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Theoretical Essay

The Political Economy of Disease: Marx, Social Medicine, and the Production of Health Inequality

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Abstract
Karl Marx did not formulate a clinical or pathological theory of medicine. His importance for medical thought lies elsewhere: his critique of capitalism repositioned disease and health as problems of labor, class, social reproduction, and public power. Through close conceptual reading, intellectual-historical reconstruction, and critical synthesis, this article develops its argument through three analytical movements. It first examines Marx's account of the laboring body, the working day, machinery, surplus value, and the reproduction of labor-power. It then situates Friedrich Engels's *The Condition of the Working Class in England* as a bridge between political economy and social medicine before tracing the reformulation of these concerns in the political economy of health and health-inequality research. The article proposes a four-domain distributional framework: capitalist institutions organize hazardous exposure, shape embodied susceptibility, stratify access to treatment, and differentiate recovery and cost-bearing. The framework's contribution lies in integrating processes that are often studied separately within a single account of institutional distribution. Marxian political economy therefore contributes to the social understanding of medicine and health by explaining how risks and protections are allocated, not by substituting for biomedical explanation. This perspective neither reduces every illness to class nor attributes later scholarship directly to Marx. Its continuing value is to connect biological mechanisms with the political and economic structures that distribute exposure, vulnerability, care, and the costs of recovery.

Keywords: Karl Marx; social medicine; political economy of health; health inequality; laboring body; commodification

1. Introduction: Why Disease Requires a Political-Economic Perspective

Modern medicine has achieved extraordinary explanatory and therapeutic power by turning disease into an object of observation, classification, diagnosis, and intervention. Pathogens, organs, cells, genes, and physiological indicators constitute the core vocabulary of biomedicine. This vocabulary answers an essential question—through what mechanisms does disease occur?—but it does not by itself answer another set of questions. Why are some groups more exposed to pathogenic environments? Why do certain occupations produce earlier bodily exhaustion? Why does the same disease have different consequences across classes, regions, and racialized groups? Why does the expansion of medical technology not automatically equalize health opportunities? Disease has biological mechanisms, but its distribution across populations is never purely natural.

The World Health Organization's Commission on Social Determinants of Health emphasizes that the conditions in which people are born, grow, live, work, and age, together with the distribution of power, money, and resources, shape avoidable and unjust health differences (Commission on Social Determinants of Health 2008). This proposition is now central to public-health research. Yet "social determinants" can become a

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list of variables—income, education, housing, occupation, and access to care—without an account of why these variables cluster in particular populations. Political economy matters because it places such determinants within production, distribution, and institutional power. It asks not only whether poverty is correlated with disease, but how poverty is produced; not only whether work is hazardous, but who controls the labor process and who bears its risks; not only whether care is scarce, but which accumulation strategies and policy choices determine the allocation of care.

Marx did not write a medical treatise and did not develop a theory of pathology, diagnosis, or clinical treatment. Calling him a medical theorist would therefore be historically inaccurate. His contribution was a reorganization of the problem. By placing bodies within production, labor time, class relations, and social reproduction, Marx treated the body as historical rather than merely natural. This framework emerged across his accounts of alienated labor, wage labor, class society, and the historical specificity of capitalist production (Marx 1975, 1978b, 1993; Marx and Engels 1970, 1978). In *Capital*, his discussions of the working day, machinery, factory legislation, women's and children's labor, and the reproduction of labor-power show that bodily depletion is not an accidental side effect of production but a foreseeable consequence of capital's pursuit of surplus value (Marx 1976, chaps. 10 and 15). The significance of Marxian political economy for medicine is consequently best understood as a transformation of scale: from individual pathology to social relations, from isolated exposure to the institutional distribution of risk.

This article addresses three questions. First, how does Marx place the body and health within the relation between labor and capital? Second, how were these insights mediated by Engels and nineteenth-century social medicine before becoming part of the political economy of health? Third, what explanatory value and limitations does this tradition have for contemporary health inequality, health-care commodification, and public-health governance? The argument distinguishes direct textual engagement with Marx or Engels, conceptual translation of Marxian categories into a new field, structural affinity between partly independent problem orientations, and retrospective reconstruction by later scholars. Across these different relations, Marxian concepts provide a grammar—labor, accumulation, class power, reproduction, and commodification—that later scholarship selected, contested, and reformulated. This grammar makes visible four connected domains in the social organization of disease: exposure, embodied susceptibility, access to treatment, and recovery and cost-bearing.

