

Dynamics Of Food Commodity Prices And Local Inflation Post-Earthquake: A Literature Review Of The Model Economic Disaster Prediction

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Abstract

Earthquake earth is shock exogenous that fundamentally disrupts chain supply food and trigger volatility price commodities strategic at the level local, but the prediction model conventional often fail catch magnitude impact current consequence complexity mechanism non - linear transmission. Research This aim For synthesize corpus literature about dynamics price food and inflation local post-earthquake as well as evaluate evolution of predictive models economy disaster. The method used is studies literature with data sources in the form of books, articles journal scientific, and reports research. Synthesis results disclose four findings main. First, disruption chain supply and panic buying behavior creates scarcity the pseudo that pushes volatility price extremes in commodities rice, chilies, and cooking oil. Second, transmission impact show differentiation spatial significant, with the island region experience pass-through and persistence coefficients inflation more tall compared to land areas. Third, there is shift paradigm modeling from approach balance such as Input-Output and CGE towards approach complexity such as Agent-Based Modeling and Big Data analysis. Fourth, effectiveness market intervention is of a nature contextual, with essential market operations in the phase I temporary cash transfer without condition more effective in the phase recovery. Research conclusions confirm the need approach hybrid in modeling and policy stabilization differentiated pricing in a way spatial as well as sequenced temporally. Implementation results research directed at development system warning early inflation big data based, strengthening logistics contingency in the archipelago region, and the formation of group task integrated For stabilization price post-disaster.

Keywords: Post-Earthquake Inflation, Food Price Volatility, Disaster Economic Prediction Model, Disruption Chain Supply, Post- Disaster Market Intervention

INTRODUCTION

Indonesia is located at the confluence three plate tectonics the world's main, namely Indo-Australian Plate, Eurasian Plate, and Pacific Plate, which make this region as one of the area with vulnerability seismic the highest in the world at once is at in track Pacific Ring of Fire (Wibowo et al., 2021). Position geological This cause frequency earthquake high earth, good in scale small and earthquake big impact destructive to infrastructure physical and structural economy society. A series earthquake awesome in two decades lastly, like the 2004 Aceh earthquake and tsunami, the 2006 Yogyakarta earthquake, the 2009 Padang earthquake, the 2018 Lombok earthquake, and earthquake, tsunami and liquefaction in Palu and Donggala 2018, have paralyze activity economy local in a way prolonged. Every incident the in a way consistent leave damage deep in the chain supply food and stability price at level local, which triggers pressure inflation outside control authority monetary and fiscal area (Fitrianingsih et al., 2021). Reality This confirm that earthquake earth is shock exogenous with Power creeper significant to in system economy through channel disruption supply food.

Phenomenon surge price commodities food post-earthquake become the most obvious and fastest manifestation felt by the community affected. Commodities strategic like rice, chili red, onion red, and cooking oil historical show volatility price extreme in count day until Sunday First after shock earthquake occurred (Wibowo et al., 2021). A study in West Nusa Tenggara Province, one of the province with frequency earthquake the highest in Indonesia for the 2009-2019 period, confirming that shock earthquake own effect significant to Consumer Price Index and inflation area, although the forecasting model used Not yet capable catch magnitude impact actual situation in the field. The inability of conventional models This hinting existence complexity mechanism transmission involving non-linear factors and behavior adaptive agent difficult economy calibrated in framework econometrics standard (Zhu et al., 2025). Findings This underline urgency development system more robust anticipation in face potential surge price post-disaster.

Impact earthquake to inflation local is greatly influenced by the characteristics geographical, level connectivity infrastructure, local market depth, and degrees dependence on supply outside the region (Hidayat & Prasetyo, 2022). Research in Palu City after the 2018 earthquake and tsunami showed that disaster the cause decline availability energy from 465 kcal to 378 kcal and a decrease Expected Food Pattern score from 31.6 to 26.3, which indicates degradation significant in dimension availability food post-disaster (Fitrianingsih

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et al., 2021). Findings This implies existence mechanism adaptation consumption House ladder affected through transition to source food more alternatives cheap as a survival strategy life, which has implications term long to quality nutrition and resilience food public.

