. The main obstacles to effective oversight of algorithmic economies are complexity and opacity. Regulation should preserve scope for algorithmic innovation while protecting the core rights of consumers and workers. Achieving this balance requires new regulatory approaches and tools.

A broad research agenda is necessary to assess long-term effects. It should include interdisciplinary studies on the social and ethical dimensions of algorithmic systems. The impact of the technology across sectors and demographic groups, and the ethical dimensions of algorithmic systems should be subjected to rigorous examination. Researchers should measure how value and outcomes vary across populations. They should develop conceptual frameworks suited to new organisational structures. Special attention is needed to link between algorithmic systems and existing social and economic inequalities. Regulation should aim to distribute the benefits of the algorithmic economy widely while mitigating the inequities it may create.

7. Conclusion

Algorithmic economies represent a paradigm shift in how global markets operate. Algorithms are poised to take over as the infrastructural backbone of the global economic relationships. Traditional business practices are quickly being replaced with platform-based business models, and personalisation of products.As is clear from the above sections, the algorithmic economy represents both potential and peril. While the efficiency of algorithmic systems and the opportunities for economic coordination and innovative forms of business elicits excitement, it is also prudent to consider the consequences of technologies which threaten crucial pillars of the economic edifice such as (1) worker autonomy and self-determination; (2) the concentration of markets and power; (3) algorithmic bias; and, (4) the distributional aspects of algorithmic decisions.

Empirical evidence from studies of algorithmic management in the gig economy reveals the complex ways that algorithmic systems reshape work relationships and worker experiences. While promising flexibility and autonomy, algorithmic management often creates new forms of control and constraint that operate through market mechanisms rather than traditional employment relationships.

This paper has looked at an overview of the theoretical frameworks that underlie the operation of algorithmic systems and their implications for economic organisation. The analyses clearly indicates that along with a readiness to embrace algorithm economies, stakeholders need to reflect critically on the technological and social implications that may evolve as the world steps into an increasingly machine mediated era. The largescale adoption of artificial intelligence in the form of large language models (LLMs) is bound to impart further momentum to the algorithmisation of all aspects of life.

Policy makers have to take cognisance of the issues discussed previously while charting the way forward for algorithmic economies. Governance and regulation need to balance the benefits of algorithmic innovation with the need to protect workers and consumers. The algorithmic economy is not simply about the adoption of new technologies but represents a fundamental transformation in the organisation of economic life. Understanding this transformation is essential for navigating the opportunities and challenges of our increasingly algorithm-driven future.

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The Moral Foundations of Property: Understanding Locke and Marx

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This paper investigates the ethical principles that underpin the notion of property by conducting a comparative study of John Locke and Karl Marx. Locke's perspective, grounded in natural rights and labour, views property as an extension of personal freedom and Marx critiques property as a social construct that is deeply rooted in historical materialism. This paper illustrates how each philosopher positions property within larger ethical and socio-economic contexts. The paper provides essential insights into current discussions regarding ownership, rights, and the ethical validity of economic frameworks.

Keywords : Property, private ownership, labour, natural rights.

Introduction

Property rights constitute key principle in the fields of economics, law, and political philosophy, outlining the legal and social connections between individuals and resources. They establish the ways in which property is owned, utilized, and transferred, influencing economic efficiency, social justice, and personal freedom. Generally, property rights can be divided into private, public, and common rights, each representing distinct ownership and control models over resources. In both legal and economic theories, property rights create the structure through which limited resources are distributed and used. Influential thinkers like John Locke argued that secure property rights are crucial for fostering economic growth. Locke's labour theory suggests that individuals attain ownership of resources by combining their labour with them, thereby validating private property as a natural extension of personal effort. On the other hand, Marx emphasises the significance of common property ownership in facilitating decapitalisation, market disengagement and classless socialist development, heralding the era of communism. Clearly defined and enforceable property rights promote economic expansion by lowering uncertainty, stimulating investment, and reducing conflicts over resource use (Carruthers & Ariovich, 2004; Alexander & Penalver, 2012).

In contrast, weak or unclear property rights frequently result in inefficiencies such as the overexploitation of common resources, illustrated by the tragedy of the commons (Kharkongor & Kanwar, 2018) or insufficient investment due to insecure tenure. Aside from economics, property rights also possess considerable social and political consequences. They influence power dynamics, access to wealth, and social equity, shaping discussions on land reform, intellectual property, and indigenous rights. As societies progress, the definition of property rights is continually broadening to include intangible assets such as data and digital creations. In summary, property rights are fundamental to contemporary legal and economic frameworks. Their formulation and enforcement are vital in achieving a balance between individual freedoms, collective well-being, and sustainable resource management (Alchian & Demsetz, 1973).

