

**CONVALOMY*****A New Economic Model for Turning Human Contribution into Value Beyond Traditional Employment*****Luis Sanchez**

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Abstract

Employment has historically served as one of the principal mechanisms through which individuals obtain purchasing power. Individuals provide labor to firms or other organizations, receive compensation, and use their earnings to obtain goods and services. This relationship connects production, income distribution, and consumption. Technological change may weaken this connection for some groups of workers as artificial intelligence, robotics, software automation, demographic change, and new organizational forms to alter the composition of labor demand. This paper does not assume that AI will produce permanent mass unemployment. Instead, it examines a distributional scenario in which productive capacity and human employment become less tightly connected. The paper introduces the Convalomy economic model, a proposed institutional model situated within the broader concept of the Contribution Economy. Convalomy separates economic recognition from employment status by allowing verified human contributions to generate transferable digital economic claims that can be redeemed within a participating network. Contributions may include care assistance, companionship, community maintenance, environmental activities, cultural participation, educational exchange, transportation assistance, and other voluntarily requested activities that satisfy defined verification and eligibility rules. The model is built around the sequence of Contribution, Verification, Valuation, Economic Claim, Redemption, Purchasing Power. Its central economic constraint is that digital claims cannot create real resources by themselves. Sustainable purchasing power therefore requires credible redemption capacity supplied by merchants, service providers, public or philanthropic funding, reserves, sponsorship, or other legitimate economic resources. The paper develops the institutional architecture, formal conditions, illustrative equations, governance safeguards, and a proposed pilot design for testing whether verified human contribution can be converted into economically credible purchasing claims without creating fraud, exploitation, excessive commodification, or regulatory evasion.

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Introduction

Modern economies distribute purchasing power through employment income, entrepreneurship, investment returns, government transfers, pensions, and private transfers. Employment has historically occupied a particularly important position because it performs several functions simultaneously: it organizes production, allocates labor, distributes income, creates economic identity, and provides access to consumption. In simplified form, the conventional sequence is Labor → Production → Compensation → Consumption.

There is, however, no theoretical requirement that economic contribution and employment status remain permanently identical. Individuals can create useful outcomes outside conventional employment: assisting an older person, providing companionship, maintaining a community area, helping with transportation, participating in environmental restoration, exchanging language skills, supporting a community organization, or performing other useful activities. Many such activities generate welfare while producing little or no direct purchasing power for the person performing them.

The broader Contribution Economy concept provides a useful conceptual setting for considering whether contribution can become another channel through which economic value is recognized. This paper does not attempt to redefine that broader term. Instead, it proposes Convalomy as a specific economic model that operationalizes a bounded form of contribution-based purchasing power.

The central proposition is conditional: if conventional employment becomes insufficient to distribute purchasing power to some individuals while socially

valuable activities and unmet needs remain abundant, a verified contribution mechanism could provide an additional channel for allocating limited purchasing power. The proposal therefore belongs between conventional employment, unpaid volunteering, platform-mediated services, and unconditional transfers rather than replacing any of them.

The model also requires a strict distinction between creating a digital claim and creating economic value. A platform can issue a million digital tokens (credits) in seconds; it cannot thereby create a million dollars' worth of food, housing, transportation, or other real resources. Convalomy therefore treats redemption capacity as a foundational constraint rather than an afterthought.

Technology, Employment, and the Distribution of Purchasing Power

Recent evidence supports caution rather than technological determinism. The International Labour Organization's Employment and Social Trends 2026 reports global unemployment projected at approximately 4.9 percent in 2026 while identifying a global jobs gap of about 408 million people who want paid work but cannot access it. The report also emphasizes job-quality deficits, demographic pressures, productivity concerns, and technological change. These conditions do not imply that conventional employment is disappearing; they indicate that employment access and employment quality remain uneven even before considering additional AI-driven change [1].

AI exposure provides a reason to examine the institutional question more closely. The ILO's 2025 global assessment estimates that roughly one in four workers worldwide are in occupations with some degree of exposure to generative AI, with exposure reaching approximately 34 percent of employment in high-income countries. Its highest-exposure category covers a much smaller share of employment, underscoring that exposure is not equivalent to job elimination. The

IMF has estimated that AI could affect approximately 60 percent of jobs in advanced economies, 40 percent in emerging-market economies, and 26 percent in low-income economies; in advanced economies, some exposed jobs may be complemented by AI while others may experience reduced labor demand or wage pressure [2,3].

Recent estimates illustrate the scale of potential labor-market exposure to AI, while emphasizing that exposure does not necessarily imply job displacement, as shown in Figure 1.

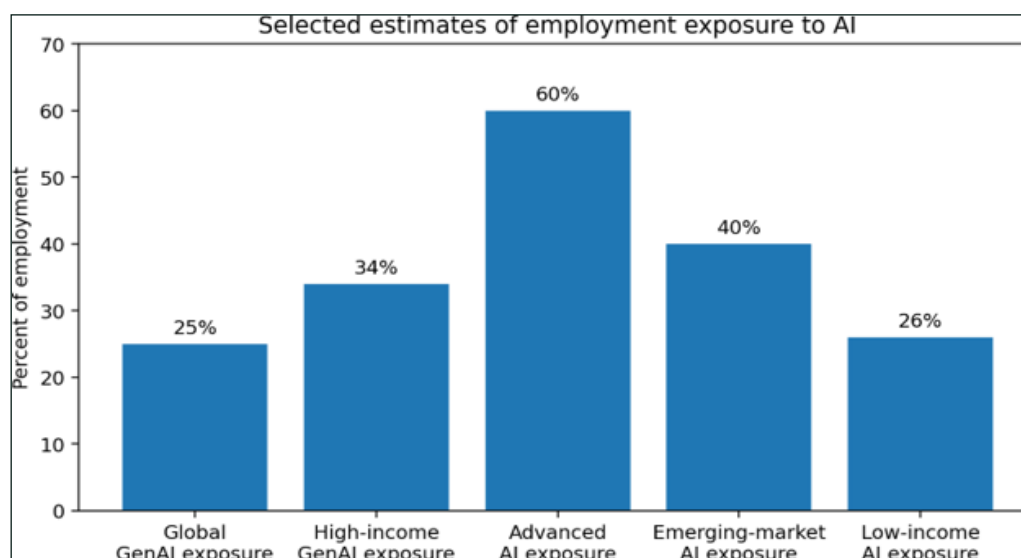


Figure 1: Selected estimates of employment exposure to AI. Sources: ILO (2025) and IMF (2024). Exposure is not equivalent to job loss.