Crisis food consequence earthquake earth No only dimensionless economy narrow, but also triggers change fundamental social structure and cohesion community affected (Firdayanti, 2025). Study in Tompe Village, District Donggala, one of the worst affected areas the 2018 earthquake and tsunami, revealed shift pattern consumption food and weakening solidarity social post-disaster. Damage land agriculture consequence tidal floods cause decline drastic results production and income society, which triggers strengthening behavior individualistic as consequence uncertainty economy prolonged (Santoso et al., 2023). Findings This confirm importance restoration of social capital and cohesion community as foundation toughness public in policy recovery economy post-disaster.

Complexity impact economy disaster natural has push development literature methodology modeling For estimate consequence economy direct and No directly (Zhu et al., 2025). Review comprehensive to approach modeling economy disaster identify spectrum methodological start from the Leontief Input-Output model, the Input-Output Inoperability Model, the Regional Adaptive Input-Output Model, to the Computable General Equilibrium model. Each approach own assumptions and capabilities different, so that model selection is highly context - dependent specific disasters and data availability. Existing literature also highlights gap understanding about reliability model performance and disparity applications in various hazard type (Issa et al., 2025). In context earthquake earth, the Adaptive Regional Input-Output model has developed For accommodate disparity geographical in damage direct and interaction economy interregional.

Responding limitations of conventional models based balance and linearity, literature latest direct attention to the approach paradigm more complexity capable catch non-linear system dynamics economy post-disaster (Coronese & Luzzati, 2024). Overview critical to modeling traditional confirm that the Input-Output and Computable General Equilibrium models are structural No equipped For catch aspect systemic consequence disaster nature. Response systemic to incident extreme characterized by interactions complex agent heterogeneous, behavior adaptive evolution, as well as dynamics outside condition balance. In context In this case, Agent-Based Modeling offers a toolkit that is capable of accommodate non-linear interdependence, hysteresis, and dependence track in the recovery process (Purnomo & Haryanto, 2025). Shift paradigm This represent leap epistemological significant in studies economy disaster.

In Indonesian context, study empirically which specific study dynamics price food and inflation local post-earthquake Still relatively limited (Santoso et al., 2023). Research in the

affected areas Lombok earthquake found that commodities chilli cayenne pepper and onions red experience surge price highest in two weeks First post-earthquake with increase reached 150 to 200 percent, while rice show increase more moderate However more persistent. Traditional markets in rural areas experience disruption more critical consequence dependence on suppliers single path distribution disconnected. Research comparative in island and mainland areas confirm differentiation spatial significant in transmission impact, where the island region experience persistence inflation more length and amplitude more large (Hidayat & Prasetyo, 2022).

Development technology information open opportunity analysis economy disaster in real-time and spatially granular (Kurniawan & Hartono, 2024). Study of the utilization of price crowdsourcing data food and image satellite Evening the day in Central Sulawesi shows that crowdsourcing data is capable of detect surge price 3 to 5 days more fast compared to survey conventional BPS. However, the study This also highlights the bias in digital data representation, where regions with low internet penetration tend neglected. Meanwhile that, evaluation effectiveness instrument post-earthquake market intervention show that cash transfer without condition more effective restore consumption food House ladder when disruption chain supply No too serious, but fixed market operations essential moment infrastructure distribution total collapse (Fadillah & Rahman, 2025).

Learning from various incident earthquake in Indonesia shows that response policy to turmoil price food post-disaster often nature reactive, late, and not coordinated with good (Wahyuni & Firmansyah, 2024). Evaluative study implementation special market operations and assistance food cash in Lombok after the 2018 earthquake reveals gap wide between design policy center with reality implementation field. Market operations are hampered delay mobilization stock, damage infrastructure road, and weakness coordination inter-agency assistance food cash face challenge damage infrastructure banking, low literacy finances, and limitations stock goods in the local market. Findings This confirm that effectiveness instrument stabilization price No only determined by design theoretical, but also capacity institutions and characteristics socio-economic public target.

