

A THEORETICAL EXPLORATION OF THE MULTIDIMENSIONAL REPRESENTATION OF INCOME

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Abstract: *The conventional representation of income as a monetary flow - wages, profits, rents, and transfers expressed in currency units - has long served as the central pillar of economic welfare analysis. Yet this reduction of income to its monetary form systematically obscures dimensions of human well-being that are substantive, measurable, and policy-relevant. We develop a theoretical framework for the multidimensional representation of income, drawing on contributions from welfare economics, institutional theory, human capital theory, ecological economics, and capability ethics. We argue that income, properly conceived, encompasses not only monetary flows but also non-monetary transfers, household production and leisure time, social and relational capital, human and knowledge capital, environmental and natural capital endowments, and expansion of human capabilities. Each dimension is theorized, illustrated with reference points, and situated within a coherent conceptual architecture expressed through a composite additive representation. Three structural limitations of the conventional monetary income concept are identified - the invisibility of non-market production, the conflation of income flows with underlying asset endowments, and the problem of price-adjusted comparability - each of which generates systematic distortions in welfare assessment and policy design. The framework draws particular attention to the Senian reformulation of income as capability expansion, arguing that conversion factors - individual, social, institutional, and environmental - determine how effectively monetary and non-monetary resources translate into real human freedoms. The paper concludes with implications for measurement, redistribution policy, and the design of social protection systems, with particular relevance to transitional and developing economies undergoing EU accession, where regulatory harmonization and institutional improvement may deliver substantial capability income gains independently of monetary convergence. The article was developed within the framework of Subprogram 030101 „Strengthening the resilience, competitiveness, and sustainability of the economy of the Republic of Moldova in the context of the accession process to the European Union”, institutional funding.*

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1. Introduction

Income is among the most foundational concepts in economics, yet its dominant operationalization remains strikingly narrow. Across mainstream macroeconomics, poverty research, and tax policy alike, income is routinely equated with the monetary receipts flowing to a household or individual over a given period - wages and salaries, entrepreneurial profits, rental returns, interest earnings, and public transfers denominated in currency. This monetary frame, crystallized in the System of National Accounts and embedded in countless household surveys, carries enormous institutional inertia. Yet the limitations of this conception have been recognized, with increasing urgency, across several intellectual traditions. Welfare economists from Pigou onward noted that monetary income fails to capture many determinants of well-being. Institutionalists such as Veblen and Galbraith drew attention to the social and status dimensions of economic position. Human capital theorists demonstrated that the stock of skills and knowledge constitutes a form of deferred income. Ecological

economists showed that natural environments provide flows of services whose monetary equivalent is often large but unrecorded. And Amartya Sen's capability approach reframed income entirely, positioning it not as an end but as a means to the real object of concern: the freedom to live a life one has reason to value. In the paper we synthesize these traditions into a coherent theoretical architecture for the multidimensional representation of income. The central research question is: "What are the principal non-monetary dimensions of income, and how can they be integrated into a theoretically coherent framework adequate to the complexity of human welfare?"

2. The structural limitations of monetary income

The standard monetary income concept rests on a deceptively simple logic: income is what one receives in exchange for labor, capital, or land, measured in the unit of account prevailing in the economy. Its appeal lies in commensurability - all flows are reduced to a single cardinal scale that permits addition, comparison, and aggregation. This commensurability comes at a high cost. Three structural limitations are particularly consequential.

2.1. The invisibility of non-market production

A substantial share of economic activity - child-rearing, elder care, subsistence agriculture, home cooking and maintenance, voluntary civic labor - occurs outside market exchange and is therefore invisible to monetary income accounting. The omission is not trivial. Studies using time-use survey data consistently find that unpaid household production, if valued at market replacement costs, represents a substantial share of conventionally measured economic output in developed economies. Stiglitz, Sen and Fitoussi (2009) estimate that own-account household production amounts to approximately 30-40% of GDP in France, Finland, and the United States. In agrarian and subsistence economies, this fraction is yet larger. The gender distribution of this invisible production is profoundly unequal: women bear a disproportionate share of unpaid care and domestic labor, and systems that measure welfare solely through monetary income systematically understate women's economic contribution.

2.2. The conflation of flow and endowment

Monetary income is a flow variable - it measures the stream of receipts within a period, not the underlying endowment that generates it. Two households with identical current incomes may occupy radically different economic positions if one holds substantial financial, physical, or human capital assets while the other does not. The asset-less household is permanently one shock away from poverty; the asset-holding household enjoys a buffer stock of economic security that is simply absent from the income account. This conflation of income with wealth has received renewed attention in the wake of Piketty's (2014) work on capital accumulation and inequality: when income from capital (r) consistently outpaces economic growth (g), monetary income measures will understate both the degree of inequality and its intergenerational reproduction.