The task-based research of and Restrepo is especially relevant. Automation can displace labor from tasks while new tasks can reinstate demand for labor [4]. The resulting employment effect depends on the balance between displacement, productivity, and task creation [5,6]. This paper therefore does not predict a “jobless future.” It asks a narrower question: what institutional mechanisms become useful if productivity and automation increase faster than the economy’s capacity to provide conventional employment opportunities for all individuals who require purchasing power?

The Economic Problem Addressed by Convalomy

The central problem can be represented as a possible divergence between productive capacity and employment-mediated purchasing power. Let Y denote real output, L conventional employment, w the average employment-related compensation, and P purchasing power available to households. In a simplified labor-centered system, a substantial share of P is connected to employment compensation: $P \approx wL$ plus transfers and other income sources [5,7].

For analytical purposes, total purchasing power can be decomposed into four broad components, as shown in Table 1.

Table 1: Decomposition of Purchasing Power

$P = W + T + R + O$				
Symbol	Component	Definition	Example Sources	Economic Role
W 	Wages	Income from employment or labor.	Salaries, hourly wages, bonuses.	Primary earnings from work and skills.
T 	Transfers	Income received through redistribution or social transfers.	Cash transfers, pensions, unemployment benefits, subsidies.	Provides income security and redistributes resources.
R 	Returns	Income from ownership of capital or assets.	Interest, dividends, rent, capital gains.	Compensation for providing capital and bearing risk.
O 	Other Contributions	Value derived from non-market or collective contributions.	Volunteer work, open-source contributions, care work, community production.	Recognizes non-monetary and communal value creation.
P	Purchasing Power	Total resources available to individuals or households to acquire goods and services.		 Total economic power in the economy.

Note: P represents total purchasing power, decomposed into four additive components.

Where W is employment compensation, T is transfers, R returns from assets or entrepreneurship, and O represents other income sources.

Convalomy introduces an additional channel C for purchasing claims (Convalomy Credit) generated by verified contribution. It does not assume that C is free or automatically valuable. Instead, C is constrained by resources that can credibly support redemption.

The extended framework therefore represents total purchasing power as the combination of conventional income sources and contribution-based purchasing claims, as shown in Table 2.

Table 2: The Extended Contribution Economy Formula

$$P^* = W + T + R + O + C$$

Component	Symbol	Meaning	Examples
 Wages	W	Wages earned through paid employment in the traditional economy.	• Salary, hourly pay • Bonuses, commissions
 Time Contributions	T	Value of time contributed through unpaid activities that benefit others or the community.	• Caregiving, mentoring • Volunteering, community service
 Resource Contributions	R	Returns from resources contributed, including sharing, donating, or providing assets to others.	• Sharing equipment or space • Donating money, goods, or assets
 Other Contributions	O	Other creative, social, or environmental efforts that generate value for the community.	• Creating content, open-source work • Environmental stewardship
 Contribution Credits	C	Convalomy Credit (or verified contribution value) earned through recognized contributions and participation in the contribution economy.	• Convalomy Credit (CC) earned • Verified contribution tokens or points redeemable in the ecosystem

Where: P^* = Total Personal Contribution (Extended Total Value Generated)

W = Wages

T = Time Contributions

R = Resource Contributions

O = Other Contributions

C = Contribution Credits

The key question is not whether C can be issued, but whether C (Convalomy Credits) can be redeemed without generating an unsupported monetary promise. This leads to the model's basic sustainability condition. Figure 2 illustrates this relationship.

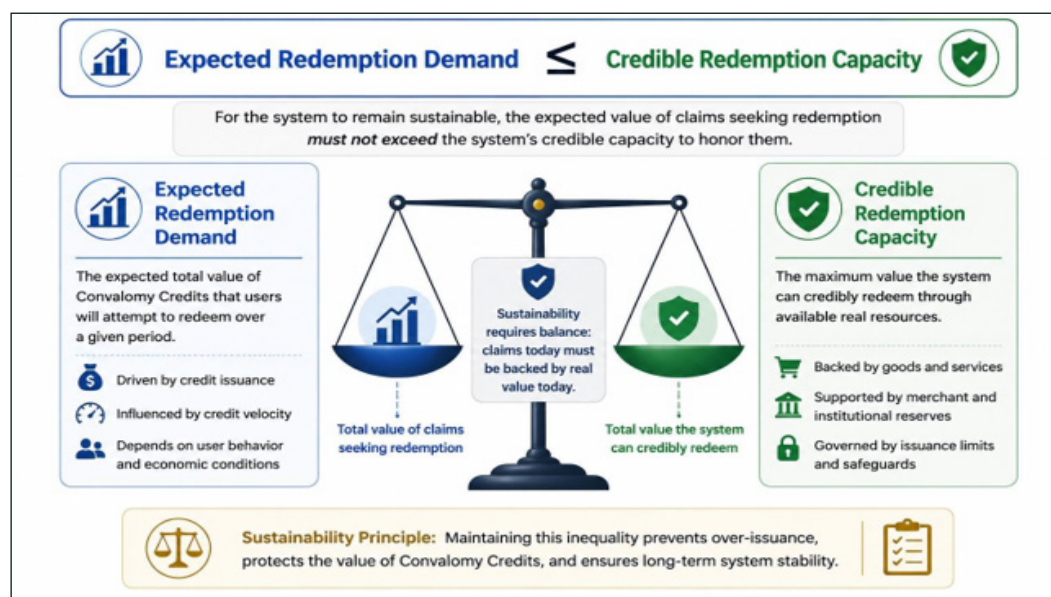


Figure 2: Redemption Sustainability Constraint

Credible capacity may come from participating merchants accepting credits against their own goods and services; institutional sponsors funding a redemption pool, public programs, philanthropic resources, platform revenue, or combinations of these sources. The model can therefore be implemented under different institutional funding structures without requiring that the digital claim itself become conventional money.