Dynamics price commodities food in the Indonesian archipelago post-earthquake show different fundamental patterns with the mainland area (Nugraha & Setiawan, 2024). Studies in the Islands Nias find pass-through coefficient of increase price rice to inflation general reach 0.8 to 0.9, far more tall compared to the mainland area of North Sumatra which ranges from 0.4 to 0.6. Duration persistence inflation in the Islands Nias reach 8 to 12 months, far more long compared to an average of 3 to 6 months in mainland areas. The findings similar in the Mentawai Islands shows the rockets and feathers phenomenon takes place more intense and longer in the archipelago region compared to coastal areas suppliers

main (Ramadhan & Ningsih, 2024). This is reflect slow arbitration process spatial and recovery chain supply in the island region.

Aspect psychological and behavioral consumer post-earthquake the more get attention in literature economy disaster contemporary (Rahmawati, 2022). Research with approach psychology economy disclose that panic buying intensity correlates positive with level uncertainty information received society. In situation information limited or intersection siur, society do accumulation stock excessive as mechanism coping, creating scarcity the pseudo that pushes increase price more continued. This study also found that intervention communication effective and transparent public can dampen intensity of panic buying and accelerate normalization behavior consumers, underlining importance management information as integral components of a stabilization strategy price post-disaster.

From the perspective policies, existing literature emphasize importance build system resilience resilient food as integral part of the reduction strategy risk disaster (Suharto & Pratiwi, 2023). Evaluative study implementation policy reserves food government areas in disaster-prone areas earthquake find that part big government area Not yet own system logistics adequate contingency. Institutional fragmentation Serious happen in governance resilience food and prevention disaster, where Bulog, the Food Security Service, BPBD, and the Regional Inflation Control Team operate in separate silos without coordination effective. This study recommend formation group task integrated stabilization price food post - disaster supported system information integrated real-time pricing and protocols tested response through simulation regular.

Although there is progress significant in understanding dynamics price food and inflation local post-earthquake, still there is gap knowledge substantial that requires investigation more further (Zhu et al., 2025). Required understanding more deep about reliability performance various approach modeling in context disaster different factors key that pushes results economy in scenario post-disaster, as well as disparity application approach modeling in various hazard type. In Indonesian context, still there is scarcity studies that are systematic synthesize findings scattered research to in framework analytical coherent and comprehensive. Most of studies nature casuistic and event - focused individual earthquakes, without effort adequate identify pattern general and learning cross-case. Gap this is the background review library systematic This For synthesize corpus knowledge around dynamics price food post-earthquake.

METHOD

Study This is A studies literature or deep terminology methodology study common called as a research library, a approach investigation that makes ingredients written that has

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been published or stored in repository academic as primary data sources for answer questions research that has been formulated previously. Election type study literature This based on the fundamental consideration that the topics studied are, namely dynamics price commodities food and inflation local post-earthquake along with prediction models economy the disaster that accompanies it, is A realm science that has been explored in a way extensively by researchers previously from various perspective disciplinary, so that effort For synthesize, criticize, and reconcile scattered findings in corpus literature become A contribution valid and valuable academics. Literature study, as explained in various book text methodology study latest, is not just activity to summarize or summarize what has been written by someone else, but is an intellectual process that demands ability analytical level tall For identify patterns conceptual, revealing assumptions hidden, detect contradiction between meetings, as well as articulate synthesis new beyond just aggregation knowledge that has been exists (Creswell & Creswell, 2023).

source that becomes foundation empirical and conceptual from study literature This curated in a way careful with apply criteria strict inclusion and exclusion to ensure quality, relevance, and currency information that is used runway analysis. Corpus analyzed literature consists of from three category main material library, namely books academic both published in a way international by publishers reputable or published in a way national by publishers leading in Indonesia, the articles published in journal scientific that has through a rigorous peer-review process, as well as reports results research published by institutions study credible, organization international, and institutions government that has authority and capacity in the economic domain disaster and resilience food. Books academic chosen as source main Because its comprehensive and systematic nature in serve framework theoretical, review historical, and synthesis knowledge that has been established in something field, so that give foundation solid conceptual for analysis that will be done (Zed, 2021).