2.3. The problem of price-adjusted comparability

Even as a monetary measure, income is treacherous to compare across space, time, and household composition. The same nominal income buys very different consumption bundles depending on local price levels, household size, and the structure of publicly provided goods

and services. A family that enjoys free universal healthcare, public education, and subsidized childcare effectively receives a substantial non-monetary income supplement relative to an identical household that must purchase all such services in the market. Standard monetary income measures omit this dimension entirely, producing misleading cross-national and cross-regional comparisons.

3. Non-monetary income: transfers, in-kind flows, and social assistance

The most tractable extension of the income concept - and the one most thoroughly institutionalized in empirical welfare research - is the inclusion of non-monetary transfers and in-kind flows. Public in-kind transfers constitute the most significant category. When governments provide healthcare, education, housing subsidies, or food assistance, they confer a real income benefit on recipients that is structurally equivalent to a monetary transfer. Extended income measures that impute the value of public in-kind transfers routinely find that their inclusion substantially reduces measured inequality, because such services are disproportionately used by lower-income households. Employer-provided benefits - health insurance, pension contributions, on-site childcare, housing allowances - constitute a second category. The compression of wages in favor of benefits partly reflects the differential tax treatment of compensation, but its distributional implications are real. In-kind remuneration from family and community networks forms a third category, especially significant in contexts of underdeveloped formal institutions: reciprocal labor exchange, provision of meals, gifts of agricultural produce, housing provided by extended family. The challenge of monetary valuation of in-kind flows is genuine but not insurmountable. Three methods are standard: (i) the market replacement cost method - what would the recipient have paid to obtain the same good or service?; (ii) the net-government-cost method - what did the government pay to provide the service?; and (iii) the insurance value method - what would a risk-averse agent pay for the certainty of access to the service? Each approach has advantages and drawbacks, and the choice of method can substantially affect distributional conclusions (Atkinson, 2015).

4. Time as income: leisure, household production, and the economics of duration

Time is the most fundamental and universally equal endowment of all living beings. Every human being possesses exactly twenty-four hours per day, one hundred sixty-eight hours per week - its initial allocation is immune to inheritance, luck, or institutional privilege. Yet time is radically unequal in its economic value and in the freedom of its disposition. Becker's (1965) pathbreaking theory of time allocation demonstrated that household decisions are fundamentally choices about how to allocate time between market work, household production, and leisure, and that income is not merely the monetary return to market work but the joint product of time and market goods deployed in the "production" of utility.

4.1. Leisure as income

Leisure - time disposed of at one's own discretion for rest, enjoyment, social connection, or self-development - carries genuine welfare value. The economist's willingness-to-pay for additional leisure (the wage rate for those whose labor supply is at an interior optimum) provides a market signal of its value. Households with shorter working hours and equivalent monetary income are wealthier, in welfare terms, than those who achieve the same monetary income through longer working hours. This insight has important distributional

implications: economies with long working hours - common in the early stages of industrial development and in low-wage segments of service economies - may exhibit lower welfare than their monetary income measures suggest.

4.2. Household production time

Time devoted to household production - cooking, cleaning, childcare, elder care, transport of household members - converts raw inputs into final consumption goods and services. This is economically productive labor in every sense: it creates real value, it responds to incentives, and its product has a market-equivalent price. Time-use surveys, pioneered in the 1960s and now conducted in dozens of countries, provide the empirical basis for estimating household production at the individual and aggregate level. OECD (2011) notes that the vast majority of non-market services produced by households - such as meal preparation, childcare, or cleaning - fall outside the production boundary of the national accounts and do not enter into the standard measurement of living standards.

5. Social and relational income: the economics of belonging

The concept of social capital - the networks, norms, and trust that enable coordinated action - has been developed most influentially by Bourdieu (1986), Coleman (1988), and Putnam (2000). For our purposes, social capital functions as a form of income insofar as it generates real and recurring flows of economic benefit to those who possess it: job referrals, credit access, professional mentorship, business partnerships, and informal insurance against adverse shocks. The inequality of social capital access is substantial and self-reinforcing. Granovetter's (1973) distinction between the "strength of weak ties" and strong ties within dense networks captures important dimensions of how social capital generates differential income. Those with access to diverse, high-status networks enjoy a systematic advantage in accessing opportunities that cannot be purchased directly. In the absence of well-developed formal social insurance systems - a condition that characterizes many transitional and developing economies - informal community networks provide crucial insurance against income shocks. The village mutual aid society, the rotating savings club, the extended family safety net: these are mechanisms by which communities smooth consumption across members over time, effectively creating non-monetary income flows in adverse states. The erosion of such informal networks through urbanization, migration, and the breakdown of traditional community structures may therefore constitute a welfare loss even if monetary incomes are rising.

