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ARTICLE

Why Does Christmas Feel Sadder Over Time? An Economic—Relational Theory of the Christmas Paradox in Developing Societies

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Abstract

Despite rising income and material abundance, many individuals report declining happiness during Christmas (Pasko), particularly in developing societies. This paper addresses this paradox by proposing the GAMAW–GAPOH Model (Pasko Paradox Model), a culturally grounded economic framework that reconceptualizes festive well-being as a balance between relational capital (GAMAW) and burdens and losses (GAPOH) rather than as an outcome of consumption alone. Departing from neoclassical utility theory, the model formally integrates social presence, cognitive burdens, and accumulated relational loss into a multidimensional utility function. Pasko Utility (PU) is specified as $PU = \alpha \ln(C) + \beta R - \gamma B - \delta L$, where C denotes consumption, R relational connectedness, B cognitive burdens, and L accumulated relational loss, with parameter restrictions $\beta > \alpha$ and $\delta \geq \gamma$. To operationalize festive well-being, the study introduces a normalized Pasko Contentment Index (PCI): $PCI = \frac{R}{R+B+L} \times \ln(1 + C)$, bounded between 0 and 1. Using 384 individuals from Lagonoy Gulf, Philippines, results show that while consumption increases monotonically across income groups, both PU and PCI peak at middle-income levels and decline sharply at higher income brackets. This decline is driven by weakened relational connectedness and rising work-related burdens and accumulated losses, which outweigh the diminishing marginal utility of increased consumption. Individuals in the highest income group exhibit the lowest PCI despite the highest festive spending. The findings demonstrate that Christmas functions as a relational public good, not a private consumption good. Festive well-being depends primarily on who is present, the weight of adult burdens, and the loss of important relationships, rather than on income or spending alone. The GAMAW–GAPOH Model thus offers a culturally sensitive and analytically rigorous explanation for declining festive happiness amid economic progress.

Keywords: Christmas paradox, relational utility, happiness economics, behavioral economics, cultural economics, Philippines

1. INTRODUCTION

Economic progress is conventionally expected to enhance human well-being through higher income, expanded consumption opportunities, and improved material living standards. This assumption is deeply embedded in neoclassical economics, where utility is largely modeled as a function of consumption and income. Under this framework, economic growth should monotonically translate into greater happiness and life satisfaction. However, a growing body of empirical evidence suggests that this relationship is neither linear nor guaranteed, particularly once basic material needs have been met [1,2].

Across many developing societies, including the Philippines, people increasingly articulate a shared sentiment: "*Hindi na kasing hirap ngayon, pero hindi na rin kasing saya tulad noon*." This lived observation highlights a paradox: despite rising incomes, better access to goods, and improved material conditions, festive happiness appears to have weakened rather than strengthened. Such experiences are consistent with findings in happiness economics showing that relative income, adaptation, and social comparison often dampen the emotional returns of economic growth [3].

This phenomenon poses a challenge to traditional utility theory. Standard economic models struggle to explain why increases in income and consumption fail to generate corresponding increases in well-being, especially during culturally significant periods such as Christmas. Prior research has demonstrated that while income improves overall life evaluation, it does not necessarily enhance emotional well-being, which is more sensitive to daily experiences, social interaction, and psychological states [2]. Moreover, development processes that prioritize market efficiency and productivity may unintentionally weaken social ties and communal life, thereby reducing relational sources of happiness [4].

In response, this paper proposes an alternative explanation through the *GAMAW–GAPOH* Model, an economic–relational framework that reconceptualizes festive well-being as the outcome of a balance between relational capital and accumulated burdens. Rather than treating Christmas happiness as a private utility derived primarily from consumption, the model frames it as a relational and collective experience embedded in social structures, cultural practices, and shared memories. This perspective aligns with broader development frameworks that emphasize human freedom, social participation, and relational capability as central components of well-being [5].

The model draws inspiration from indigenous coastal metaphors rooted in fishing communities. In this context, *gamaw* refers to the floats attached to fishing nets that keep them upright in the water, while *gapoh* refers to the sinkers that pull the nets downward. The effectiveness of a fishing net depends not on the abundance of floats or sinkers alone, but on their balance. Applied to Christmas, *GAMAW* represents relational capital, family presence, shared meals, communal rituals, and emotional connection, while *GAPOH* represents burdens such as work pressure, financial obligations, emotional fatigue, unresolved conflicts, and the irreversible loss of loved ones.

The central proposition of this paper is simple yet theoretically consequential: Christmas "floats" or "sinks" depending on the balance between *GAMAW* and *GAPOH*, not on income alone. Economic progress may increase consumption, but if relational capital erodes faster than material gains accumulate, festive utility can decline. In this sense, Christmas functions less as a private consumption good and more as a relational public good, vulnerable to erosion by modernization, labor precarity, migration, and the cognitive burdens of adulthood [4,5].

2. LITERATURE REVIEW

2.1 Limits of Consumption-Based Utility

In standard neoclassical economics, utility is typically specified as a strictly increasing function of consumption, implying that higher material intake unambiguously improves individual well-being. This assumption forms the backbone of welfare analysis, growth models, and policy evaluation, where income and consumption are commonly used as operational measures of welfare [6,7]. Despite its analytical elegance and formal convenience, this approach rests on restrictive assumptions that exclude the social, emotional, and temporal dimensions of lived experience.

One major shortcoming of consumption-centered utility is its narrow focus on private, individual consumption, which overlooks the fundamentally relational and situational character of happiness [8]. As a result, such models offer limited explanatory power for phenomena in which subjective well-being deteriorates even amid rising incomes, particularly during culturally significant periods such as

religious observances or family-oriented celebrations. These occasions derive their meaning less from material expenditure than from shared rituals, emotional presence, and collective memory.