1.1. Method and scope

This article adopts a theoretical and interpretive research design. It combines close conceptual reading, intellectual-historical reconstruction, and critical synthesis of interdisciplinary scholarship. The primary textual corpus consists of selected writings by Karl Marx and Friedrich Engels that address labor-power, the working day, machinery, social reproduction, housing, sanitation, and working-class mortality. These texts were selected because they contain the most direct discussions of the relationship between capitalist production and the material conditions of bodily life.

The second body of literature includes representative works in social medicine, the political economy of health, critical epidemiology, and health-inequality research. The purpose is not to provide an exhaustive systematic review of all scholarship in these fields. Rather, the article reconstructs major conceptual pathways through which questions of labor, class, accumulation, embodiment, health-care organization, and unequal risk became connected.

The analysis distinguishes four forms of intellectual relationship: direct textual engagement with Marx or Engels, conceptual translation of Marxian categories into health research, structural affinity between independently developed approaches, and retrospective reconstruction by later scholars. This distinction is necessary because not every social explanation of disease derives directly from Marxism. The study is therefore interpretive rather than bibliometric, and the proposed framework should be understood as a conceptual model for organizing future theoretical and empirical research.

2. The Laboring Body: From Labor-Power to Historical Life

2.1. Labor-power is a bodily commodity

Marx's political economy does not begin with an abstract individual who enters an impartial market. It begins with people organized by a mode of production. Under capitalism, workers who do not own the means of production sell their labor-power in order to obtain wages. Labor-power appears as a commodity, but unlike an ordinary commodity it exists in a living person. Its use involves the expenditure of strength, attention, skill, affect, and time. Capital therefore purchases not a static object but the right to direct bodily capacity over a period of time.

The early language of alienated labor in the *Economic and Philosophic Manuscripts of 1844* already identifies this problem. Labor, which could be the realization of human powers, becomes an external compulsion directed toward survival; the product, the activity, and social relations confront the worker as alien powers (Marx 1975). Alienation is not merely a subjective feeling. It is embodied in the organization of activity, the disciplining of time, and the separation of workers from control over the conditions of their own life. The body has a double status: it is the condition through which human capacities can be realized and the resource that must be taken to market and subjected to production discipline. This essay treats alienation and the mature critique as continuous at the level of the problem—workers' loss of control over their activity and conditions of life—but not as identical theoretical vocabularies. The later analysis relocates that problem within historically specific categories of commodity exchange, labor-power, surplus value, and accumulation.

In *Capital*, Marx explains this relation through the concepts of labor-power, surplus value, and the working day. The value of labor-power is related to the means necessary for its maintenance and reproduction, while its use creates value greater than its own value (Marx 1976, chap. 6). His shorter analyses of wages and surplus value clarify why the wage can present the transaction as payment for labor even though the use of labor-power produces a surplus appropriated by capital (Marx 1978a, 1978b). Surplus value thus depends on the continuation of bodily activity beyond necessary labor time. Absolute surplus value is produced through the extension of the working day; relative surplus value through productivity and the reorganization of necessary labor time. Both mechanisms mobilize the living body. Capital's drive to expand is expressed through the rhythm, intensity, and duration of bodily expenditure.

2.2. The conflict between life-time and capital-time

The struggle over the working day reveals the conflict between capital accumulation and bodily limits. The capitalist, as purchaser, demands the fullest possible use of the labor-power purchased. The worker, as owner of that labor-power, must limit its use because it is the source of future livelihood. A formally free labor contract can therefore coexist with excessive labor: the parties may be juridically equal while possessing unequal resources, bargaining power, and exit options.

"Capital-time" here denotes the temporal discipline through which accumulation values speed, continuity, intensity, and the extension of usable labor. It tends to treat the body as a calculable input: output per hour, intensity per shift, idle time, and unit labor cost. Bodies, however, also have another temporality. Sleep, nourishment, recovery, care, and reproduction cannot be compressed indefinitely. When production ignores these limits, fatigue, injury, chronic disease, and premature aging are not simply failures of individual adaptation. They are outcomes of a conflict between the temporal requirements of accumulation and the temporal requirements of living.

The body analyzed by Marx is therefore a historical body. Its strength, longevity, and exposure to disease are shaped by working hours, labor intensity, wages, housing, nutrition, and care. "Laboring body" does not mean that human beings are reducible to labor. It means that capitalism approaches living persons through the social form of labor-power, and that the overuse of labor-power appears necessarily as bodily depletion. This is the theoretical entry point through which political economy becomes relevant to health.

2.3. Social reproduction and the conditions of health

The factory alone cannot explain the reproduction of bodily capacity. Marx's account of simple reproduction shows that the reproduction of labor-power is internal to the reproduction of the capital relation, even when the work that sustains life occurs beyond the immediate labor process (Marx 1976, chap. 23). Daily and generational reproduction also depends on households, communities, public services, and ecological conditions. Food, housing, rest, education, health care, and care work sustain the capacity to return to production. Later social-reproduction theory has shown that much of this work, especially work performed by women, remains undervalued or invisible in market-centered accounts (Bhattacharya 2017).