Data collection techniques in study literature This implemented through a series systematic and documented procedures with okay, following recommended protocol in literature methodology study qualitative For ensure transparency and replicability of the research process. The first step in data collection is keyword identification and development of a comprehensive search strategy, with utilise various online academic databases such as Google Scholar, Scopus, Web of Science, ProQuest, as well as catalog national and international digital libraries. Keywords used covers combination terms such as "earthquake economics", "food price volatility", "disaster inflation", "post-disaster supply chain disruption", "computable general equilibrium disaster", "agent-based modeling food security", "market intervention disaster", and their equivalents in Indonesian, with utilize

Boolean operators to expand or narrow down coverage search in accordance needs. The second step is screening beginning to results search based on title and abstract For eliminate literature that is clear be outside coverage research, followed by downloading or borrowing text complete from sources that passed screening beginning. Third step is reading exploratory to text complete For evaluate in a way more deep suitability substantive with focus research, at the same time identify references quoted key in literature the For traced more carry on through snowballing technique (Sugiyono, 2023).

Data analysis techniques implemented in study literature This is analysis content qualitative or qualitative content analysis is carried out with a holistic approach iterative, interpretive, and construction - oriented deep meaning from the texts analyzed. Different with analysis content quantitative which focuses on calculations frequency the appearance of words or theme certain, analysis content qualitative adopted in study This emphasize on understanding context, identification nuances meaning, disclosure structure argumentation, as well as interpretation to possible latent messages No written in a way explicit in text. Analysis process started with reading repetitive to all over corpus literature For build familiarity and immersion intellectual researchers with the material being studied, a deep stage tradition phenomenological called as epoche or suspension presumption For let text speak with his voice themselves. Furthermore, researchers do coding in a way systematic to segments relevant text with the four sub- themes research that has been determined, namely mechanism disruption chain supply and elasticity price, transmission differentiation impact interregional, evolution of prediction models economy disasters, as well as evaluation effectiveness market intervention. Coding This done in a way simultaneous with a constant comparison process, where each segment encoded text in a way continuously compared to with other segments in same source and cross source For identify patterns, themes, and categories emerging analytics (Miles et al., 2022).

Testing techniques validity of data in study literature This operationalized through implementation a series of adapted strategies from trustworthiness framework developed in tradition study qualitative, with adjustments certain For accommodate characteristics unique from studies unpublished literature involving interaction direct with subject human. Credibility criteria or credibility findings attempted through four mechanism main mutual complete. Mechanism First is prolonged engagement in form intensive, repeated, and continuous reading to corpus literature in period enough time length, which allows researchers For build deep and nuanced understanding about complexity the topics studied, as well as For detect distortions as subtle as possible escape from reading superficial. Mechanism second is triangulation sources that have been mentioned previously, where researchers in a way deliberate and systematic compare and contrast findings, arguments,

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and perspectives from different sources in a way typological book text, article journals and reports study as well as from sources originating from tradition discipline and context diverse geography, for build A a more robust and multidimensional understanding (Abdussamad, 2024).

Mechanism third is peer debriefing or discussion with colleague colleagues who have skill in field methodology study qualitative and substantive economy disaster, which functions as mirror critical For test clarity and coherence interpretation researchers, identifying possible biases No realized, and explore alternatives possible readings missed. Mechanism fourth is an adapted member checking For context studies bibliography, namely with in a way explicit and transparent serve quotes direct from primary sources in narrative research, so that reader can in a way independent evaluate suitability between interpretation researchers with material textual that becomes the reference. Transferability criteria or distraction findings No attempted through claim generalization statistics that are indeed No become objective study qualitative, but rather through providing a thick description or rich and detailed descriptions about context research, data collection and analysis process, and characteristics corpus analyzed literature, so reader can make informed judgment about to what extent the findings study This can transferred or applied to in different contexts. Dependability and confirmability criteria or dependability and confirmability guaranteed through comprehensive audit trail practices, namely systematic and transparent documentation to all over traces of the research process, starting from notes search literature, decision log selection source, transcript annotation and coding, analytical memos, up to drafts evolutionary from narrative research (Sutopo & Mustofa, 2024).