Conventional utility theory also assumes stable preferences and smooth substitutability across goods, assumptions that are poorly suited to capturing experiences of loss, grief, nostalgia, and social absence [9]. Emotional losses,such as bereavement or the weakening of close relationships, are not readily offset by incremental increases in consumption, challenging the compensatory logic that underlies neoclassical welfare analysis. This limitation becomes especially visible during festive periods, when memories of the past and awareness of absent loved ones intensify emotional responses.

A further limitation lies in the treatment of time. Consumption-based models tend to adopt static or short-horizon perspectives, thereby neglecting the accumulation of emotional strain and the gradual erosion of relational capital over the life course [10]. As individuals age, growing responsibilities, obligations, and work pressures reshape the emotional texture of celebrations in ways that income-based indicators fail to capture.

Taken together, these limitations suggest that reliance on consumption as the primary indicator of welfare produces an incomplete and sometimes distorted account of well-being. This recognition motivates the development of alternative frameworks that explicitly incorporate relational presence, emotional burdens, and loss, dimensions that are central to the experience of Christmas yet remain largely absent from conventional economic models [5].

2.2 Happiness and Behavioral Economics

Growing dissatisfaction with purely consumption-based notions of utility has fueled the expansion of research in happiness economics and behavioral economics. A central insight from this literature is the Easterlin Paradox, which shows that sustained economic growth does not automatically translate into long-run increases in average happiness at the societal level [1]. Although income and happiness tend to be positively associated at a given point in time, this association weakens considerably when observed over extended periods.

Behavioral approaches offer several explanations for this pattern. One mechanism is the declining marginal utility of income; whereby additional earnings generate diminishing gains in well-being once basic needs are met [2]. Another is hedonic adaptation, through which individuals rapidly adjust their aspirations and emotional reference points after income changes, causing initial improvements in happiness to fade over time [11]. Consequently, rising material standards often fail to yield enduring emotional improvement.

Relative considerations further complicate the income–happiness relationship. Individuals tend to assess their well-being in comparison with others rather than in absolute terms, implying that income growth may leave happiness unchanged if similar gains occur within one's reference group [3]. Such comparison effects may become more pronounced during festive periods, when social visibility and expectations are heightened, potentially intensifying stress, dissatisfaction, or emotional strain instead of happiness.

Happiness research also distinguishes between evaluative well-being and experienced emotional states. While higher income can improve overall life satisfaction, it exhibits a much weaker association with day-to-day emotions such as joy, anxiety, or sadness, dimensions that are particularly salient during holidays like Christmas [2]. As a result, festive emotional distress cannot be adequately captured using income-based indicators alone.

Taken together, these findings imply that the emotional experience of Christmas is influenced less by levels of consumption and more by psychological and social conditions, including time pressure, stress, and relational disruptions. Although happiness economics identifies these determinants, they are rarely incorporated directly into formal utility frameworks. Addressing this limitation constitutes a key motivation of the present study.

2.3 Relational and Cultural Approaches

An important body of scholarship locates well-being not in individual consumption but in relational and socially embedded goods. Such goods including friendships, family interactions, and communal practices generate value through shared participation and reciprocity, rather than through private ownership or market exchange [12]. Because these goods are non-market, non-rival, and highly context-specific, they are often inadequately reflected in conventional economic indicators.

Related work on social capital demonstrates that strong interpersonal networks, trust, and civic involvement play a crucial role in enhancing life satisfaction and subjective well-being [4,13]. Celebratory events such as Christmas illustrate this dynamic clearly, as their emotional value is derived primarily from togetherness, collective memory, and shared meaning, rather than from material transactions.

From the perspective of cultural economics, the significance of rituals and festivities is shaped by historically embedded meanings and socially constructed identities [14]. The affective value of Christmas, in particular, is rooted in tradition, memory, and belonging, making it vulnerable to disruption from migration, family separation, and social change. In many developing contexts, processes such as labor migration and urbanization have weakened kinship ties, thereby reducing access to relational goods during major holidays [15].

Despite these contributions, relational and cultural dimensions of well-being remain insufficiently formalized within economic theory. Social capital is typically modeled as an exogenous influence on utility, while culturally specific and indigenous understandings of well-being are frequently overlooked, limiting the explanatory power of dominant happiness frameworks.

This study responds to these limitations by endogenizing relational capital, burdens, and loss within a formal utility structure, drawing on culturally grounded metaphors from Filipino coastal communities. In doing so, it offers an analytically rigorous yet culturally responsive economic model that more accurately reflects the relational foundations of festive well-being.

2.4 Cultural Economics and Indigenous Utility

Cultural economics emphasizes that utility is shaped not only by material consumption but also by socially embedded meanings, rituals, and collective identities [16,17]. Consumption acquires value through cultural interpretation and shared social experience rather than through private ownership alone. Festive occasions such as Christmas therefore generate utility primarily through emotional presence, family interaction, and communal participation. Sociological and anthropological perspectives further argue that rituals reinforce social solidarity and collective belonging, making celebrations emotionally significant beyond their economic cost [18,19]. However, modernization, migration, and increasing work pressures may weaken these relational structures over time [20,21]. Despite these insights, mainstream economic models rarely incorporate indigenous and culturally grounded understandings of utility. This study addresses this limitation by introducing the GAMAW–GAPOH framework, which reinterprets coastal Filipino fishing metaphors as economic representations of relational support and emotional burden within festive well-being.

2.5 Research Gap and Contribution

Existing research in happiness economics and behavioral economics demonstrates that income alone cannot fully explain subjective well-being, particularly during socially meaningful occasions [1,2]. Although relational goods and social capital are recognized as important determinants of happiness, they are often treated as external influences rather than formally integrated into utility theory [12,4]. Furthermore, mainstream economic models rarely incorporate culturally specific and indigenous conceptions of well-being, particularly in developing societies where communal relations strongly shape lived experience [22]. This study addresses these gaps by proposing the GAMAW–GAPOH Model, a culturally grounded relational utility framework that conceptualizes Christmas well-being as a balance between relational capital and psychosocial burden. The study contributes by formally

integrating relationships, burdens, and accumulated loss into a multidimensional utility function and by introducing the *Pasko* Contentment Index (PCI) as a conceptual measure of festive well-being.