This extension is crucial for social medicine. Health is not produced only when a patient is treated in a clinic; it is produced in everyday life. Low wages can mean not only reduced consumption but also poorer nutrition, overcrowded housing, delayed treatment, and insufficient time for care. Long hours can mean not only occupational exposure but also reduced sleep and family support. Cuts in public services transfer the costs of reproduction to households. Illness and recovery therefore circulate between production and social reproduction: unpaid carers absorb treatment time, households bear income loss and debt, and gendered divisions of labor determine who performs recovery work. These mechanisms reappear in the fourth domain of the framework developed below.

3. The Factory System: How Accumulation Becomes Bodily Depletion

3.1. The working day, machinery, and occupational hazard

The chapters on the working day and machinery in volume 1 of *Capital* provide Marx's most direct connection to health. Drawing on factory inspectors' reports, public-health materials, parliamentary investigations, and industry-specific evidence, Marx describes long hours, polluted air, dangerous machinery, child labor, and night work in textile, pottery, baking, and other industries (Marx 1976, chaps. 10 and 15). The purpose of these materials is not only moral denunciation. They demonstrate that surplus-value production has observable bodily consequences.

Machinery could reduce arduous labor, but under capitalist relations it can also extend the working day, intensify work, and enlarge the population available for employment. Technology therefore has no single social effect independent of its ownership and organization. Competition pressures firms to reduce costs and increase output; when workers lack collective bargaining power and public regulation is weak, the costs of bodily injury can be shifted to households and public institutions. Efficiency in the firm's accounts may correspond to occupational disease, disability, unpaid care, and lost life in society's accounts.

This yields a first meaning of the "social production of disease risk." Capitalist firms do not necessarily intend to produce illness, but profit incentives, competition, and the externalization of costs can systematically organize harmful exposures. The causal relation between accumulation and illness is mediated by labor organization, law, unions, welfare institutions, and technology. Political economy identifies one level of explanation for why avoidable risks persist even when their harms are known.

3.2. From individual accident to structural risk

To explain an injury as individual error is to stop at the final event. A labor-process perspective asks how production targets were set, who determined the pace, who paid for protection, and whether workers could refuse hazardous tasks. An accident occurs to a particular person, but it may be generated by understaffing, subcontracting, speed-up, or weak enforcement. Structural risk is not an impersonal force without actors; it is the accumulation of ordinary organizational decisions.

Class matters here not simply as an income category but as a relation to productive assets, labor control, and social resources. Asset owners can transfer risk to employees, subcontractors, consumers, and public budgets. Wage-dependent workers may have a formal right to leave a job, but unemployment, family responsibilities, immigration status, and local labor markets can make exit prohibitively costly. Health inequalities thus reflect unequal capacities to avoid or exit risk, not only unequal preferences.

3.3. Factory legislation and the political formation of health rights

Marx's discussion of factory legislation also shows that health protection is not an automatic product of exchange. Limits on child labor, shorter working hours, improved ventilation, and inspection systems were political achievements that placed boundaries on how labor-power could be used. Law transformed some bodily limits from matters of private contract into collective standards.

Public health follows the same logic. Health rights require enforceable rules concerning working time, wages, exposure, insurance, and public services. The state is not naturally a neutral guardian of health: regulatory strength and welfare provision reflect struggles among classes, organized labor, professional groups, and political institutions. Public-health policy is consequently a technical practice and a political process concerning who bears costs and who receives protection. A political-economy approach must therefore identify the contextual mechanisms through which configurations of power are translated into policies, institutional capacities, and unequal population-health outcomes (Lynch 2023).

4. Engels and Social Medicine: From Working-Class Disease to "Social Murder"

If Marx supplied a theory of capitalist production, Engels showed more directly how that structure appeared in housing, sanitation, disease, and premature death. *The Condition of the Working Class in England* combines urban observation, official reports, press materials, and workers' accounts to examine Manchester and other industrial cities (Engels 1987). Engels did not treat overcrowding, polluted water, malnutrition, and occupational hazard as unavoidable consequences of modernization. He connected them to property relations, urban segregation, and class power.

The notion of "social murder" captures this connection. When society places a class in conditions known to shorten life and fails to change those conditions, premature death has a social responsibility (Engels 1987, 106). The concept does not allege that one official intentionally kills every victim. It identifies foreseeable harm, institutional inaction, and dispersed responsibility. No single actor need directly cause each death for housing policy, wage relations, labor organization, and public-health neglect to constitute a deadly environment.