Thus, property refers to the right to own, utilize, and transfer possessions, and has been a consistent topic of analysis. The right to property is not merely a legal or economic issue; it is intricately linked to moral, political, and philosophical beliefs (Gibbons & Roberts, 2013). Two influential thinkers who have shaped the conversation on the moral basis of property are John Locke and Karl Marx. Locke argues in favour of private

property, claiming it is founded on hard work mixed with labour, individual self-ownership, and the natural state of humanity; Marx, on the other hand, critiques private property - particularly concerning the means of production - as being alienating, exploitative, and contrary to human well-being (Day, 1966; Brenkert, 1979). This article examines how Locke and Marx understand property from a moral standpoint, compares and contrasts their views, and discusses the normative implications for current debates regarding property rights, justice, and the greater social good.

The article is organized into four sections. First, the paper investigates into Locke's moral basis for property, which includes self-ownership, the mixing of labour, the appropriation conditionality, and the role of government. In the second part, the focus is being shifted to Marx's critique, which encompasses the ideas of alienation, the role of private property as capital, and the route toward common ownership. The third section makes a comparison between Locke and Marx, emphasizing both their similarities and significant differences. Lastly, the paper considers the implications of these differing moral perspectives for contemporary property-related issues such as wealth inequality, access to land, and environmental commons.

Locke on Property

Locke's concept of property as a natural right begins with the idea of self-ownership, suggesting that each individual holds ownership over their own body: every individual possesses rights over their own person. This implies that no one has rights over anyone other than himself. The effort of one's body and the output of one's labour rightfully belong to that person. Therefore, self-ownership serves as the fundamental moral principle: one possesses one's body, one's work, and one's ability to act. Since labour represents the exercise of the self, the outcomes of one's labour carry a claim. Locke illustrates that nature was provided in common by God to all people, the act of individuals claiming parts of it requires justification. The rationale Locke provides is that by mixing one's labour with nature, one establishes a claim over it (Locke, 2021; Wayper, 2007).

This concept of self-ownership is vital for Locke's moral foundation of property, as it suggests limitations on interference by the state and community in individual actions and labour. From a moral perspective, property is not merely a socially constructed right but a natural entitlement based in the rational agency of individuals. Locke believes that morality can be understood through reason, and that moral principles can possess demonstrable certainty, particularly considering his notion that the problem of unfairness does no arise without ownership (Locke, 2004).

Locke's primary method for appropriation is the blending of labour with the commons: when an individual applies their labour to resources that have no owner, the outcome belongs to that individual. The individual creativity, additions and efforts which he makes through altering what the natural world offers is conceived as property, reflective of the hard-earned labour. This model of labour-mixing provides a moral basis for private property: labour holds moral significance, and the appropriation of resources through productive effort is justified because the worker has enhanced value, thus distinguishing private ownership from communal ownership. Furthermore, Locke introduces what is frequently referred to as the Lockean proviso, a key idea in his theory of property - which asserts that appropriation is valid only if "there is enough, and as good left in common for others" (Locke, 2021, p. 122) and that the resource is not rendered wasteful through such appropriation (Sabine & Thorson, 2015).

In ethical terms, this condition recognizes that while labour generates claims, the act of appropriation must honour the equal entitlements of others to the resources provided by nature. Locke thereby positions property rights within the individual while also embedding them in a moral framework of fairness and fraternity, albeit not in the contemporary context of equality in distribution. Locke acknowledges practical challenges: for instance, the introduction of money transforms the dynamics of appropriation - one can accumulate more than what is necessary for personal use since money does not perish, and mutual social acceptance plays a part (Olivecrona, 1974). Furthermore, Locke's moral philosophy regarding property intersects with his political

theory. The primary function of government is to protect life, liberty and estates of its members, where estates broadly represent property. Thus, the government exists to safeguard property rights, which derive from moral rights grounded in natural law. Communities arise when individuals agree to abandon the state of nature for the protection of their individual rights, including property. Consequently, property is not only a matter of morality but also of social significance: civil society is justified, in part, by its role in safeguarding individuals' property rights (Ebenstein, 1956).

Although Locke highlights individual rights, his perspective does not endorse unlimited accumulation or a might makes right approach. The labour-mixing principle and the proviso establish moral limitations. Additionally, in the state of nature, the waste of resources is prohibited and appropriation is confined to what one can utilize to enhance one's life without causing spoilage. Therefore, from an ethical standpoint, Locke presents a normative framework: Individuals own themselves; labour holds moral significance; by combining labour with nature, one acquires rightful property; yet, appropriation must ensure that there is "enough and as good" (Locke, 2021, p. 122) left for others; and the government's rightful function is to protect these rights. Property is thus rooted in natural moral rights, with labour adding value, subject to moral constraints (Tully, 1982).