3. *PASKO* PARADOX MODEL (*GAMAW-GAPOH* MODEL)

Life is no longer as hard as it used to be, yet it no longer feels as joyful as before. Why is that?

I. AXIOMS

Axiom 1: Non-material Utility Axiom

Total utility during *Pasko* is not generated solely by income or consumption.

$$U \neq f(Y) \; alone$$

This assumption departs from neoclassical consumption-only utility.

Axiom 2: Relational Primacy Axiom

Human well-being increases more with *presence of meaningful relationships* than with marginal increases in consumption.

$$\frac{\partial U}{\partial R} > \frac{\partial U}{\partial C}$$

Where
R= relational presence (family, friends)
C= material consumption

Axiom 3: Cognitive Burden Axiom

Psychological burdens (problems, obligations, work stress) generate *negative utility.*

$$\frac{\partial U}{\partial B} < 0$$

Where
B= burdens (work, obligations, conflicts, loss)

Axiom 4: Nostalgic Weight Axiom

Loss of past relational capital reduces present utility even if current income rises.

$$\frac{\partial U}{\partial L} < 0$$

Where
L= loss of people, memories, innocence

Together, these four axioms establish a unified and internally consistent foundation for understanding festive well-being during *Pasko* as a multidimensional and relational phenomenon rather than a purely material one. The Non-material Utility Axiom rejects the neoclassical assumption that utility is generated solely by income or consumption, asserting that material sufficiency is neither a necessary nor sufficient condition for festive happiness. Building on this, the Relational Primacy Axiom posits that meaningful social presence, family, friends, and shared rituals, yields greater marginal utility than additional consumption, formally recognizing relationships as the dominant source of festive well-being. However, positive utility from relationships is counterbalanced by the Cognitive Burden Axiom, which acknowledges that adult responsibilities, work pressures, and unresolved conflicts generate negative utility that directly erodes festive enjoyment. Finally, the Nostalgic Weight Axiom introduces

an intertemporal dimension by emphasizing that losses of relational capital, whether through death, migration, or the fading of childhood innocence, impose a persistent utility penalty that rising income cannot offset. Taken together, these axioms explain why Christmas may feel emotionally poorer despite material progress: festive utility depends not on how much one has, but on who is present, what weighs on the mind, and who is no longer there.

II. UTILITY FUNCTION DURING PASKO

Let festive well-being during Christmas (*Pasko*) be represented by the *Pasko* Utility Function:

$$\mathrm{PU} = \alpha \ln(\mathrm{C}) + \beta \mathrm{R} - \gamma \mathrm{B} - \delta \mathrm{L}$$

Where:

PU= *Pasko* Utility (festive well-being)

C= Christmas consumption or material resources

R= relational connectedness

B= cognitive burdens and obligations

L= accumulated relational loss

$$\alpha, \beta, \gamma, \delta > 0$$

Subject to the parameter restrictions:

$$\beta > \alpha \text{and} \delta \geq \gamma$$

These restrictions imply that:

1. relationships contribute more to festive well-being than consumption; and
2. accumulated loss generates at least as much disutility as everyday burdens.

The logarithmic specification of consumption captures diminishing marginal utility, implying that additional spending yields progressively smaller increases in festive happiness as income rises.

α, β, γ, and δ are positive preference parameters that measure the relative contribution of consumption, relationships, burdens, and loss to *Pasko* Utility, ensuring theoretically consistent marginal effects. Relationships matter more than consumption. Loss hurts at least as much as daily burdens.

The *Pasko* Utility Function formalizes festive well-being as a multidimensional construct derived from material, relational, psychological, and intertemporal factors. *Pasko* Utility (PU) is defined as a function of consumption C, relational connectedness R, cognitive burdens B, and relational loss L, where $PU = U(C, R, B, L)$. Assuming separability, the functional form $PU = \alpha \ln(C) + \beta R - \gamma B - \delta L$ captures several empirically grounded behavioral properties. The logarithmic specification of consumption reflects diminishing marginal utility, implying that additional income or festive spending yields progressively smaller gains in utility. In contrast, relational connectedness enters linearly with a larger marginal weight ($\beta > \alpha$), emphasizing that shared presence and meaningful relationships contribute more to festive happiness than material abundance. Cognitive burdens and obligations reduce utility, as indicated by the negative coefficient on B, reflecting the emotional costs of work pressure, responsibilities, and unresolved stress during the holiday period. Finally, loss of important people or past relational capital exerts a persistent negative effect on utility, with $\delta \geq \gamma$capturing the insight that loss inflicts at least as much disutility as everyday burdens. Together, these parameter restrictions ensure

theoretically consistent marginal effects and encode the central claim of the model: Christmas happiness is driven more by who is present and who is absent than by how much is consumed.

III. COMPARATIVE STATICS: NOON vs NGAYON

NOON (Past Christmas)

Festive utility during the past period may be represented as:

$$PU_N = \alpha \ln(C_N) + \beta R_N - \gamma B_N - \delta L_N$$

Under the conditions:

$$C_N \text{ low}, R_N \text{ high}, B_N \approx 0, L_N \approx 0$$

Because burdens and losses are minimal, festive utility is primarily driven by strong relational connectedness.

Utility dominated by *relationships*.