Engels's work became a major bridge between Marxist political economy and social medicine, but it was not the only source of social medicine. Rudolf Virchow's investigation of the typhus epidemic in Upper Silesia connected disease to poverty, education, and political exclusion, and treated social reform as indispensable to disease control (Virchow 2006a–c). Historical scholarship on public health likewise demonstrates that sanitation, epidemiological knowledge, municipal authority, and struggles over collective provision developed together rather than as a purely technical history of medical discovery (Rosen 1993). The broader nineteenth-century movement therefore enlarged the scale of medical explanation: disease became a record of social life, and public health became an element of social reform.

Marx, Engels, and social medicine should nevertheless not be collapsed into one tradition. Their concepts, political programs, and professional locations differed. It is more accurate to speak of a convergence of problem orientations. The material conditions of disease, the organization of labor, and the distribution of resources became objects of critical inquiry. Later Marxist health scholarship inherited this orientation while adapting it to new forms of medicine, state policy, imperialism, and global capitalism.

Three neighboring terms can now be distinguished. *Social medicine* names a tradition that treats health and illness as social processes and medicine as a social practice. *Public health* refers more broadly to the organized knowledge, institutions, and interventions directed toward population health. The *political economy of health* is an analytical approach within and across these fields that examines how production, ownership, state power, and resource allocation shape health and health care. The terms overlap, but they are not interchangeable: public health need not adopt a political-economic explanation, and political economy is not itself a complete public-health practice.

5. From Social Etiology to the Political Economy of Health

5.1. The Marxist turn in social medicine

From the 1970s onward, scholars such as Vicente Navarro, Lesley Doyal, and Howard Waitzkin used Marxist concepts to analyze illness and medical institutions. Navarro placed medicine within class structure and state policy, arguing that medical institutions are not external to society (Navarro 1976). His later edited collection extended this analysis to the consequences of political and economic inequality for health and quality of life across national settings (Navarro 2002). Doyal and Pennell connected health services to the mode of production, gender relations, and imperial structures (Doyal and Pennell 1979). Waitzkin examined the contradictions of capitalist health care: medicine can relieve suffering, while payment systems, profit requirements, and organizational control restrict the equitable realization of that capacity (Waitzkin 2000, 2011).

Latin American social medicine was not merely an application of North Atlantic Marxism. Laurell identified social class and the labor process as central analytical concepts for explaining collective patterns of health and illness, while also reconstructing the movement as a distinct regional formation in critical dialogue with epidemiology and state policy (Laurell 1989). Breilh's critical epidemiology sharpens the distinction between a list of social determinants and the *social determination* of health: the latter concerns dynamic relations among accumulation, power, ecology, gender, and ethnicity that generate patterned ways of living and becoming ill (Breilh 2021). This tradition therefore extends Marxian political economy while revising economic reductionism and the assumption that theory travels in only one direction.

The political economy of health studies how political and economic domains interact to shape individual and population health. Harvey's historical review shows that class, exploitation, capital accumulation, working conditions, imperialism, and control over resources have remained central to this tradition (Harvey 2021). It differs from a narrow health-economics approach centered on scarcity, efficiency, and consumer choice. Political economy asks how scarcity is produced, who defines need, who controls allocation, and how costs and benefits are distributed.

This tradition has two connected levels. The first is the political economy of illness: how production, labor, environmental policy, and inequality generate differential exposure. The second is the political economy of health care: how capitalism shapes the production, distribution, and consumption of medical services (Baer, Singer, and Susser 2013). The two cannot be separated. Unequal treatment can intensify illness, while medical expenses can impoverish households and generate new health risks.

5.2. A four-domain framework for the political economy of disease

The article's central analytical proposal is that health inequality should be understood as the unequal institutional allocation of structural risk and protective resources across four connected domains. These domains are not a chronological sequence that every illness follows. They are analytically distinct but interacting sites at which political and economic relations organize who is endangered, protected, treated, and supported.

Exposure concerns the distribution of contact with hazards through labor processes, housing markets, transport, food systems, environmental policy, and infection control. **Embodied susceptibility** concerns the capacities with which people encounter those hazards: nutrition, chronic stress, cumulative deprivation, discrimination, prior illness, and the everyday work of social reproduction shape vulnerability before a clinical event. **Access to treatment** concerns whether insurance, income, geography, citizenship or migration status, clinical discrimination, and institutional design enable timely diagnosis and appropriate care. **Recovery and cost-bearing** concern paid leave, rehabilitation, disability support, household care, debt, and long-term services. Recovery is therefore both a biological process and a distributive arrangement determining whether employers, states, insurers, patients, or unpaid carers absorb the time and cost of illness.