This approach also prevents a conceptual error: treating recognition of contribution as identical to creation of wealth. Convalomy recognizes that contribution may have social or economic value, but the purchasing power of a claim depends on a separate institutional commitment to redemption.

The Convalomy Economic Model

Convalomy is defined here as an institutional model for converting verified human contribution into limited transferable economic claims that can be redeemed within a participating economic network. Its core architecture contains seven stages: demand or request, matching, contribution, verification, valuation, issuance of a Convalomy credit, and redemption. The seven stages form an integrated process linking a verified contribution to a transferable and redeemable economic claim, as illustrated in Figure 3.



Figure 3: Core Convalomy Architecture.

The first stage begins with a legitimate request for an activity. The second matches an eligible contributor to the request. The third records the activity performed. The fourth verifies that the contribution occurred and satisfied the agreed conditions. The fifth assigns a value according to transparent rules. The sixth creates an economic claim. The seventh converts the claim into purchasing power through redemption.

This sequence is intentionally different from a conventional gig platform. A gig platform generally matches a buyer with a worker for a service and facilitates payment [8]. Convalomy can perform matching, but it adds a contribution-recognition layer. The contribution may contain market-like service value, social value, community value, or combinations of these, provided the model has explicit rules for eligibility and valuation.

The model is also intentionally modular. A pilot could begin with a closed network of merchants and service providers, while a larger implementation could connect multiple communities or institutions. Blockchain or distributed-ledger technology may be used for auditability, ownership records, or settlement, but it is not the economic foundation of the model [9,10]. The economic foundation is verification plus credible redemption.

What Counts as a Verified Contribution?

Convalomy cannot simply reward any activity a participant claims to have performed. A contribution must satisfy a defined eligibility rule and be capable of verification. The model therefore distinguishes between activity, contribution, and economic claim. Activity is something a person does. Contribution is an activity that satisfies a recognized need or objective under the rules of the network. The economic claim is the verified and valued result of that contribution. Examples of eligible contributions may include:

- Care and assistance: accompanying an older adult, helping with routine activities, providing transportation assistance, or supporting independent living where legally permitted [11,12].
- Social contribution: companionship, structured conversation, peer interaction, community participation, or activities that reduce isolation.
- Environmental contribution: neighborhood

cleanup, gardening, restoration, maintenance, recycling support, or other measurable environmental tasks.

- Educational and cultural contribution: reading groups, language exchange, tutoring, cultural activities, guided learning, or discussion-based participation.
- Local assistance: errands, community support, event assistance, or practical tasks that satisfy a registered request.
- Productive contribution: tasks that resemble conventional paid services, such as cleaning, maintenance, preparation, or logistics, subject to labor and employment law.

The model should not reward an activity simply because it is pleasant. A contribution must be linked to a recognized request, need, objective, or measurable outcome. This requirement limits arbitrary issuance and helps distinguish Convalomy from a general-purpose social network.

The same activity can also contain multiple contribution dimensions. For example, cleaning a hotel room is a productive service. If the worker also performs a legitimate social or hospitality function with guests, the additional component may be recognized if the network explicitly values it and if the arrangement does not create coercion or discriminatory expectations. Convalomy therefore allows multidimensional valuation rather than requiring every contribution to be reduced to one labor-hour price.

Illustrative Contribution Cases Accompanying an Older Adult

An individual opens the Convalomy application and sees a verified request: an older adult would like companionship for two hours and assistance collecting leaves for one additional hour. The older adult confirms completion through the application, subject to verification of safeguards. The contributor receives Convalomy Credits according to the published valuation schedule. The credits can then be redeemed with participating merchants or services [11,12].

Reading, Discussion, and a Botanical Garden

Two individuals meet at a café to read and discuss a chapter of a book for two hours and then visit a botanical garden to discuss plants related to the chapter. If the

activity was a registered educational or cultural contribution and the required verification conditions are satisfied, the participants could receive credits. The economic recognition is not based merely on “having coffee” or “going to a garden”; it is based on the verified activity, its recognized purpose, and the model’s valuation rules.

Hotel Cleaning and Social Contribution

A contributor assists a hotel with room cleaning for several hours and receives the ordinary contribution valuation associated with the productive task. If the service also includes a separately defined, voluntary, and verified social or hospitality contribution such as assisting guests with orientation or participating in an approved guest activity the model could assign an additional contribution component. This example illustrates why Convalomy should not assume that all values are captured by physical task time alone.

These examples are simple. The research challenge is to determine which forms of contribution can be verified objectively, which should remain outside the model, how valuation should avoid exploitation, and how redemption can be funded without creating unsupported claims.

Verification and Trust

Verification is the institutional foundation of Convalomy. Without verification, the model becomes vulnerable to fabricated activities, duplicate claims, collusion, false confirmations, and strategic manipulation. Verification should therefore be proportional to the risk and value of the contribution rather than relying on a single universal method.