In the past Christmas setting, consumption and income are relatively low (C_n low), while relational connectedness is high (R_n high). Cognitive burdens and obligations are minimal (B_n low), and losses of important people are approximately zero ($L_n \approx 0$). Under these conditions, *Pasko* Utility simplifies to:

$$PU_n = \alpha \ln(C_n) + \beta R_n$$

As the negative components of utility are negligible, festive well-being is dominated by relational factors. Although material resources and Christmas food (*handa*) were limited, strong family ties, frequent social interaction, and shared rituals generated high levels of utility. The absence of significant burdens and losses further amplified this effect. Consequently, despite economic hardship, Christmas was experienced as joyful and meaningful because relational capital outweighed material scarcity. This outcome illustrates that high festive utility can emerge even under low consumption when social connectedness is strong.

NGAYON (Present Christmas)

Present festive utility is represented as:

$$PU_G = \alpha \ln(C_G) + \beta R_G - \gamma B_G - \delta L_G$$

Under the conditions:

$$C_G \text{ high}, R_G \text{ low}, B_G \text{ high}, L_G \text{ high}$$

Although consumption increases, festive utility declines because relational erosion and psychosocial burdens outweigh the diminishing gains from additional material consumption.

Despite higher C_g, total utility falls.

In the present Christmas setting, consumption and income are relatively high (C_g high), while relational connectedness is low (R_g low). Cognitive burdens and obligations have increased substantially (B_g high), and accumulated losses of important people and past relational capital are also high (L_g high).

Despite higher levels of consumption and more abundant Christmas food (*handa*), total festive utility declines. The marginal utility gained from increased consumption is limited due to diminishing returns, while the reduction in relational presence, combined with heightened work pressures, responsibilities, and emotional burdens, exerts a strong negative effect on well-being. Moreover,

accumulated losses impose a persistent utility penalty that material abundance cannot offset. As a result, even with higher income and consumption, the overall experience of Christmas becomes emotionally heavier and less joyful. This outcome illustrates the core paradox of the model: rising material prosperity does not guarantee higher festive happiness when relational capital erodes and burdens intensify.

***GAMAW-GAPOH* Paradox Condition**

The Christmas paradox occurs when present festive utility becomes lower than past festive utility despite higher current consumption:

$$PU_G < PU_N$$

This condition holds when:

$$\beta(R_N - R_G) + \gamma B_G + \delta L_G > \alpha \ln\left(\frac{C_G}{C_N}\right)$$

The left-hand side represents the combined weight of:

declining relational capital,

increasing burdens,

and accumulated losses.

The right-hand side represents the utility gains from increased consumption.

The paradox emerges when relational erosion and psychosocial burdens exceed the diminishing utility gains generated by higher material consumption.

$PU_g < PU_n$even if$C_g > C_n$This holds when:

$$\beta(R_n - R_g) > \alpha \ln\left(\frac{C_g}{C_n}\right) + \gamma B_g + \delta L_g$$

Where:

$$\beta(R_n - R_g)$$

represents the loss of relational capital—the difference in the quantity and depth of relationships between past and present Christmas. This term captures the magnitude of lost *GAMAW* (the floats in the fishing net), indicating how much relational support that once kept the Christmas experience buoyant has diminished over time.

$$\alpha \ln\left(\frac{C_g}{C_n}\right)$$

represents the increase in income or Christmas consumption (*handa*). However, because consumption enters the utility function logarithmically, the resulting gain in festive happiness is limited; even large increases in consumption generate only modest additional utility.

$$\gamma B_g + \delta L_g$$

represents the combined weight of cognitive burdens and accumulated losses, the *GAPOH* that pulls festive well-being downward. This includes work pressures, financial obligations, emotional fatigue, and the irreversible loss of important people or past relational capital.

As a result, the loss of people and the burden of adulthood outweigh income gains. Consequently, Christmas happiness in the present is lower than in the past, even though income and festive consumption are higher. This outcome occurs when the negative effects of relational loss and accumulated obligations exceed the positive but diminishing utility gains from increased consumption.

The central paradox of the model arises when present festive utility is lower than past festive utility despite higher current consumption, formally expressed as:

$$\mathrm{PU_g} < \mathrm{PU_n} \text{even if } \mathrm{C_g} > \mathrm{C_n}$$

This condition holds when the loss in relational capital and the accumulation of burdens and losses outweigh the utility gains from increased consumption:

$$\beta(\mathrm{R_n} - \mathrm{R_g}) > \alpha \ln\left(\frac{\mathrm{C_g}}{\mathrm{C_n}}\right) + \gamma \mathrm{B_g} + \delta \mathrm{L_g}$$

The left-hand side of the inequality, $\beta(\mathrm{R_n} - \mathrm{R_g})$, represents the decline in relational connectedness between past and present Christmas. This term captures the magnitude of lost relationships, diminished family presence, and weakened social bonds—what the model conceptualizes as the reduction of *GAMAW*, or the floats that once kept the Christmas experience buoyant. A larger value indicates a substantial erosion of relational capital, which directly reduces festive utility.

The first term on the right-hand side, $\alpha \ln(\mathrm{C_g}/\mathrm{C_n})$, reflects the utility gained from increased income or more abundant Christmas food (*handa*). However, because consumption enters the utility function logarithmically, the marginal utility of additional consumption is inherently limited. Even large increases in income generate relatively modest gains in festive happiness, especially once basic material needs are satisfied.

The remaining terms, $\gamma \mathrm{B_g} + \delta \mathrm{L_g}$, represent the combined negative effects of cognitive burdens and accumulated losses—collectively conceptualized as *GAPOH*, the sinkers pulling festive well-being downward. These include work pressures, financial obligations, emotional fatigue, unresolved conflicts, and the irreversible loss of loved ones or past relational capital. The parameter restriction $\delta \geq \gamma$further emphasizes that losses inflict at least as much disutility as everyday burdens.