Class position connects all four domains by shaping the capacity to avoid danger, mobilize protection, obtain timely care, and recover without financial ruin. Yet class never operates in isolation. Gendered divisions of paid and unpaid labor structure exposure and recovery work; racialization and colonial histories organize residential and environmental hazards, clinical interaction, and global access to resources; migration and disability status affect eligibility, bargaining power, and institutional recognition. The framework is class-centered because it reconstructs a Marxian contribution, but it is relational rather than class-exclusive.

The framework's distinctive contribution is not the identification of each domain in isolation, since exposure, vulnerability, access, and recovery have all been examined in existing health research. Its contribution lies in integrating them within a single political-economic account of institutional distribution. It shows that health inequality is generated not only before disease occurs, through unequal exposure, but also through the social production of susceptibility, the organization of treatment, and the allocation of the costs and labor of recovery. The framework therefore extends analysis beyond the conventional separation between the social determinants of illness and inequalities in health-care access.

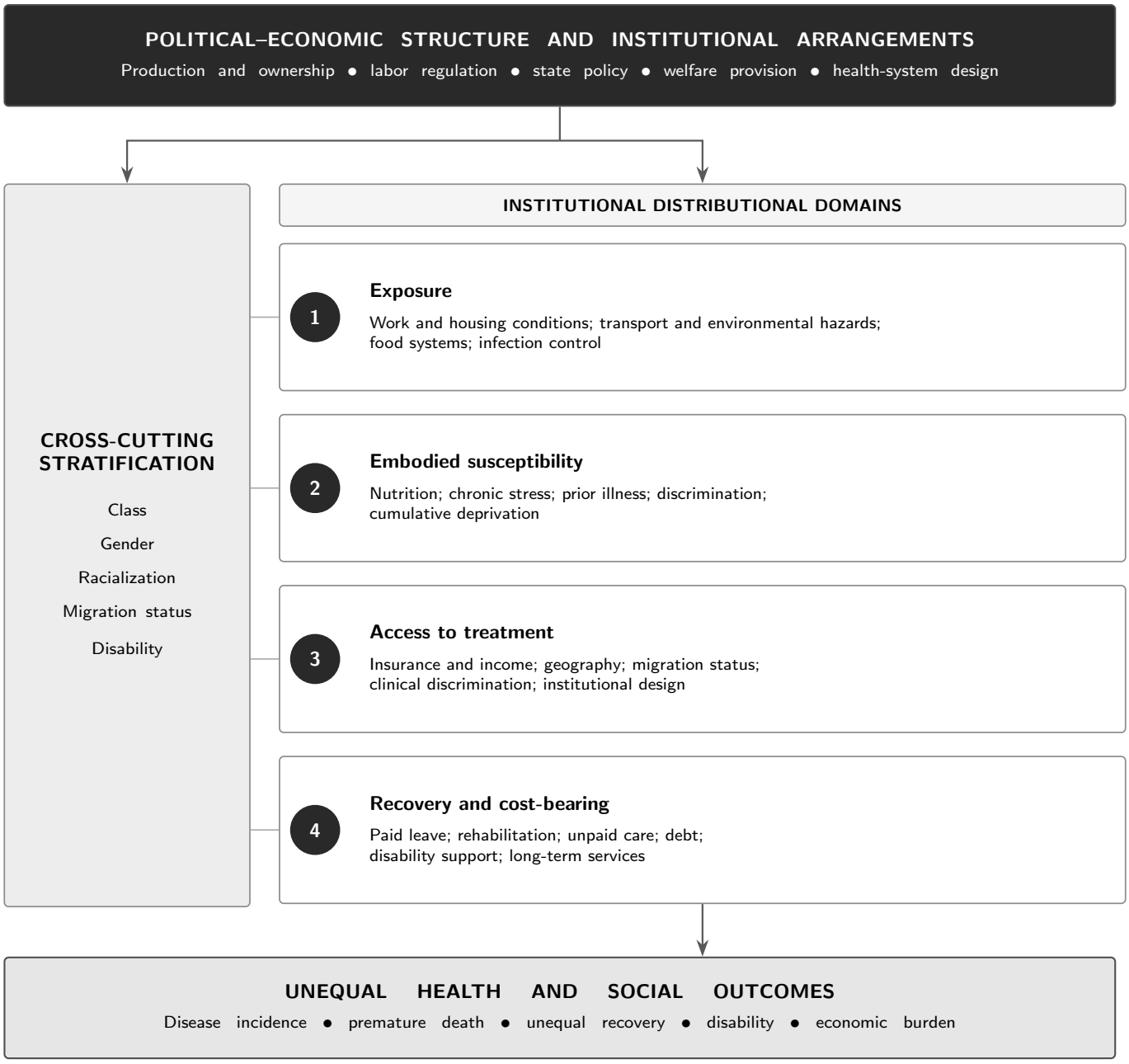


Figure 1. A four-domain distributional framework for the political economy of disease. Cross-cutting stratification shapes each domain; the domains may interact recursively and are not necessarily chronological.