- Requester confirmation: the person or institution receiving the service confirms completion.
- Counterparty confirmation: a matched participant confirms that the activity occurred.
- Time and location evidence: where appropriate and lawful, the platform records limited metadata to establish plausibility.
- Third-party verification: organizations can verify higher-risk or higher-value activities.
- Outcome verification: some contributions can be verified by observable results rather than time alone.
- Reputation and anomaly detection: repeated unusual patterns can trigger additional review.

The model should minimize personal data collection. Verification should establish the fact and quality of contribution without creating an unnecessary surveillance system. A distributed ledger can help establish an auditable transaction history, but storing sensitive personal information on the chain would often be inappropriate. A better design is to keep personal data off chain while storing cryptographic proofs or minimal transaction records on a controlled ledger when necessary.

Fraud prevention should also be economically designed. If a contributor receives 10 credits for a verified activity, the expected benefit from fraudulent issuance must be lower than the expected cost of detection and sanction. This suggests a simple incentive condition:

This is not a complete fraud model, but it highlights why governance, verification, and penalties are economic components of the system rather than merely technical features.

$$\text{Expected Gain from Fraud} < \text{Expected Detection Probability} \times \text{Expected Penalty}$$

Valuation: From Contribution to Economic Claim

Valuation is the most sensitive part of the model because assigning a number to human contribution can create distortions. A simple one-hour-for-X-credits rule is easy to understand but may undervalue outcomes, encourage low-quality activity, and create arbitrary comparisons between very different contributions. Convalomy should therefore allow a transparent base valuation combined with defined modifiers. The valuation

mechanism translates verified contribution into an estimated economic claim using observable characteristics of the contribution, as summarized in Table 3.

Table 3: Contribution Valuation Formula

$$V_i = H_i \times B + Q_i + S_i + R_i - D_i$$

Base Value

Positive Adjustments

Negative Adjustment

Component	Symbol	Description	Interpretation	Example
Human Effort (Input)	H_i	Time or effort invested in the contribution	Measured in hours or standardized units	2.5 hours of mentoring
Base Rate (Value per Unit)	B	Base value assigned per unit of effort	System-defined value per hour/unit	\$10 per hour
Quality Bonus	Q_i	Adjustment for the quality of contribution	Higher quality receives higher bonus	+ \$3 for exceptional quality
Social Impact Bonus	S_i	Adjustment for the social impact created	Greater positive impact earns higher bonus	+ \$5 for high community impact
Reliability Bonus	R_i	Adjustment for the reliability of contributor	Consistent and trusted contributors earn more	+ \$2 for high reliability
Deduction (Penalty)	D_i	Deduction for issues or policy violations	Reduces value due to errors or misconduct	- \$1 for late delivery
Total Contribution Value	V_i	Final value of the contribution	Net value used for credit issuance	Resulting credit value issued to contributor

Where:

V_i = Total contribution value for contribution i

H_i = Human effort (time or input)

B = Base rate (value per unit)

Q_i = Quality bonus

S_i = Social impact bonus

R_i = Reliability bonus

D_i = Deduction (penalty)

i = Index of the contribution

The formula computes the net value of a contribution by combining base value with positive adjustments and subtracting any applicable deductions.

Purpose: To ensure fair, transparent, and consistent valuation of contributions in the Convalomy system.

For contribution i , H is verified time or quantity, B is a base contribution rate, Q is a quality or outcome adjustment, S is an approved social-value component, R is a scarcity or priority adjustment, and D represents deductions for incomplete or noncompliant performance. The equation is illustrative rather than a claim of a single optimal formula.

A critical safeguard is that social-value adjustments must not become a mechanism for arbitrary moral scoring. The model should publish categories, evidence requirements, and maximum modifiers [13,14]. A contributor should know in advance what actions qualify for additional recognition. Similarly, a requester should not be able to lower a contributor’s value simply because the contributor did not conform to an unrelated personal preference.

Valuation can also vary by network. A community experiencing a shortage of elder companionship may assign a higher priority coefficient to that contribution than a community with abundant supply. This creates a potential market-like coordination function without requiring every contribution to be priced through wages.

The resulting claim is a Convalomy Credit, which should initially be defined as a redeemable economic claim within the participating network rather than automatically as legal tender or a general-purpose currency.

Redemption and the Fundamental Economic Constraint

The central economic discipline of Convalomy is redemption. A digital claim has purchasing power only to the extent that another participant is willing and able to exchange real goods, services, or funded benefits for it [9,10]. This means that issuance must be connected to a credible redemption pool, merchant commitment, institutional sponsor, or another identifiable source of real resources.

The relationship between issued credits, expected redemption, and available redemption capacity establishes the model’s sustainability constraint, as summarized in Table 4.

Table 4: Redemption Sustainability Constraint

C_{issued}

Total Credits Issued

$\times$

$E(\text{redemption rate})$

Expected Portion Redeemed

$\times$

$E(\text{value per claim})$

Expected Value Per Claim

$\leq$

$R_{capacity}$

Credible Redemption Capacity

The expected total value of claims seeking redemption must not exceed the system's credible capacity to honor them.

Component	Symbol	Meaning	How It's Determined	Example
Total Credits Issued	C_{issued}	Total amount of Convalomy Credits issued into the system.	Sum of all credits granted to contributors.	1,000,000 CC
Expected Redemption Rate	$E(\text{redemption rate})$	Expected proportion of issued credits that will be redeemed in a period.	Based on historical behavior, trends, and forecasts.	40% (0.40)
Expected Value Per Claim	$E(\text{value per claim})$	Expected average value (in goods/ services or currency) of each claim.	Based on pricing, demand, and marketplace data.	\$20 per claim
Credible Redemption Capacity	$R_{capacity}$	Maximum total value the system can credibly redeem in the period.	Based on available reserves, backing, and resource capacity.	\$8,000,000
Constraint	—	Ensures sustainability and protects the value of credits.	Must hold at all times (for the chosen period).	Must be TRUE

**Example Calculation**
 $1,000,000 \times 0.40 \times \$20 \leq \$8,000,000$
 $\$8,000,000 \leq \$8,000,000 \rightarrow \text{TRUE (Constraint Satisfied)}$

**Why It Matters**
Maintaining this inequality prevents over-issuance, protects the purchasing power of Convalomy Credits, and ensures long-term system stability.