6. Human and knowledge capital as deferred income

The theory of human capital, developed by Schultz (1961) and Becker (1964), treats investments in education, training, and health as analogous to investments in physical capital: they entail present costs in exchange for future income flows. In this framework, the stock of human capital embodied in an individual - their skills, knowledge, health status, and cognitive capabilities - constitutes a form of wealth from which future income streams are generated. Psacharopoulos and Patrinos (2018) estimate that the average global private return to an additional year of schooling is approximately 8.8%, with an inverse variation by level of economic development - returns are higher in low-income countries (9.3%) than in high-income countries (8.2%). For income representation, human capital matters in several ways. First, two individuals with the same current monetary income but different human capital

stocks occupy different welfare positions: the human-capital-rich individual has greater capacity to recover from shocks, to adapt to structural change, and to generate future income. Second, investments in education and health during childhood - whether by households or states - constitute a form of income transfer with long-horizon effects that point-in-time monetary income cannot capture. Third, the depreciation of human capital through unemployment, poor health, or skill obsolescence constitutes a genuine income loss even when no monetary flow is affected.

7. Environmental and natural capital income

Ecological economists, building on the foundational work of Costanza et al. (1997) and Daly (1996), have argued that natural ecosystems provide flows of services - “ecosystem services” - to human populations that constitute genuine income in the welfare sense. These include provisioning services (food, water, timber, fuel), regulating services (climate regulation, flood control, air purification), supporting services (soil formation, nutrient cycling), and cultural services (recreation, aesthetic and spiritual value). For poor rural households that directly depend on common-pool natural resources - forests, fisheries, groundwater, rangeland - the contribution of environmental income to total welfare may be dominant. The policy implications are significant. Development strategies that expand monetary income through the depletion of natural capital may leave total welfare unchanged or reduce it, once environmental income losses are properly accounted. The “green national accounting” agenda, which seeks to adjust GDP for changes in natural capital stocks, represents an institutional response to this insight - though its implementation remains incomplete and contested (Costanza et al., 2014).

8. Capability as income: the Senian reformulation

The most theoretically ambitious alternative to monetary income is offered by Amartya Sen’s capability approach, developed across a sequence of major works (Sen, 1980, 1985, 1999, 2009). Sen argues that income - monetary or otherwise - is instrumentally valuable but not intrinsically so. What matters for human welfare is not the resources a person commands but the freedoms those resources enable: the real opportunities to live and act in ways one has reason to value. In this framework, income is a means to capabilities, but the conversion of income into capabilities depends on factors that vary across individuals, communities, and social structures - what Sen calls “conversion factors”. Physical health, social norms, institutional quality, and environmental conditions all mediate how effectively income converts into real freedom.

M. Nussbaum (2011) has extended the capability approach by specifying a list of “central human capabilities” - including life, bodily health, bodily integrity, senses and imagination, emotions, practical reason, affiliation, concern for other species, play, and control over one’s environment - that constitute a threshold below which a truly human life cannot be lived. In this formulation, capability income represents the real freedom to exercise each of these capabilities above the threshold. Several implications follow. First, identical monetary incomes can correspond to radically different capability levels: a person with a disability requires greater monetary income to achieve the same functional capabilities as an able-bodied person. Second, some capabilities - notably health, education, political participation, and freedom from violence - have intrinsic rather than merely instrumental value, and cannot be fully substituted by monetary compensation.

9. Toward a multidimensional income framework: synthesis

The six dimensions developed in the preceding sections can be organized into a coherent framework. Let I denote total income in the multidimensional sense:

$$I = I_m + I_{nm} + I_t + I_s + I_h + I_e + I_c$$

Where I_m denotes monetary income (wages, profits, rents, monetary transfers); I_{nm} denotes non-monetary income (in-kind transfers, employer benefits, community flows); I_t denotes time-income (imputed value of leisure and household production); I_s denotes social-relational income (network access, informal insurance, community belonging); I_h denotes human capital income (the periodic return to health, education, and skills); I_e denotes environmental income (ecosystem service flows accruing to the individual or household); and I_c denotes capability income (the extent to which resources translate into real freedoms).

Several observations about this framework are warranted. First, the dimensions are not mutually exclusive or additive in the simple sense: they interact through conversion factors, institutional arrangements, and social context. The value of social capital in generating employment opportunities, for example, is mediated by the quality of labor market institutions and the human capital of the networked individual. Any empirical application of the framework must grapple with these interactions. Second, the monetary commensurability of all dimensions is neither achievable nor, in our view, desirable as an aspiration. The capability dimension in particular resists reduction to monetary equivalents: the freedom to participate in political life or to experience genuine friendship is not adequately represented by a willingness-to-pay estimate. A dashboard approach - reporting multiple dimensions separately, with explicit attention to their joint distribution - is likely to be more informative than any single composite index. Third, the weighting of dimensions is inherently normative, and transparency about these choices is an essential condition of legitimate use.