Table 1. Analytical domains of the political economy of disease

Domain	Key institutional mechanisms	Central analytical question
Exposure	Labor processes, housing markets, environmental regulation, transport systems, food systems, and infection-control arrangements	How are hazardous environments and pathogenic exposures distributed across populations?
Embodied susceptibility	Nutrition, chronic stress, cumulative deprivation, discrimination, prior illness, and social reproduction	How do social conditions become incorporated into unequal bodily vulnerability?
Access to treatment	Insurance, income, geography, citizenship or migration status, clinical discrimination, and health-system design	Who can obtain timely diagnosis, appropriate treatment, and continuing care?
Recovery and cost-bearing	Paid leave, rehabilitation, disability support, household care, medical debt, and long-term services	Who bears the financial, temporal, and caring costs of illness and recovery?

5.3. Health-inequality traditions in dialogue

Several influential health traditions illuminate different parts of this framework without converging automatically on Marxism. The WHO Commission identifies the conditions of birth, growth, work, life, and aging and emphasizes the unequal distribution of power, money, and resources (Commission on Social Determinants of Health 2008). Marmot's research establishes the social gradient: health is patterned throughout the hierarchy rather than divided only between the poorest and the richest, while broader social-determinants research traces the effects of work, place, welfare, and the life course (Bambra 2016; Marmot 2005, 2015; Marmot and Wilkinson 2006). These approaches map the breadth and patterned distribution of inequality, but they do not necessarily specify a theory of accumulation or class power.

Link and Phelan's fundamental-cause theory explains the durability of socioeconomic inequalities because flexible resources—money, knowledge, power, prestige, and social connections—can be converted into protection even as diseases and technologies change (Link and Phelan 1995). It is not a Marxist theory, but its account of resource conversion is compatible with a political-economic inquiry into why such resources are unequally controlled. Krieger's ecosocial theory, in turn, supplies an account of embodiment: people biologically incorporate material and social worlds across the life course through pathways involving work, discrimination, pollution, stress, nutrition, and care (Krieger 2011). Ecosocial theory cannot be reduced to political economy; it identifies multilevel biological and historical pathways that a class analysis alone does not provide.

Political economy contributes a relational account of how these distributions are produced. Income, occupation, housing, and education are not independent conditions randomly assigned to individuals; they are embedded in class relations, state institutions, and accumulation regimes. Coburn links income inequality and population health to neoliberal policy and shifts in class power rather than treating inequality as an isolated statistical condition (Coburn 2000). Critical medical sociology likewise locates health change within transformations of capitalism, expertise, and governance (Scambler 2002). Political economy thus asks why hazards and flexible resources cluster, while the other traditions specify gradients, durable resource effects, and mechanisms of embodiment. Their relation is complementary but irreducible.

Comparative arguments about inequality and population well-being have drawn attention to material deprivation and psychosocial pathways, although causal interpretation remains debated (Wilkinson and Pickett 2009). Individual behavior also matters, but smoking, diet, sleep, and exercise occur within work schedules, food environments, housing conditions, cultural pressures, and available time. Treating behavior as an unconditional choice converts socially structured constraints into personal fault.

5.4. How social relations become embodied

The four-domain framework joins levels of explanation without treating them as interchangeable. Capitalism and class do not directly determine every disease. They shape exposure, susceptibility, treatment, and recovery through policies, organizations, and living conditions. Epidemiology and clinical medicine explain how particular exposures produce pathologies and how interventions affect individual patients; political economy identifies how institutions allocate the relevant hazards and protections. A robust social theory of disease requires both forms of explanation.

6. Contemporary Stakes: Commodification, Medical Labor, and Public Health

6.1. The contradiction of health-care commodification

Health-care commodification occurs when health needs, medical labor, medicines, insurance, care relations, or health data are organized as objects of exchange, profit, and market allocation. It must be distinguished from neighboring processes. *Medicalization* is the expansion of medical categories and jurisdiction over conditions previously understood through other vocabularies (Conrad 2007). *Biomedicalization* describes the technoscientific transformation of bodies, risk, enhancement, data, and consumer identities (Clarke et al. 2010). *Privatization* transfers ownership, financing, or provision from public to private actors, whereas *marketization* introduces prices, competition, purchasing, and contractual incentives even when ownership remains public. *Financialization* converts health-care organizations or revenue streams into investment vehicles and expands the influence of financial actors and instruments (Hunter and Murray 2019). *Professional dominance* concerns authority and jurisdiction over medical work rather than the commodity form itself (Freidson 1970). Illich's critique of medical dependence and Foucault's analyses of the clinical gaze and biopolitical administration address additional forms of institutional power that may coexist with either public or private provision (Foucault 1973, 1978; Illich 1976). These processes can reinforce one another, but none is a synonym for commodification.