**Policy Implication:** If the left side exceeds $R_{capacity}$, the system risks default. Actions may include slowing issuance, increasing reserves, reducing expected redemption rate, or lowering expected value per claim.

Here C_{issued} represents issued credits, $E(\text{redemption rate})$ is expected redemption, $E(\text{value per claim})$ is expected real purchasing value per redeemed credit, and $R_{capacity}$ is credible redemption capacity over the relevant period. The equation is a simplified risk constraint, not a monetary policy rule.

The relationship between issued credits, expected redemption, and available redemption capacity can be illustrated conceptually through the constraint shown in Figure 4.

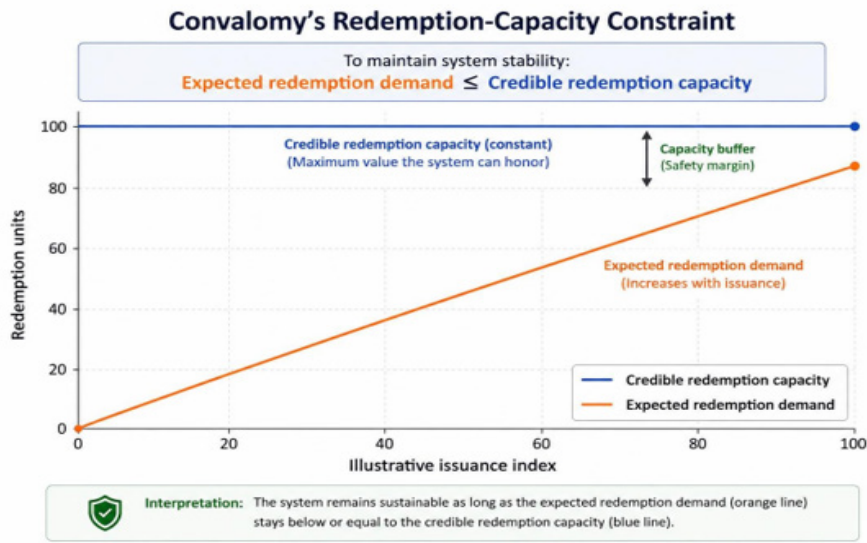


Figure 4: Illustrative redemption-capacity constraint. The figure is conceptual and not an empirical estimate.

The model can therefore support several funding arrangements. A merchant network may accept credits because it expects additional customers. An institution may fund credits to achieve a social objective. A public program may subsidize credits for approved activities. A philanthropic organization may purchase redemption capacity. A platform may allocate part of its revenue to a redemption pool. A mature network could combine these mechanisms.

The essential requirement is transparency. Participants should know what supports the credits they receive, the conditions under which redemption occurs, and whether the claim expires, floats in value, or has a fixed redemption schedule. This transparency distinguishes a constrained economic claim from an unsupported token

issuance scheme [10].

Closed-Loop and Open-Loop Designs

Closed-Loop Convalomy

A closed-loop design allows credits to circulate only among participating merchants, service providers, institutions, and contributors. It is the simplest architecture for a pilot because the network can define exactly what goods and services are available and how much redemption capacity exists. The principal disadvantage is limited liquidity and a potentially narrow range of goods.

Open-Loop Convalomy

An open-loop design permits conversion into broader payment instruments or cash-equivalent claims. It offers greater flexibility but creates substantially higher regulatory, monetary, tax, consumer-protection, and financial-crime obligations. For this reason, a research pilot should generally begin with a closed or tightly bounded model.

Expiration and Velocity

Credits may be designed with expiration dates or other circulation rules. Expiration could reduce indefinite accumulation and encourage use, but it may also punish participants who cannot immediately redeem. The appropriate design depends on the purpose of the network. A social-purpose network might use a moderate expiration period, while a more conventional merchant network might favor longer validity.

Velocity matters because the same credit can potentially facilitate multiple transactions before final redemption. If one credit is used five times within the network, its transaction utility may exceed its face value while the underlying redemption obligation remains linked to the final holder. This is another reason issuance should be evaluated against expected redemption rather than merely counting tokens.

Convalomy as a Complement to Employment

The model must respect labor law and should explicitly prohibit regulatory arbitrage. If a hotel requires regular cleaning under conditions that legally constitute employment, the employer should not be permitted to reclassify the workers as independent contributors merely to avoid wage, tax, safety, or benefit obligations.

The complementary use case is different. Suppose an older person wants two hours of companionship; a neighborhood wants a small garden maintained, or two people voluntarily want to conduct an educational reading session. These activities may not fit naturally into a conventional employment contract. Convalomy can create a structured mechanism for recognizing them while preserving the right of individuals to enter conventional employment.

The model can therefore coexist with employment, universal basic income, targeted transfers, volunteering, and platform work. Its distinguishing feature is not simply that it pays people. It is that the payment claim is generated through a verified contribution architecture that can include social and community value while remaining constrained by redemption capacity [8].

This also creates a policy question: should society recognize some contributions that markets are currently under-reward? The model does not answer this normatively in advance. It creates an institutional mechanism through which a community, merchant network, public agency, or other sponsor can decide which contributions are eligible and how much redemption capacity it is willing to support.