RESULTS AND DISCUSSION

Disaster earthquake earth is one of the shock the most destructive exogenous that fundamentally disrupts order economy local, no only through destruction physique asset productive and vital infrastructure, but also through induction instability acute price increases in commodities food strategic. Earthquake earth create A situation unique where normal market mechanisms experience total dislocation ; in one side, capacity supply collapse consequence damage track distribution and nodes logistics, while on the other side other, request soaring in a way artificial consequence behavior panic collectively which psychological take root in mind public affected. Interaction between two moving forces in a way contradictory This produce what 's in terminology economy disaster called as a post-disaster inflation anomaly, namely surge price that is not fully can explained by economic fundamentals conventional, but rather is resultant from disruption chain supply,

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expectations soaring inflation, as well as response policies that are often late and not coordinated (Hidayat & Kurniawan, 2023). Complexity phenomenon This demand existence framework analytical that is not only nature descriptive -explanatory, but also predictive-anticipatory to equip stakeholders policy with adequate instruments in designing intervention effective and efficient post - disaster. Review library This present as effort systematic For synthesize corpus growing knowledge rapidly around dynamics price food post-earthquake, with search deep to mechanism transmission impact, differentiation spatial response inflation, evolution methodology modeling economy disasters, as well as evaluation critical to effectiveness various instrument market interventions that have been implemented in various context disaster.

Urgency from review This the more find its relevance in the midst increasing frequency and intensity disaster geological in various parts of the world, especially in countries that are in circle Pacific Ring of Fire such as Indonesia, Japan, the Philippines, and Chile. These countries No only face vulnerability high geological, but also has characteristics unique economy like dependence on production food local, concentrated market structure, and capacity limited fiscal For do stabilization price in a way massive that makes dynamics inflation post-earthquake in this area own complexity separate which is not can fully explained by models developed in developed countries with infrastructure better economy resilient (Santoso et al., 2024). Therefore that, synthesis literature that focuses on the developing country context, with consider nuances local like inequality infrastructure interregional, level literacy finance society, and uniqueness chain mark commodities food strategic, to be something must academics who are not can offered., review This aim For construct A narrative comprehensive which is not only map landscape study latest, but also identify gaps knowledge that is still need exploration more continue. Structure constructed narrative will flow from analysis micro about mechanism disruption chain supply at the level individual commodities, towards discussion meso about transmission differentiation impact interregional, then continue the study macro about evolution of predictive models, and finally anchored on evaluation learning - oriented policies practical For management future disasters.

Mechanism Disruption Chain Food Supply and Price Elasticity Post- Earthquake

Phenomenon disruption chain supply food post-earthquake No can understood solely as linear consequences of damage physique infrastructure, but rather as A cascade failure systemic spreading through various knot in network distribution complex and interconnected food connected. When the earthquake earth shaking, damage straight on the road arteries, bridges connector, port small, and facilities warehousing in a way instant cut

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off flow commodities from center production going to centers consumption, creating what the experts say economy spatial called as accessibility shock which is drastic increase cost transactions and expand margin marketing (Wijaya, 2025). In context commodities food strategic like rice, which has characteristics chain relative supply long and involving Lots perpetrator start from farmers, millers, traders collectors, distributors, to retailers, every disturbed node will produce effect a multiplier that multiplies impact disruption. The summarized research in various book text economy disaster contemporary show that duration recovery chain supply post-earthquake No only determined by the level damage physique only, but also by capacity adaptive actors chain supply, availability route alternatives, as well as speed mobilization source Power For rehabilitation infrastructure (Kusuma & Pratiwi, 2024). In commodities with level perishability tall like chilli red and chili cayenne pepper, disruption chain supply create problem addition in the form of improvement shrinkage significant post-harvest, which in turn the more make things worse scarcity at the level consumers and provide more pressure strong on price.

Panic buying behavior which is consistent appear in every earthquake episode earth is manifestation from psychology masses distorted by fear will uncertainty availability food in the future. Different with normal purchases based on needs actual and stable preferences, panic buying is characterized by purchases in a large amount exceed normal needs with motivation main For build stock buffer personal as mechanism coping face threat perceived scarcity (Rahmawati, 2022). Literature psychology economy disasters under study in books latest disclose that panic buying intensity correlates positive with level uncertainty information post-disaster ; increasingly limited and intersectional clear information about level damage, availability supply and response government, increasingly tall trend public For do accumulation stock in a way excessive behavior this, although rational at the level individual, creating externalities negative at the level collective in the form of artificial scarcity or scarcity pseudo, where scarcity occurs No Because absence supply in a way absolute, but rather Because distribution available supply become very lopsided consequence hoarding by a handful Consumers (Suryadi & Nugroho, 2023). Commodities cooking oil, which has Power save relatively long and is material main with frequency use high, often becomes target main panic buying, so that volatility price post-earthquake can reach far level beyond commodities food other.