The issue is not that every price, private organization, or managerial practice is automatically illegitimate. It is whether ability to pay and expected return become dominant criteria for allocating care when need is uncertain, information is unequal, and treatment cannot be postponed. The relevant mechanisms include insurance exclusions and cost sharing, user fees, pharmaceutical pricing, unequal spatial investment in hospitals and clinics, contracting and staffing rules, and financial ownership of providers. Through these mechanisms, profitable services,

regions, and patient groups may attract investment while prevention, primary care, rare diseases, and poor communities remain underserved. Commodification therefore changes not only prices but also institutional goals, performance indicators, labor processes, and professional relationships. Rose's account of contemporary biopolitics identifies related changes in the relations among biological knowledge, markets, identity, and self-management without reducing those changes to commodification alone (Rose 2007).

Marx's analysis of commodity form helps clarify this transformation. Commodification does not abolish medicine's healing capacity, but it can influence whose needs that capacity serves first. Waitzkin's analysis of capitalist health care identifies this contradiction between technical potential and profit-oriented organization (Waitzkin 2000, 2011). The claim is therefore mechanism-specific rather than universal: different combinations of insurance design, user charges, drug pricing, hospital governance, and private finance produce different distributive consequences.

6.2. Health-care workers as laboring bodies

Health-care workers are not only providers of a resource; they are workers within a labor process. The medical profession historically acquired substantial jurisdiction and autonomy, but that autonomy has always been institutionally organized rather than absolute (Freidson 1970). Quantified performance targets, understaffing, outsourcing, and shift work can improve visible indicators while producing time poverty, burnout, emotional exhaustion, and occupational injury. Care is relational labor requiring attention and judgment; it cannot be fully reduced to standardized units. When organizations compress the time available per patient, clinicians experience a conflict between professional ethics and production requirements.

This is a contemporary form of labor alienation. Workers may lose control over the organization of work, and the value of their labor may be measured by institutional metrics rather than patient improvement. The result affects patients as well as workers. Protecting reasonable hours, professional autonomy, and collective voice is therefore part of public-health capacity, not merely an occupational benefit.

This argument does not imply that all measurement or management is inherently capitalist domination. Public systems require accountability and quality assessment. The political-economic question is what is measured, who defines the goals, whether indicators crowd out forms of care that are difficult to quantify, and whether workers can participate in designing their work.

6.3. Public-health crises and unequal exposure

Infectious disease is often described as classless because pathogens can infect anyone. Exposure, however, is not classless. The ability to work remotely, isolate in adequate housing, obtain paid leave, manage chronic illness, and access treatment is socially distributed. Public-health crises make visible the social division of labor: workers in transport, cleaning, care, food, and logistics may be unable to avoid in-person exposure without possessing wages, insurance, or protection proportionate to the risk.

Political economy also asks how the costs of public-health measures are distributed. A shutdown, quarantine, or digital monitoring policy has different consequences for people with savings and spacious housing than for people dependent on daily wages and overcrowded homes. Effective governance must therefore provide income protection, housing support, care services, and accessible treatment. "Collective responsibility" becomes equitable only when the capacity to comply is distributed fairly.

6.4. From social determinants to determinants of power

The social-determinants framework has broadened medicine's horizon, but it can be depoliticized when housing, income, and education are treated as separate variables without analysis of labor power, taxation, land ownership, welfare states, or corporate influence. The WHO's emphasis on the unequal distribution of power, money, and resources points toward a more political understanding of social determinants (Commission on Social Determinants of Health 2008). Studies of neoliberalism clarify the policy vocabulary through which market competition, privatization, deregulation, and individual responsibility can become governing norms rather than isolated technical reforms (Steger and Roy 2010).

Marxism does not provide a policy answer in advance. It asks who controls resources, who defines health needs, who receives institutional benefits, and who bears health costs. Minimum wages, labor protection, taxation, public health care, drug pricing, and environmental regulation thereby become health policies as well as economic or social policies.

7. Limits and Qualifications

A Marxist political economy of disease cannot replace biomedicine. Pathogen transmission, genetic variation, immune response, and pharmacological action have relatively autonomous mechanisms that require laboratory research, clinical trials, and professional treatment. Social structure can explain why some people are more exposed or less able to recover; it cannot by itself diagnose an individual patient or determine a treatment regimen.