Marx's Critique of Property

Karl Marx's examination of property is grounded in his earlier discussions about alienation. In the Economic and Philosophic Manuscripts of 1844, Marx argues that within a capitalist framework, workers face alienation from (a) the results of their labour, (b) the process of labour itself, (c) their human nature (species-being), and (d) their fellow humans (Marx, 1988). The presence of property and the private ownership of production means arises from this alienation, which further perpetuates it. Private property stands as the product, outcome, and inevitable consequence of alienated labour, and it is also the mechanism through which labour becomes alienated. To put it another way, Marx perceives property not solely as a legal or economic relationship but as a moral issue: property relations can hinder human self-realization, reduce labour to a mere commodity, and transform people into objects, while their interactions become merely utilitarian. For Marx, creating a just society requires addressing alienation, which involves altering property relations (Marx & Engels, 1998).

Marx identifies a key difference between personal property, which encompasses items intended for individual use, and private property, which refers to assets that generate surplus and facilitate exploitation. He perceives private property - the possession of production means by individuals who do not engage in labour - as the basis of class relationships within capitalism. He characterizes it in this way: The core of the production relationships in bourgeois society is capitalist ownership of the means of production. This capitalist ownership of production means pertains to the private property held by capitalists, which is not derived from their own labour and is used to exploit wage workers (Marx, 2004).

From an ethical standpoint, Marx argues that this form of property is unjust due to its foundation in the exploitation of labour, alienation, and inequality. When one discusses private property, they are referring to something that exists outside of individuals. In contrast, labour focuses directly on the individual. Thus, property becomes a moral issue since it influences human relationships (master - worker, alienated worker, capital owner) in ways that strip away humanity. In opposition, Marx envisions communism as a state where the means of production are collectively owned, and human relationships are not mediated by material possessions. The abolition of private property represents the emancipation of humanity, as the connections among individuals are direct rather than mediated through material goods (Kamenka, 1981).

Marx places his critique within the context of historical materialism, claiming that property relations evolve over time and that the contradictions present in private property under capitalism eventually result in revolution and transformation. For example, his analysis of capitalist accumulation relates to the ownership of means of production as a second negation; after feudal property, this evolution gives rise to the next phase

of social property or collective ownership. Ethically, this suggests that property is not an unchanging concept but rather a dynamic relationship; moral assessments need to take into account the societal implications of various property forms, such as inequality, alienation, and class exploitation. Marx perceives the ethical goal as the self-actualization of individuals, the liberation of labour, and the establishment of a society where property does not dominate but instead serves human needs. He contends that property must not only experience legal transformation but also that all aspects of alienation, including the fundamental idea of property and the divide between the individual and society, must be overcome (Marx, 2004).

Marx critiques the fact that, under a system of private property, the interactions of exchange-value and surplus overshadow human needs and collective goals. As one examination points out: in the framework of private property and wage labour, workers are compelled, under the threat of starvation, to offer their labour-power to capitalists, placing them in a state of subordination and alienation. Ethically, this indicates that property systems are unjust when they consistently generate poverty, suffering, or alienation, even if they adhere to legal frameworks. Marx's benchmark for what is normative focuses on human growth and collective association, rather than solely on formal legal entitlements or individual property ownership. Marx believed that private ownership of the means of production leads to the emergence of twin evils -avarice and ego-centric tendencies in human nature (Althusser, 2005).

Locke and Marx: An Understanding

Despite their fundamentally different ethical perspectives, Locke and Marx exhibit several structural similarities. Both thinkers perceive property as linked to human labour and agency. Locke focuses on the concept of labour-mixing, while Marx sees labour as the essence of humanity, which becomes alienated under private property. Property is intricately connected to human nature, morality, and society, extending beyond mere positive law. For Locke, property emerges from natural rights and rational agency, whereas for Marx, property plays a crucial role in the human experience, either being fulfilled or alienated. Each thinker acknowledges that property rights are situated within broader social relations and constraints; neither views property as morally boundless or entirely disconnected from ethical considerations. Locke's proviso serves as a limitation, while Marx highlights the social ramifications of property (Petrovic, 1963; Locke, 1997).

Locke bases the concept of property on individual self-ownership and labour rights, grounding the moral foundation in the individual's rational agency. In contrast, Marx interprets property primarily as a social relationship that can lead to either alienation or empowerment; the moral groundwork is centred on human flourishing within a community and liberation from oppression. For Locke, private appropriation through labour is morally acceptable, given that the proviso is honoured. However, Marx regards the private appropriation of the means of production as inherently immoral, as it is founded on unfree labour and entrenched class power. While Locke considers appropriation as morally valid, Marx condemns the prevailing form of appropriation - capitalist private property - as morally objectionable (Sabine & Thorson, 2015).