A Formalized Convalomy Model

Let i index contributors and j index contribution opportunities. Let x_{ij} be the verified quantity of contribution i supplied to opportunity j . Let v_j denote the valuation rule for that opportunity. The formalized model translates verified contributions into credit issuance through a sequence of defined variables and valuation rules, as illustrated in Figure 5. The credit issuance function can then be written as:

$$CC_i = \sum_j x_{ij} \cdot v_j \cdot q_{ij}$$

Total Convulomy Credits for i
 Sum over all contributions j
 Quantity of contribution j by i
 Value per unit of contribution j
 Quality factor of contribution j by i

Figure 5: Formalized Convulomy Credit-Issuance Model

The variables and parameters used in the formalized model are defined below to clarify their economic meaning and role within the credit-issuance mechanism, as presented in Figure 6.

CC_i = Total Convulomy Credits earned by contributor i	q_{ij} = Quality factor ($0 < q_{ij} \leq 1$) of contribution j provided by i
x_{ij} = Quantity or amount of contribution j provided by i	$\sum_j$ = Sum over all types of contributions j
v_j = Base value per unit of contribution j	

Figure 6: Definitions of Variables in the Formalized Convulomy Model

Where q_{ij} is a quality or verification factor between zero and one. If a contribution is fully verified and completed to standard, q may equal one. Partial completion or disputed performance can result in a lower value.

Let M denote participating merchant capacity, F institutional funding, S sponsor resources, and G other credible redemption resources. A simple capacity function is:

The capacity function defines the maximum level of contribution that can be supported within the relevant economic and operational constraints, as summarized in Table 5.

Table 5: Capacity Function

Table 3: Capacity Function

$$R = f(M, F, S, G)$$

↓

Variable	Meaning
 M	M – Monetary Stability The soundness and stability of the monetary base and purchasing power.
 F	F – Fiscal Health The fiscal sustainability and responsibility of the system.
 S	S – System Resilience The ability of the system to absorb shocks and maintain operations.
 G	G – Governance Quality The effectiveness, transparency, and accountability of governance.

Where: R = Overall Redemption Capacity

$f(\cdot)$ = Functional relationship

The sustainable issuance constraint is then:

$$\underbrace{\sum_i}_{\text{Sum over all contributors } i} \underbrace{CC_i}_{\text{Convalomy Credits of contributor } i} \cdot \underbrace{p_c}_{\text{Price per credit (constant)}} \cdot \underbrace{r_i}_{\text{Redemption rate of contributor } i} \leq \underbrace{R}_{\text{Redemption capacity}}$$

Figure 7: Sustainable issuance constraint

Sustainable issuance constraint definitions are shown in table 6.

Table 6: Sustainable issuance constraint- Definitions

Definitions	
Symbol	Meaning
CC_i	Convalomy Credits held by contributor i .
p_c	Price (value) per Convalomy Credit in the redemption unit (e.g., currency, goods).
r_i	Redemption rate ($0 \leq r_i \leq 1$) of contributor i , i.e., the fraction of their credits they intend to redeem.
R	Total redemption capacity available in the system over the relevant period.
$\sum_i$	Sum over all contributors i in the system.
 Interpretation: The total expected redemption value across all contributors must not exceed the system's redemption capacity.	
 Purpose: This constraint ensures the sustainability and solvency of the Convalomy system by limiting expected redemptions to available capacity.	

Where p_c is the expected real redemption value per credit, and r_i is the expected redemption rate of credits held by participants. This structure makes it explicit that Convalomy is not a claim-generation system without a resource base. It is a contribution-to-claim system whose claims are bounded by expected real redemption.

The model can also incorporate a reserve ratio of ρ . If only a fraction of issued credits is expected to be redeemed within the relevant horizon, the minimum backing requirement can be expressed in figure 8 as:

$$\underbrace{\text{Reserve Requirement}}_{\text{Shield icon}} \geq \underbrace{\rho}_{\text{Reserve Ratio}} \times \underbrace{\text{Issued Claims}}_{\text{Document icon}} \times \underbrace{\text{Expected Redemption Value}}_{\text{Money bag icon}}$$

Figure 8: Reverse Requirement Constraint

The reverse requirement constraint defines the conditions that limit credit issuance based on the resources and redemption capacity required to support outstanding claims, as summarized in Table 7.

Table 7: Definitions for the Reverse Requirement Constraint

Definitions	
Symbol / Term	Meaning
Reserve Requirement	The total amount of reserves that must be held by the system.
ρ (Reserve Ratio)	The minimum proportion of the expected redemption value that must be held as reserves ($0 < \rho \leq 1$).
Issued Claims	The total number (or quantity) of claims/credits issued in the system.
Expected Redemption Value	The expected value of redeeming one claim (in the relevant unit, e.g., currency or goods).
 Interpretation: The system must hold reserves that are at least a proportion ρ of the total expected value required to redeem all issued claims.	

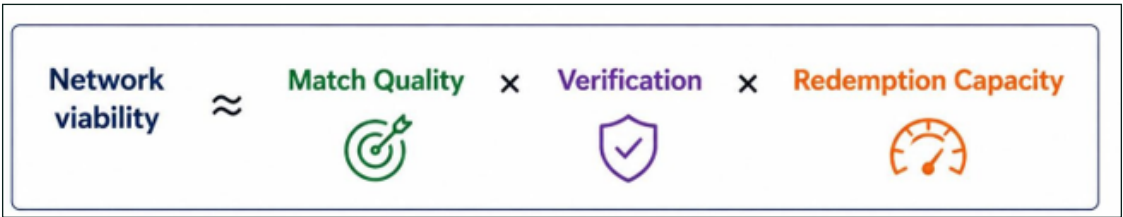
The appropriate value of ρ would be an empirical question determined by redemption behavior, merchant liquidity, institutional funding stability, and risk tolerance. It should not be assumed to equal a conventional banking reserve ratio.

Supply, Demand, and Network Effects

Convalomy creates two linked markets: a market for contribution opportunities and a market for redemption. The first determines whether contributors have meaningful opportunities to earn credits. The second determines whether those credits have practical purchasing power. A network can therefore fail on either side.