10. Policy implications

The multidimensional income framework has substantive implications for the design and evaluation of social and economic policy. In social protection, the framework suggests that adequacy assessments of minimum income guarantees should go beyond monetary benefit levels to consider the full spectrum of income dimensions. A minimum income scheme that provides adequate monetary transfers but is embedded in a social context of isolation, poor health infrastructure, and environmental degradation may fail to achieve genuine income adequacy for its recipients. Conversely, social investment strategies that strengthen human capital, social capital, and environmental income may deliver welfare gains that exceed what their monetary cost would predict. In the context of economies undergoing EU accession, like Moldova, Ukraine - the framework highlights the importance of regulatory harmonization as an income redistribution mechanism. The adoption of EU standards in environmental protection, labor rights, food safety, and consumer protection represents a transfer of capability income to citizens, even in the absence of monetary transfers. The welfare gains from institutional improvement may be substantial even before, and independent of, convergence in monetary income levels. For poverty measurement, the framework supports a shift toward multidimensional poverty indices - such as the Alkire-Foster methodology underlying the UNDP's Multidimensional Poverty Index - that identify

deprivation simultaneously across monetary income, health, education, and living standards. Such measures are better suited to identifying the “texture” of poverty and designing targeted interventions than any purely monetary threshold.

11. Conclusions

We argued that the reduction of income to its monetary form is not a natural truth but a theoretical choice - one made for good reasons of tractability and comparability but at the cost of systematic distortions in our understanding of human economic life. A theoretically adequate concept of income must encompass at least six dimensions beyond the monetary: non-monetary transfers, time-income from leisure and household production, social and relational capital, human and knowledge capital, environmental and natural capital services, and the capability freedoms that income ultimately serves to expand.

No single dimension can replace the monetary income concept, and no aggregate index can fully capture the multidimensional reality of economic welfare. What the framework offers is an expanded vocabulary for analysis - a set of conceptual lenses through which the welfare implications of economic circumstances, policies, and institutions can be more fully apprehended. The challenge for future research is to develop the measurement instruments, institutional frameworks, and political coalitions capable of translating this theoretical enrichment into the lived improvement of human welfare. Future work should develop measurable proxies for each dimension and integrate them with longitudinal household data to allow empirical estimation of the framework’s transmission parameters across different institutional contexts.

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References:

1. Atkinson, A.B., 2015. *Inequality: What Can Be Done?* Harvard University Press.
2. Becker, G.S., 1964. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Columbia University Press.
3. Becker, G.S., 1965. A theory of the allocation of time. *The Economic Journal*, 75(299), pp.493–517.
4. Bourdieu, P., 1986. The forms of capital. In J. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241–258). Greenwood Press.
5. Coleman, J.S., 1988. Social capital in the creation of human capital. *American Journal of Sociology*, 94(1), S95–S120.
6. Costanza, R. et al., 1997. The value of the world’s ecosystem services and natural capital. *Nature*, 387, pp.253–260.
7. Costanza, R., De Groot, R., Sutton, P., et al., 2014. Changes in the global value of ecosystem services. *Global Environmental Change: Human and Policy Dimensions*, 26, pp.152–158.
8. Daly, H.E., 1996. *Beyond Growth, The Economics of Sustainable Development*. Beacon Press, Boston

9. Granovetter, M.S., 1973. The strength of weak ties. *American Journal of Sociology*, 78, pp.1360–1380.
10. Nussbaum, M., 2011. *Creating Capabilities: The Human Development Approach*. Belknap Press.
11. OECD, 2011. *How's Life?: Measuring well-being*, OECD Publishing.
12. Piketty, T., 2014. *Capital in the twenty-first century*. The Belknap Press of Harvard University Press.
13. Psacharopoulos, G. and Patrinos, H.A., 2018. Returns to investment in education: A decennial review of the global literature. *Education Economics*, 26(5), pp.445–458.
14. Putnam, R.D., 2000. *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster.
15. Schultz, T.W., 1961. Investment in human capital. *The American Economic Review*, 51, pp.1–17.
16. Sen, A., 1980. Equality of what? In S. McMurrin (Ed.), *Tanner Lectures on Human Values* (Vol. 1). Cambridge University Press.
17. Sen, A., 1985. *Commodities and Capabilities*. North-Holland, Amsterdam.
18. Sen, A., 1999. *Development as Freedom*. Oxford University Press.
19. Sen, A., 2009. *The Idea of Justice*. Harvard University Press.
20. Stiglitz, J.E., Sen, A. and Fitoussi, J.-P., 2009. *Report by the Commission on the Measurement of Economic Performance and Social Progress*. CMEPSP.