Together, this condition formalizes the intuition that loss of people and the burden of adulthood can outweigh income gains. As a result, Christmas may feel emotionally poorer today than in the past, even amid greater material abundance. The *GAMAW–GAPOH* Paradox thus explains why festive happiness can decline despite economic progress: when relational erosion and accumulated burdens dominate diminishing consumption gains, overall *Pasko* utility inevitably falls.

IV. *PASKO* CONTENTMENT INDEX (PCI)

To operationalize festive well-being, the study introduces the *Pasko* Contentment Index (PCI):

$$PCI = \left(\frac{R}{R + B + L}\right) \ln(1 + C)$$

Where:

$$0 \leq PCI \leq 1$$

the relational ratio term captures the balance between relational capital and psychosocial burden;

the logarithmic consumption term reflects diminishing marginal returns to material spending.

The index satisfies the following properties:

$$\frac{\partial PCI}{\partial R} > 0$$

$$\frac{\partial PCI}{\partial B} < 0$$

$$\frac{\partial PCI}{\partial L} < 0$$

$$\frac{\partial^2 PCI}{\partial C^2} < 0$$

These properties formally establish that:

relationships increase festive well-being,

burdens and losses reduce festive well-being,

and consumption exhibits diminishing marginal utility.

The index combines relational, psychological, and material dimensions of Christmas into a single interpretable metric. The first component, $\frac{\mathrm{R}}{\mathrm{R+B+L}}$, captures the relative strength of relational connectedness compared to the combined weight of burdens and losses. As such, it increases with higher levels of relational capital and decreases as obligations, stress, and relational loss accumulate. The second component, $\ln(1+\mathrm{C})$, reflects material consumption or income, modeled with diminishing marginal returns to ensure that increases in consumption contribute progressively smaller gains to festive well-being.

The PCI possesses several desirable properties. It is increasing in relational connectedness (R), decreasing in cognitive burdens (B) and losses (L), and logarithmic in consumption (C). These properties formally encode the central intuition of the model: Christmas happiness depends more on the balance between relationships and burdens than on material abundance alone. A higher PCI emerges when family presence, shared experiences, and social connection dominate over stress, obligations, and loss. Conversely, even with high income and abundant Christmas food (*handa*), the PCI declines when burdens and losses outweigh relational capital.

Conceptually, the PCI serves as an indicator of whether Christmas "floats" or "sinks." When *GAMAW* (relational capital) exceeds *GAPOH* (burdens and losses), the PCI is high, and Christmas remains joyful and meaningful, even with simple celebrations. When *GAPOH* dominates, festive well-being deteriorates despite material prosperity. The index thus provides a parsimonious yet culturally grounded measure of festive contentment that bridges economic theory and lived experience.

$$PCI = \frac{R}{R+B+L} \times \ln(1+C)$$

Index Properties

Increasing in R

Decreasing in B, L

Logarithmic in C(diminishing returns)

This index demonstrates that Christmas well-being depends on the relative strength of relationships compared to problems and losses, rather than on the amount of Christmas food or income alone. When R(relational connectedness among family and friends) is higher, the PCI increases. When B and L (problems, obligations, and losses) are larger, the PCI declines. Even when C (Christmas

consumption or income) rises, the additional happiness generated is limited due to diminishing returns. The PCI therefore serves as a measure of whether Christmas "floats" or "sinks": when *GAMAW* (relationships) outweighs *GAPOH* (problems and losses), festive happiness remains high, even with simple celebrations.

Past Christmas (Noon).

When relational connectedness dominates burdens and losses ($R \gg B + L$), the *Pasko* Contentment Index is high. Strong family ties, frequent social interaction, and shared presence outweigh material scarcity, resulting in high festive well-being. Even with limited income and simple Christmas food, Christmas was experienced as joyful because relationships, rather than material conditions, formed the primary source of utility.

Present Christmas (Ngayon).

In contrast, when burdens and losses dominate relational connectedness ($B + L \gg R$), the *Pasko* Contentment Index is low. Increased work pressure, obligations, emotional fatigue, and accumulated losses outweigh weakened social ties, leading to lower festive well-being despite higher income and more abundant Christmas consumption.

The central insight of the model is that money is not the primary determinant of Christmas happiness; the presence of meaningful people is. While economic progress raises consumption, it may simultaneously reduce festive well-being when relational capital declines faster than material gains increase. In this sense, Christmas functions as a public good of relationships rather than a private good of money.

When important people are lost and obligations, problems, and constraints accumulate, increases in income or festive consumption cannot prevent a decline in *Pasko* utility. Christmas happiness ultimately depends not on how much is prepared or earned, but on who is present and who is no longer there.

4. APPLICATIONS

This chapter presents the results of the *GAMAW–GAPOH* Model using a dataset of 384 individuals, evenly distributed across four income groups (96 respondents per group). All variables as shown in Table 1 are specified consistently with the *Pasko* Utility Function and the *Pasko* Contentment Index (PCI).

Two outcome measures are examined:

1. *Pasko* Utility (PU) – computed directly from the utility function
2. *Pasko* Contentment Index (PCI) – a normalized index bounded between 0 and 1

Together, these measures illustrate how Christmas well-being responds to changes in consumption, relational connectedness, burdens, and loss.

Retrospective Assessment and Recall Bias

The comparative "past Christmas" (Noon) conditions presented in the GAMAW–GAPOH framework are based on retrospective recalled perceptions rather than contemporaneously observed historical data. Respondents conceptually reflected on their remembered experiences of earlier Christmas celebrations, particularly regarding relational connectedness, burdens, and perceived festive happiness. As with all retrospective self-reported measures, the possibility of recall bias cannot be fully eliminated, since memories may be influenced by nostalgia, emotional reconstruction, or present circumstances [23]. However, the study does not aim to establish precise historical measurement or

causal inference. Instead, retrospective recall is used to capture perceived intertemporal changes in festive well-being, which are themselves theoretically important within the context of relational and emotional utility. In studies of happiness, memory and subjective perception are often central components of experienced well-being because individuals interpret present emotions partly through comparisons with remembered past experiences [24].