Let S_c represent the supply of verified contribution and D_c the demand for contribution. Let S_r represent redemption capacity and D_r the demand to redeem credits. A functioning network requires both sides to remain sufficiently balanced. Excess contribution opportunities without sufficient redemption capacity can create credits that cannot be effectively used. Excess merchant capacity without contributor demand creates an underutilized network.

Network viability depends on maintaining a balance between contribution opportunities, contributor demand, merchant capacity, and redemption capacity, as illustrated in Figure 9.



The principal conditions for network viability are defined in terms of balanced contribution opportunities, participant demand, merchant capacity, and redemption capacity, as summarized in Table 8.

Table 8: Network Viability- Definition

Definitions	
Component	Meaning
Match Quality	Effectiveness of need–contribution matching (0 to 1). <i>Higher values indicate better relevance and fit.</i>
Verification	Reliability and integrity of verification of contributions and claims (0 to 1). <i>Higher values indicate greater trust and accuracy.</i>
Redemption Capacity	System's ability to honor redemptions when claims are presented (0 to 1). <i>Higher values indicate greater liquidity and reserve strength.</i>


Interpretation: Network viability increases as match quality, verification reliability, and redemption capacity improve.
Each component ranges from 0 (poor) to 1 (excellent).

This expression is conceptual. It emphasizes multiplicative weakness: if any one component approaches zero, the practical value of the system can collapse even if the other components are strong. A technically excellent platform with poor matching does not generate useful contributions. A large contributor base without merchants does not create purchasing power. A merchant network without trust cannot safely accept claims [8,15].

Network effects may strengthen the system over time. More contributors can attract more requests; more requests can attract merchants; more merchants can increase the usefulness of credits; greater usefulness can attract contributors. However, network effects can also create concentration risks. A dominant platform could become a gatekeeper for access, verification, or redemption. Competition policy and portability should therefore be considered in the design.

Governance, Privacy, and Social Risk

The economic model creates several governance risks. First is fraud: participants may fabricate contributions or collude to generate claims. Second is exploitation: contributors may be pressured to perform socially expected activities for inadequate compensation. Third is commodification: activities traditionally performed through friendship or family relationships could become monetized in ways that damage trust. Fourth is discrimination: valuation rules might systematically favor some participants over others. Fifth is surveillance: verification could collect excessive information about people's movements and relationships [13,14,16].

Governance should therefore include independent rule-setting, transparent valuation schedules, appeal procedures, audit trails, participant protections, and data-minimization principles [13,14,16]. High-risk activities should receive stronger verification, while low-risk activities should not require invasive monitoring. The system should publish its issuance and redemption policies so that participants can evaluate the economic credibility of the network.

Privacy-by-design is particularly important. The system can separate identity verification from transaction records, store only the minimum data necessary for verification, and use cryptographic proofs where appropriate. Blockchain technology can support auditability, but it should not be treated as a justification for permanent public storage of sensitive personal information.

Governance should also recognize that not all values should be monetized. Some forms of care, friendship, family support, political participation, or personal creativity may be intentionally excluded. Conviviality should be understood as a selective institution, not an algorithmic score for the worth of a human being.

Relationship to Existing Institutions

Convalomy occupies a distinct position relative to several established mechanisms. Conventional employment converts labor into wages under an employment relationship. Gig platforms generally match buyers and sellers of services. Volunteering creates social value without necessarily creating a purchasing claim. Universal basic income provides purchasing power without requiring a contribution. Local exchange systems can facilitate reciprocal exchange but may remain small in scale. Convalomy combines elements of matching, verification, contribution recognition, and redemption while imposing an explicit resource constraint [8,13,15].

- Employment: remains the primary institution for many productive relationships and should retain its legal protections.
- Volunteering: can coexist with Convalomy; activities may remain purely voluntary when participants do not seek economic claims.
- UBI and transfers: can coexist as unconditional or targeted purchasing power mechanisms, while Convalomy is contribution-linked.
- Gig platforms: can supply matching infrastructure, but Convalomy adds a contribution valuation and redemption architecture [8].
- Local currencies and complementary payment systems: can provide redemption infrastructure for credits, subject to applicable law.
- Blockchain systems: can provide technical infrastructure for auditability and settlement, but do not by themselves create value [9,10].

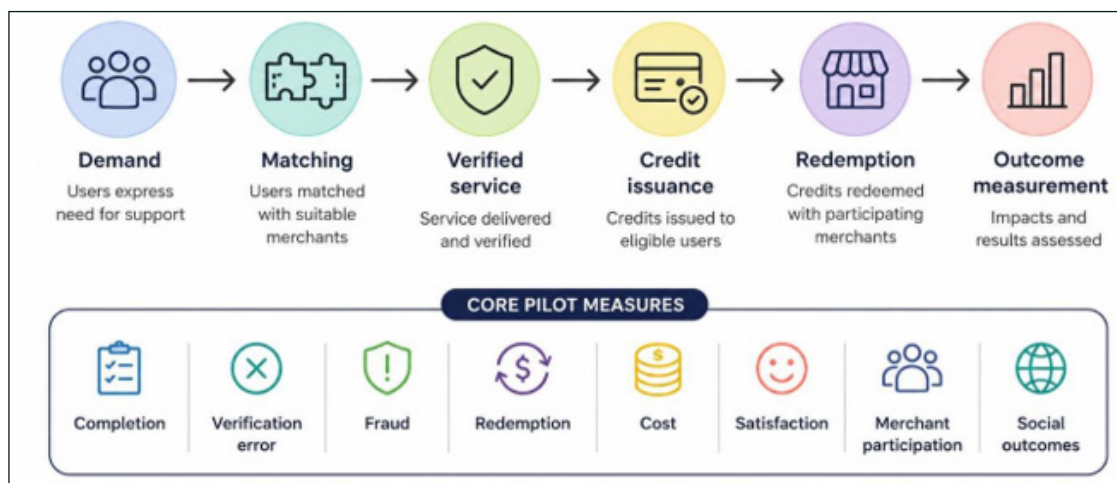
The practical contribution of Convalomy is therefore institutional rather than technological. The model asks whether an economy can deliberately create a bounded bridge between verified contribution and purchasing power without pretending that digital issuance itself creates wealth.