Nor can every illness be directly attributed to class or capital. Some differences are primarily related to age, genetic inheritance, or contingent exposure. Structural analysis should distinguish distal conditions, institutional mechanisms, proximal exposures, and biological processes. Its strength is explaining the patterned distribution of risk, not assigning one social cause to every case.

Class is also not the only axis of inequality. Gendered divisions of labor shape care burdens and occupational distribution; racialization shapes residential segregation, environmental exposure, and clinical interaction; colonial histories shape global resources and knowledge hierarchies; disability and migration status shape eligibility and access. Harvey argues that Marxian class analysis should be combined with critical theories of race and racism rather than placed in a false "class versus race" opposition (Harvey 2021). This essay remains a class-centered reconstruction because its primary object is Marxian political economy; it does not claim to provide a full theory of racial capitalism, coloniality, gender, disability, or migration. The four-domain framework nevertheless identifies where those relations intersect with class, and their fuller specification is a necessary research agenda rather than an optional qualification.

Finally, the state and medical professions cannot be reduced to passive instruments of capital. Public health, occupational regulation, vaccination,

and social insurance can improve population health, often through alliances among social movements, professional ethics, administrative capacity, and political competition. Political economy must therefore retain the capacity to identify reform, conflict, and institutional autonomy.

The most defensible Marxist medical social theory is consequently non-reductionist. It recognizes biological mechanisms while asking why those mechanisms concentrate in particular groups; it recognizes agency while analyzing unequal conditions of choice; and it criticizes accumulation while studying how unions, public institutions, professional organizations, and social movements can alter its health costs.

8. Conclusion: What Political Economy Adds to the Study of Disease

Marx did not provide a pathology, diagnostic method, or clinical theory. His contribution was to show how the expenditure and reproduction of bodily capacity are organized through historically specific relations of labor, property, accumulation, and public power. Engels connected these relations more directly to housing, sanitation, occupational danger, and premature death, while social medicine and later political-economy traditions translated, revised, and sometimes independently paralleled these concerns. The intellectual relation is therefore neither a simple line of descent nor a claim that every social explanation of disease is Marxist.

The article's principal theoretical contribution is the four-domain framework. Political and economic institutions distribute hazardous exposure, shape embodied susceptibility, organize access to treatment, and allocate the labor and costs of recovery. Bringing these domains together shows that health inequality is produced across the entire social course of illness rather than only at the moment of exposure or clinical access. The framework also clarifies how class interacts with gender, racialization, colonial histories, disability, and migration without treating any one relation as sufficient to explain every health outcome.

Political economy cannot replace epidemiology, laboratory science, or clinical medicine. It adds a relational and institutional explanation of why hazards and protective resources repeatedly cluster in particular populations. Future research can operationalize the four domains comparatively by tracing how labor regulation, welfare provision, insurance design, ownership, spatial allocation, paid leave, unpaid care, and debt shape disease and recovery across different health systems. The practical implication is equally direct: policies concerning wages, working time, housing, environmental protection, taxation, health-care financing, and social support are also health policies because they determine who bears risk, who receives care, and who absorbs the costs of illness.

Author contributions

Yangyi Ren was responsible for the conceptualization, research design, literature review, theoretical analysis, and preparation of the original manuscript. Jiawei Feng contributed to the literature review, public-policy analysis, conceptual discussion, and revision of the manuscript. Sebastian Lenz contributed to the validation of the theoretical framework, conceptual discussion, and critical revision of the manuscript for important intellectual content. All authors reviewed and approved the final version of the manuscript and agreed to be accountable for the accuracy and integrity of the work.

Compliance with ethical standards

This study is a theoretical analysis based exclusively on publicly available academic literature. It does not involve human participants, animals, personal or sensitive information, clinical interventions, interviews, questionnaires, experiments, or the collection of original data. Ethics approval and informed consent were therefore not required. No new data were generated or analyzed. The authors confirm that the research and preparation of this manuscript were conducted in accordance with generally accepted principles of academic integrity and publication ethics.

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Competing interests

The authors declare that they have no financial, institutional, personal, professional, or other competing interests that could have influenced the research, analysis, interpretation, or presentation of the arguments in this manuscript.

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Use of artificial intelligence

DeepSeek was used solely to assist with language translation and linguistic polishing during the preparation of this manuscript. The authors independently reviewed, revised, and verified all AI-assisted text and retain full responsibility for the accuracy, originality, integrity, and academic content of the manuscript. DeepSeek was not used to generate research data, fabricate evidence, conduct independent scholarly analysis, formulate the central arguments, or make final academic decisions.

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