Elasticity price food post-earthquake show fundamentally different behavior from normal conditions, where the response quantity demanded and supplied to change price become very asymmetrical and not follow patterns predicted by theory supply and demand conventional. In situation post-disaster, curve request For commodities food main become very inelastic, even tend vertical, because consumer No own alternative adequate and forced

substitution buy whatever the prevailing price For fulfil need base endure life (Hallegatte et al., 2025). In general simultaneous, curve supply also shifted to the left in drastically and become more steep consequence constraint capacity production and distribution, creating conditions in which even A little improvement request or A little decline supply can trigger surge price that is not proportional. Books text economy disaster latest documenting that elasticity price cross between commodities food also experienced change structural post - earthquake ; normal substitution happens, for example between rice with corn or cassava, become hampered Because disruption supply of a nature comprehensive hit almost all commodities food main in a way simultaneously (Prasetyo & Handayani, 2024). More Far again, the phenomenon of price gouging practice determination exploitative pricing by traders who take advantage situation emergency participate make things worse dynamics price, although regulations about price retail highest often not effective Because weakness enforcement laws on the ground and limitations capacity monitoring government area.

Volatility extreme prices on commodities strategic post-earthquake No only impact on welfare consumer in term short, but also creating distortion in the system production food in term medium and long term through mechanism expectation prices that are adaptive. Farmers and actors business in the sector food, when observe surge sharp prices post-earthquake, tends to revise expectation they about future prices and adjust accordingly decision production and investment based on distorted information (Firdaus & Maulana, 2023). As a result, it can happen the exacerbated cobweb cycle phenomenon, where the response overproduction to signal prices that are temporary precisely create prolonged boom-and-bust cycle, disrupting food market stability even after infrastructure physique has fully recovered. Literature reviewed show that volatility price post-earthquake own typical temporal structure : spikes sharp start in two weeks First post-earthquake, followed by a period gradual decline along with with recovery chain supply and entry help food from outside area, however often ends with period of price stickiness where prices still stay at a higher level tall compared to before earthquake consequence change structural on costs distribution and market structure (Wibowo & Lestari, 2025). In -depth understanding about mechanism disruption chain supply and dynamics elasticity price This become foundation essential for development of accurate prediction models and design intervention appropriate policies target.

Transmission Differentiation Impact : Analysis Behavior Core and Volatile Food Inflation in the Archipelago vs. the Mainland

Transmission impact shock price food to inflation common in the area affected earthquake show very heterogeneous pattern, with speed and intensity pass -through effect

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which is significant moderated by characteristics geographical and level integration spatial an area with centers regional economy. The island region, which is inherent face friction more spatial big consequence dependence on transportation vulnerable seas to disturbance weather and have frequency as well as limited capacity, indicating greater vulnerability tall to amplification inflation post-earthquake compared to with land areas that have connectivity more good (Nugraha & Setiawan, 2024). Studies compiled empirical in books contemporary regional economy in a way consistent documenting that price pass-through coefficient food to inflation common in the archipelago can reach two to triples from the mainland, a disparities rooted in structure cost different distribution levels greater market concentration high, and limitations access to source supply alternative. In the archipelago, every increase prices on commodities food imports which are component significant from consumption House ladder consequence limited production local almost fully transmitted to price retail without Lots damping, while in the mainland area, the existence of chain more supply competitive and diverse allows occurrence absorption part shock prices by trade and transportation margins.

Volatile food components in framework Indonesian inflation, which includes commodities with fluctuations price tall like rice, chili, onion red, and meat chicken race, to be channel main transmission shock post-earthquake to inflation general, and its weight in basket consumption House stairs in the archipelago tend more big consequence limited choice consumption and its high cost substitution (Hariani & Saputra, 2025). Earthquake earthquake that hit the archipelago No only damage infrastructure local, but also disturbing chain logistics inter-island which becomes tendon pulse supply food, creating a supply shock that is persistent Because time further recovery long. Books about inflation regions in Indonesia that are published in five years final highlight the phenomenon of imported inflation in the archipelago region that occurred post-earthquake, where scarcity supply local force more dependence big on supply from outside island, the price of which Already more tall consequence cost transportation additional and profit margin taken by traders inter-island (Wahyuni & Firmansyah, 2024). Effect spillover effect from increase price in one island to island other in One group the islands also show significant intensity, indicating that the food market in the archipelago region No fully segmented, but rather integrated in a way partial through network trading complex and vulnerable inter -island to shock.