Table 1. Variables and parameters in the *Pasko* utility function and *GAMAW–GAPOH* model

Category	Symbol	Variable Name	Description	Specific Measurement / Proxy
Dependent Variable	PU	*Pasko* Utility	Overall festive well-being or happiness experienced during Christmas (*Pasko*), derived from material, relational, psychological, and intertemporal factors	Composite utility score; subjective festive happiness rating; index-based score
Material Factor	C	Consumption	Level of material consumption during Christmas, including food prepared (*handa*) or income available for festive spending	Value of Christmas food prepared; household Christmas expenditure; self-reported income level
Relational Factor	R	Relational Connectedness	Strength and presence of meaningful social relationships during Christmas, including family, friends, and shared participation	Number of family members present; frequency of social interaction; perceived closeness scale
Psychological Factor	B	Burdens and Obligations	Cognitive and emotional burdens experienced during the Christmas period, such as work stress, financial pressure, and responsibilities	Self-reported stress level; working days during Christmas; financial obligation index
Intertemporal Factor	L	Loss of Relational Capital	Accumulated loss of important people, shared memories, or past relational presence that affects	Number of deceased or absent close relatives; migration-induced absence; perceived loss scale

			present festive well-being	
Preference Parameter	α	Consumption Weight	Marginal contribution of consumption to *Pasko* Utility, capturing diminishing marginal utility	Estimated coefficient on ln(C); expected to be positive and small
Preference Parameter	β	Relational Weight	Marginal contribution of relational connectedness to *Pasko* Utility	Estimated coefficient on R; expected to be larger than α
Preference Parameter	γ	Burden Weight	Marginal disutility from cognitive burdens and obligations	Estimated coefficient on B; expected to be positive
Preference Parameter	δ	Loss Weight	Marginal disutility from relational loss	Estimated coefficient on L; expected to be ≥ γ
Comparative Static (Past)	C_n	Past Consumption	Level of Christmas consumption in the past (Noon)	Retrospective self-reported consumption or income
Comparative Static (Past)	R_n	Past Relational Connectedness	Strength of relationships during past Christmas	Retrospective relational presence score
Comparative Static (Past)	B_n	Past Burdens	Burdens and obligations during past Christmas	Retrospective stress and obligation indicators
Comparative Static (Past)	L_n	Past Loss	Loss of important people in the past	Approximately zero or minimal
Comparative Static (Present)	$C_{\mathcal{g}}$	Present Consumption	Current level of Christmas consumption or income	Current Christmas expenditure or income
Comparative Static (Present)	$R_{\mathcal{g}}$	Present Relational Connectedness	Current strength of relationships during Christmas	Current family presence and interaction scale
Comparative Static (Present)	$B_{\mathcal{g}}$	Present Burdens	Current cognitive burdens and obligations	Current work stress and responsibility index

Comparative Static (Present)	L𝒈	Present Loss	Accumulated loss of important people over time	Cumulative loss indicator
Paradox Component	$\beta(R_n - R_{\boldsymbol{g}})$	Lost *GAMAW*	Decline in relational capital between past and present Christmas	Difference in relational scores
Paradox Component	$\alpha \ln(C_{\boldsymbol{g}} / C_n)$	Consumption Gain	Utility gain from increased consumption between past and present	Log-difference in Christmas consumption
Paradox Component	$\gamma B_{\boldsymbol{g}} + \delta L_{\boldsymbol{g}}$	*GAPOH* Weight	Combined negative effect of burdens and losses pulling festive utility downward	Weighted burden–loss index

Table 1 summarizes the full set of variables, parameters, and comparative components that operationalize the *Pasko* Utility Function and the *GAMAW–GAPOH* Model. It clarifies that festive well-being (PU) is treated as a multidimensional outcome shaped not only by material consumption (C) but also by relational connectedness (R), cognitive burdens (B), and accumulated relational loss (L). The table highlights the theoretical asymmetry embedded in the model: relationships are assigned a larger marginal weight than consumption ($\beta > \alpha$), while loss imposes at least as much disutility as everyday burdens ($\delta \geq \gamma$). By distinguishing past (C_n, R_n, B_n, L_n) and present (C_g, R_g, B_g, L_g) values, the table makes explicit how the *GAMAW–GAPOH* Paradox emerges through the decline of relational capital and the rise of burdens and losses, even as consumption increases. Applied to the 384 individuals from Lagonoy Gulf, the variable scales ensure comparability across income groups and demonstrate that differences in Christmas well-being arise from structural changes in relationships and responsibilities, rather than income alone.

Table 2. Consumption, Relational Capital, and Festive Well-Being Across Income Groups

Income Group	**n**	**C**	**R**	**B**	**L**	**R/(R+B+L)**	**ln(1+C)**	**PCI**
Very Low Income	96	2	8	2	1	0.727	1.099	0.8
Middle Income	96	5	6	4	2	0.5	1.792	0.9
High Income	96	8	4	7	4	0.267	2.197	0.59
Very High Income	96	10	3	9	6	0.167	2.398	0.4

Table 2 illustrates the central insight of the *GAMAW–GAPOH* Model by showing that higher income does not necessarily translate into higher Christmas contentment. Although consumption C increases monotonically across income groups, the *Pasko* Contentment Index (PCI) peaks at the

middle-income level and declines thereafter. This pattern emerges because relational connectedness R deteriorates while burdens B and losses L increase with income and responsibility, causing the relational component of the index to weaken faster than the material component improves. The logarithmic treatment of consumption further limits the marginal utility of additional income, while rising obligations and accumulated losses exert a growing negative effect on festive well-being. Consequently, individuals in the very high-income group exhibit the lowest PCI despite the highest consumption, confirming the *GAMAW–GAPOH* Paradox: Christmas happiness depends more on the balance between relationships and burdens than on material abundance alone.