Research Propositions and Pilot Design

The proposal generates testable hypotheses rather than assuming success. The first hypothesis is that verified contribution opportunities can increase participation among individuals who face limited conventional employment access. The second is that participants will value credits more highly when redemption opportunities are broad, predictable, and geographically convenient. The third is that verification costs can be reduced through layered verification without materially increasing fraud. The fourth is that merchant participation will increase when redemption generates measurable customer acquisition or social impact benefits.

A pilot should begin with a geographically bounded network and a limited number of contribution categories. Participants should be randomly invited or recruited through transparent criteria. A baseline period should measure employment status, hours of unpaid activity, household purchasing constraints, social participation, and relevant well-being indicators. The intervention period should then introduce registered contribution opportunities and controlled credit issuance.

The proposed pilot can be structured to measure participation, verification, valuation, redemption, and network performance at defined stages, as illustrated in Figure 10.

Figure 10: Illustrative pilot architecture and measurement points.

Primary outcome measures should include verified contributions completed, credit issuance, redemption rate, real redemption value, participant retention, merchant participation, fraud rate, verification cost, and participant satisfaction. Secondary measures could include social connectedness, access to services, community outcomes, and changes in conventional employment behavior. A pilot should also measure unintended effects, including substitution away from paid employment, coercion, gaming, and unequal access to high-value opportunities.

Limitations, Policy Implications, and Research Agenda

Convalomy remains a conceptual economic model. Its largest limitation is empirical: it is not yet known whether participants will reliably produce socially useful contributions at sufficient scale, whether merchants will accept credits at meaningful value, or whether redemption can remain stable under changing participation. Valuation is also difficult. Social value is multidimensional, and any numerical schedule risks simplifying outcomes that cannot be perfectly priced.

A second limitation concerns institutional funding. If credits are backed primarily by subsidies or philanthropic funds, the model may function more like a targeted transfer mechanism than a self-sustaining economic network. That is not necessarily a defect, but it should be transparent. A third limitation is regulation. Depending on structure and jurisdiction, Convalomy Credits could implicate payments, money transmission, securities, tax, labor, consumer protection, benefits, or financial crime rules. Legal classification must therefore be determined by the actual design rather than by the name of the instrument.

The policy implication is not that governments should immediately adopt Convalomy. Rather, governments and institutions could consider controlled experiments in which contribution recognition is tested alongside existing employment and transfer systems. The most informative research would compare alternative valuation rules, redemption mechanisms, verification technologies, and funding structures.

A longer research agenda should include agent-based simulations, laboratory experiments, field pilots, merchant-demand studies, welfare analysis, distributional analysis, and regulatory studies. Attention should be paid to whether Convalomy expands participation or merely reallocates opportunities among people who would already have participated in paid work. The strongest evidence would come from randomized or carefully matched pilot designs that measure both intended and unintended outcomes.

The model's central research question can be stated simply: Under what institutional conditions can verified human contribution generate credible, limited purchasing power without creating unsupported claims or replacing protections provided by conventional employment?

Conclusion

Technological change creates a legitimate economic question even without producing permanent mass unemployment. If automation and AI raise productivity, alter tasks, and reduce labor demand in some areas while human needs and human capacity remain, the relationship between contribution, employment, and purchasing power may become less direct. Existing institutions—including employment, markets, transfers, volunteering, and entrepreneurship—will continue to perform essential functions. The question examined in this paper is whether an additional institutional mechanism could complement them.

Convalomy is proposed as one such mechanism. Its central proposition is that verified human contribution could, under defined institutional rules, generate a limited and transferable economic claim. The model does not assume that a digital token is itself wealth or purchasing power. Rather, the economic value of the claim depends on a constrained institutional process linking verified contribution to transparent valuation, controlled issuance, and eventual redemption against real goods, services, or funded economic resources. This distinction is fundamental to the model and to its evaluation.

The broader concept of a Contribution Economy provides the conceptual context for this proposal, but Convalomy is the specific institutional model developed in this paper. The paper's proposed contribution is therefore not the general observation that human contribution has economic value, nor the use of digital technology to record such contribution. It is the design of a testable institutional chain through which verified contribution could generate constrained purchasing claims outside a strictly conventional employment relationship.

The principal question is consequently empirical. A controlled pilot should test whether individuals are willing to participate, whether contribution can be verified at acceptable cost and with sufficiently low error, whether valuation mechanisms can limit systematic distortion, whether merchants are willing to accept and redeem the resulting claims, and whether the mechanism produces measurable improvements in economic participation without creating unacceptable fraud, distributional, social, or regulatory risks. These

tests should be evaluated against explicit thresholds rather than against the assumption that the model will succeed.

Convalomy should therefore be understood not as a proposed replacement for employment, markets, public transfers, or entrepreneurship, but as a testable institutional complement to them. If the pilot demonstrates that verified contribution can be translated into redeemable economic claims at acceptable cost, with adequate safeguards and meaningful participation, the model would provide evidence for further institutional experimentation. If it fails to meet those conditions, that failure would be equally informative: it would identify practical limits on the ability of contribution-based mechanisms to allocate purchasing claims in an increasingly automated economy. The value of the proposal ultimately depends not on its conceptual appeal, but on whether its institutional mechanism can withstand empirical testing [17,25].

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