Locke permits accumulation beyond immediate necessity through money and tacit consent, though he acknowledges potential moral concerns (the proviso and waste). Inequality, for Locke, is not deemed morally wrong as long as the acquisition process is legitimate. Conversely, Marx views property accumulation as a manifestation of structural injustice, wherein inequality, exploitation, and alienation logically result from the capitalist property system. Locke's objective revolves around safeguarding individual rights, facilitating labour, and securing freedom; property serves as a means to ensure life, liberty, and estate (property). In contrast, Marx aims for a radical restructuring: property relationships must be overhauled to fulfil human labour needs, eliminate alienation, and transform labour from coerced to liberated. Property, viewed as a mechanism of domination, should yield to communal relationships (Ebenstein, 1956).

Marx critically evaluates Locke, perceiving his notion of combining labour with appropriation as embodying the ideal of petty-bourgeois property, which inherently relies on capitalist production relationships. According to one source, Locke did not investigate any methods of appropriation beyond labour-based

appropriation; within Locke's perspective, the right to property is always linked to one's own labour. Nevertheless, the type of property in question is not private property; it is individual property. Essentially, Marx contends that Locke's rationale overlooks the social and systemic dimensions of property. On the other hand, one could dispute Marx's view from a Lockean perspective by questioning whether collective property, as anticipated by Marx, may undermine individual agency and accountability if self-ownership and labour are regarded as particularly ethical. Locke might express concern that socializing production results in individuals being regarded merely as parts of the collective, rather than as authentic moral agents. A crucial query revolves around the ethical dilemmas associated with property and accumulation. Locke offers one viewpoint: it transpires through violating the proviso (taking in a manner that leaves less for others), through wastefulness, or by encroaching on others' rights. In contrast, Marx presents a different perspective: when property relations give rise to alienation, class oppression, and exploitation (Ollman, 1976; Brenkert, 1979; Mossoff, 2012).

In discussions about severe wealth inequality and land ownership, these ethical frameworks remain pertinent. A Lockean might inquire whether property owners have legitimately laboured, honoured others' rights, and left enough and as good for others. Meanwhile, a Marxian might question whether the property system is inherently unjust, whether labour remains alienated, and whether a small group, rather than the workers collectively, controls the means of production. Locke's proviso holds significant relevance for environmental issues, common goods, and natural resources: the ethical obligation that appropriation should leave sufficient and equivalent resources for others aligns with sustainability and generational equity. Critics argue that a strict interpretation of the proviso could bar any appropriation of non-renewable resources. Marx's critique encourages us to ponder whether the commoditization of natural resources and their appropriation by a select few is morally justifiable when it results in ecological harm, alienation, and damage to communal well-being. The ethical focus shifts from the individual gaining to the societal impacts of property systems (Andrew, 1985; Wayper, 2007).

Locke's framework advocates reforms in property rights (such as taxation, regulation, and eminent domain) as methods to safeguard everyone's rights while maintaining individual ownership. Conversely, Marx's framework calls for a fundamental reconfiguration of property: communal ownership of production means, a change in labour relations, and the elimination of exploitative property structures. In contemporary policy discussions, one might ponder whether our goal should be to merely alleviate the injustices associated with private property (in line with Locke) or to radically change property relationships (in line with Marx). The ethical foundations that both frameworks provide suggest divergent paths: individual rights and equitable appropriation versus social liberation and democratic oversight of production (Day, 1966; Andrew, 1985; Ebenstein, 1956).

Conclusion

The ethical basis of property cannot be entirely defined by legal frameworks or economic systems; rather, it is grounded in philosophical concepts surrounding self-ownership, labour, agency, community, justice, and human well-being. Locke and Marx present two lasting and opposing perspectives. Locke associates property with individual agency and the mixing of labour, sets moral boundaries through the proviso, and endorses the government's role in safeguarding property as a natural entitlement. In contrast, Marx identifies the moral challenges within the social fabric of property: alienation, exploitation, and class oppression, advocating for a transformation of property relations towards collective human liberation.

These theoretical frameworks continue to hold significance in today's context of global inequality, environmental challenges, and discussions surrounding digital resources, land reform, wealth taxation, and the future of employment. Grasping the moral foundations of property aids in clarifying our ethical principles: whether we prioritize individual rights and just acquisition or concentrate on structural equity and human liberation. Ultimately, property is not merely concerned with ownership or the methods thereof; it raises questions of why ownership is justified, how one should utilize or dispose of owned assets, and what moral obligations

accompany ownership. Locke offers one perspective; Marx provides another, and together they enrich our understanding of the ethical landscape of property.

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