Table 3. *Pasko* Contentment Index (PCI)

Income Group	Sample Size	Avg. C (Consumption)	Avg. R (Relationships)	Avg. B (Burdens)	Avg. L (Loss)	PCI	Interpretation
Very Low Income	96	Low	High	Low	Very Low	0.68 (High)	Simple Christmas, strong family presence
Middle Income	96	Medium	Medium–High	Medium	Low	0.62 (Moderate–High)	Balanced material and relational factors
High Income	96	High	Low–Medium	High	Medium	0.45 (Low)	Materially comfortable, relationally strained
Very High Income	96	Very High	Low	Very High	High	0.31 (Very Low)	Abundant consumption, heavy burdens and loss

Table 3 demonstrates how Christmas contentment varies systematically across income groups when relational and psychological factors are considered alongside material consumption. Individuals in the very low- and middle-income groups exhibit higher PCI values despite limited or moderate consumption, primarily due to stronger relational connectedness and lower levels of burdens and loss. In contrast, higher-income groups show a marked decline in PCI even as consumption increases, reflecting weakened family presence, heavier work obligations, and accumulated relational losses. The very high-income group records the lowest PCI, illustrating that abundant material resources and Christmas food do not compensate for relational erosion and emotional strain. The pattern reinforces the *GAMAW–GAPOH* insight that festive well-being is driven less by income and more by the balance between relationships and burdens, with Christmas functioning as a relational public good rather than a private outcome of consumption.

Parameter Specification and Direct Computation of *Pasko* Utility (PU)

To compute *Pasko* Utility, the following explicit parameter values were assigned in accordance with the model's axioms:

$\alpha = 0.3$(consumption weight)

$\beta = 1.0$(relational weight)

$\gamma = 0.6$(burden weight)

$\delta = 0.8$(loss weight)

The *Pasko* Utility Function is given by:

$$PU = \alpha \ln(C) + \beta R - \gamma B - \delta L$$

Table 4. *Pasko* Utility (PU) by Income Group

Income Group	C	R	B	L	α ln(C)	βR	−γB	−δL	PU
Very Low Income	2	8	2	1	0.21	8	−1.20	−0.80	6.21
Middle Income	5	6	4	2	0.48	6	−2.40	−1.60	2.48
High Income	8	4	7	4	0.62	4	−4.20	−3.20	−2.78
Very High Income	10	3	9	6	0.69	3	−5.40	−4.80	−6.51

Despite rising consumption as shown in Table 4, *Pasko* Utility declines sharply across income groups. The positive contribution of consumption is small relative to the negative effects of rising burdens and accumulated losses, while declining relational connectedness removes the primary source of festive utility.

Comparative Statics: Past (Noon) vs Present (Ngayon)

Table 5. Comparative Statics of *Pasko* Utility Determinants

Variable	Past (Noon)	Present (Ngayon)	Change
Consumption (C)	Low	High	↑
Relational Connectedness (R)	High	Low	↓
Burdens & Obligations (B)	Low	High	↑
Loss of Important People (L)	≈ 0	High	↑
Pasko Utility (PU)	High	Lower	↓

These changes satisfy the *GAMAW–GAPOH* Paradox Condition:

$$PU_g < PU_n \text{even if} C_g > C_n$$

Table 5 collectively demonstrate that economic progress alone does not guarantee higher Christmas well-being. While income and festive consumption increase, relational capital declines and cognitive burdens intensify. Loss of important people further imposes a persistent negative utility effect that cannot be offset by consumption. As a result, festive happiness declines as individuals move into higher income brackets and greater adult responsibility. The findings confirm the central metaphor of the model: Christmas floats when *GAMAW* exceeds *GAPOH* and sinks when *GAPOH* dominates. Christmas is therefore best understood as a relational public good, dependent on shared presence and emotional connection rather than on material abundance.

Table 6. Summary of the *Gamaw–Gapoh* paradox: past vs present Christmas

Dimension	Past Christmas (*Noon*)	Present Christmas (*Ngayon*)	Direction of Change	Effect on Festive Utility
Consumption (C)	Low	High	↑	Positive but diminishing
Relational Connectedness (R)	High	Low	↓	Strong negative effect
Burdens & Obligations (B)	Low	High	↑	Negative effect
Relational Loss (L)	Minimal	High	↑	Persistent negative effect
Pasko Utility (PU)	High	Lower	↓	Overall decline
Pasko Contentment Index (PCI)	High	Lower	↓	Christmas "sinks" when GAPOH dominates

Table 6 summarizes the central comparative static implications of the GAMAW–GAPOH framework by presenting the transition from past to present Christmas conditions in a single consolidated view. Although material consumption increases over time, relational connectedness declines while burdens and accumulated losses intensify. The resulting imbalance causes both *Pasko* Utility (PU) and the *Pasko* Contentment Index (PCI) to decline despite higher levels of festive consumption. The table highlights the core paradox of the model: Christmas happiness deteriorates when the erosion of relational capital outweighs the diminishing utility gains from material abundance.

5. DISCUSSION

The results presented in Chapter 4 confirm the central proposition of this study: economic progress does not guarantee higher Christmas well-being. Despite rising consumption and income across groups, both the *Pasko* Contentment Index (PCI) and *Pasko* Utility (PU) decline once relational connectedness weakens and cognitive burdens and accumulated losses intensify. This finding directly challenges consumption-based utility models and supports long-standing evidence in happiness economics that income exhibits diminishing and often weak effects on subjective well-being [1,2].

Consistent with the literature reviewed in Chapter 2, the dominance of relational connectedness in determining festive well-being aligns with theories of social capital and relational goods, which emphasize that shared presence, family interaction, and collective rituals generate utility that cannot be substituted by material consumption [4,12]. The numerical results demonstrate that even under low or

moderate income, strong relationships sustain higher festive happiness, while higher income groups experience declining well-being as family presence erodes and obligations increase. This pattern supports the model's parameter restriction that relationships matter more than consumption ($\beta > \alpha$).

The inclusion of burdens and loss as explicit sources of negative utility further advances existing happiness frameworks. As shown in Chapter 4, increasing work pressure, financial responsibility, and accumulated loss impose persistent disutility that outweighs the modest gains from higher consumption. This result is consistent with behavioral insights on loss aversion and emotional persistence, where negative experiences exert stronger and longer-lasting effects on well-being than positive gains [9]. Christmas, as a period of remembrance and reunion, amplifies the emotional weight of absence and loss, making festive sadness a structurally predictable outcome rather than a subjective anomaly.

Taken together, the *GAMAW–GAPOH* Model reframes Christmas as a relational public good rather than a private consumption good. While economic growth increases material capacity, it may simultaneously erode relational capital through time scarcity, migration, and social fragmentation. When relational decline and accumulated burdens outpace diminishing consumption gains, festive well-being inevitably falls. The findings thus suggest that declining Christmas happiness is not a contradiction of development, but a consequence of unbalanced progress that undervalues relationships [5].

Although the GAMAW–GAPOH framework is grounded in indigenous metaphors from Filipino coastal fishing communities, the underlying relational mechanisms are not unique to the Philippine context. Across many developing societies, festive well-being is similarly shaped by the balance between social connectedness and psychosocial burden rather than by material consumption alone. In Latin America, Africa, and South Asia, communal celebrations often function as collective and relational experiences rooted in kinship, reciprocity, and shared ritual rather than purely individual consumption [25,26]. Processes associated with modernization, including labor migration, urbanization, time scarcity, and increasing economic pressure, may therefore produce comparable forms of relational erosion across different cultural settings. While the specific metaphors of GAMAW and GAPOH are culturally localized, the broader theoretical structure of balancing relational support against emotional and cognitive burden may possess wider applicability to other societies undergoing rapid socioeconomic transition. The framework thus contributes not only to Filipino cultural economics but also to broader relational approaches to well-being in developing contexts.

One important limitation of the present framework is the potential endogeneity among income, relational connectedness, and cognitive burdens. Higher income may reduce certain forms of financial stress while simultaneously increasing work obligations, time scarcity, and social fragmentation, thereby affecting relational capital in opposing ways. Likewise, weakened relationships may themselves influence productivity, emotional resilience, and income-generating capacity. Consequently, the associations represented in the GAMAW–GAPOH framework should not be interpreted as strictly unidirectional causal effects. Future empirical research may strengthen causal identification through longitudinal designs, fixed-effects estimation, or instrumental variable approaches using exogenous sources of variation in migration, labor intensity, commuting time, or work schedules that affect relational connectedness independently of individual festive preferences [27,28].

6. CONCLUSION

This study introduced the *GAMAW–GAPOH* Model to explain why Christmas may feel less joyful over time despite rising income and material abundance. By extending conventional utility theory to include relational connectedness, cognitive burdens, and accumulated loss, the model demonstrates that festive well-being is fundamentally relational rather than material. Using 384 individuals from Lagonoy Gulf, the results show that both *Pasko* Utility and the *Pasko* Contentment Index decline as relational capital erodes and adult responsibilities intensify, even when consumption increases. The findings reveal a clear paradox: economic progress raises consumption but may simultaneously reduce

Christmas happiness when relationships weaken faster than material gains accumulate. Christmas therefore functions as a relational public good, sustained by shared presence, collective rituals, and emotional connection rather than by spending alone. More broadly, the study underscores the limits of income-centered measures of well-being and highlights the need for development frameworks that value relationships, time, and social cohesion alongside economic growth.

Ethics Statement:

This research was conducted by a researcher from Partido State University. Permission to access, process, and disseminate the dataset was formally granted by the Local Government Unit (LGU) of the Lagonoy Gulf, Camarines Sur, Philippines. All analytical procedures and methodological choices were independently undertaken by the researcher and did not involve laboratory experiments or controlled interventions. The study utilized exclusively secondary and indirectly obtained socioeconomic data.

Data collection activities were carried out with official authorization from the LGU, and informed consent was obtained from all respondents prior to participation. The research did not involve direct interaction with human or animal subjects, nor did it make use of information derived from social media platforms. All sensitive data were handled with strict confidentiality and in accordance with established ethical standards for academic research.

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Data Availability:

The datasets supporting the conclusions of this research are publicly accessible through established data repositories. The primary dataset, titled *"Dataset on Measuring the Unmeasurable Multidimensional Rural Poverty for Economic Development: Analysis from the Poorest District of the Poorest Province in the Poorest Region of Luzon, Philippines,"* compiled by Onsay and Rabajante (2023), is archived in Mendeley Data (Version 1) and is available at: https://doi.org/10.17632/s76nh7dm4v.1

An additional dataset, *"Measuring the Unmeasurable Multidimensional Socio-Economic Deprivations and Poverty Predictions: Indigenous People Datasets for Econometrics, Machine*

Learning, and Quantitative Social Science Modeling," developed by the same authors, is hosted in the Harvard Dataverse (Version 2) and can be accessed at: https://doi.org/10.7910/DVN/QSZKUP

These datasets contain processed socioeconomic indicators appropriate for econometric analysis, machine learning applications, and quantitative social science research. Data involving personal perceptions and self-assessed measures are not publicly released to safeguard participant confidentiality but may be provided upon reasonable request to the corresponding author, subject to ethical approval and data-sharing agreements.

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