Behavior core inflation which is conceptual represent pressure higher inflation persistent and fundamental after emit volatile food components and administered prices also experienced interesting dynamics post-earthquake, with pattern clear divergence between the island and mainland areas. In the mainland areas that have structure economy more diverse and diversified, core inflation tends to show more response moderate and

delayed to shock price food, because there is mechanism adjustment through substitution consumption and adjustment higher expectations fast (Hidayat & Prasetyo, 2022). On the other hand, in island regions where the economy is more specialized and less diverse, shocks in the sector food with fast creeping to other sectors through increase wages (as response to increase cost life) and expectations inflation is lifted, so push increase higher core inflation fast and persistent. The reviewed literature also identified difference significant in duration persistence inflation post-earthquake between second type of region; in the island region, inflation food and inflation general tend still be on top normal trend for longer period long, reflecting slow arbitration process spatial and limited capacity response policy consequence constraint geographical (Santosa & Wijayanti, 2023). Findings This own implications substantial policies, underlining the need an approach that is spatial differentiated in management inflation post-disaster, with attention special and allocation source more power big directed to the island regions which are structural more prone to.

Effect differentiation is also manifested in temporal dimension of transmission impact, where the island region No only experience more amplification big but also more delays long in transmission shock price from level manufacturer to consumers, and from One commodities to commodities others. The oligopolistic market structure in many island regions, which is formed consequence high barrier to entry because cost logistics, enabling traders big For implement an asymmetric price smoothing strategy : they tend fast raise price moment happen shock supply, however slow lower it when supply has back to normal (Fadhilah & Ramadhan, 2025). This rockets and feathers phenomenon where prices rise like rocket However down like hair the more make things worse burden inflation borne by people in the archipelago region post-earthquake, and contribute to the persistence longer inflation. Books about economy food and regional inflation published in the 2021-2026 period also started integrate analysis about the role of remoteness or remoteness as variables key in the inflation model post-disaster, where the distance physique from center economic and administrative No only translated become cost more transportation high, but also become gap information, delay response policies, and limited access to mechanism stabilization prices provided by the government center (Ramadhan & Ningsih, 2024). A better understanding nuanced about differentiation impact This become essential For calibrate predictive models that are capable of catch heterogeneity spatial and for designing package policy more stabilization adaptive to condition local.

Evolution of Disaster Economic Prediction Models : A Review Comparative Static Input-Output, Dynamic CGE, and Machine Learning Approaches

Development methodology modeling economy disaster in two decades final represent A journey an interesting evolutionary process, characterized by gradual but significant shifts Certain from approaches that are deterministic, linear, and based equilibrium towards framework more analytical capable accommodate complexity, non- linearity, and dynamics adaptive that becomes characteristics typical system economy post-disaster. The static Input-Output (IO) model, which has its roots in the monumental work of Wassily Leontief in the mid-19th century, 20th century, has long been a workhorse in analysis impact economy disaster Because his relative abilities simple However comprehensive in catch interdependence sectoral and tracking propagation shock from One sector to sector other through relatedness to front and to back (Zhu et al., 2025). However, the review critical presented in books latest about modeling economy disaster in a way consistent highlight fundamental limitations of the static IO model when applied to the context post-disaster : assumptions coefficient fixed technical coefficients ignore possibility possible input substitutions done by the manufacturer as response to scarcity ; the assumption of excess capacity that is not limited fail catch constraint capacity highly relevant production post-earthquake ; and most crucially, the absence of mechanism price in the IO model makes it No capable analyze dynamics inflation which is actually become focus attention in management disaster (Hallegatte et al., 2025). Although Thus, IO remains own mark important heuristics as tool For identify sectors the key that is disturbed will cause the biggest multiplier effect, as well as as foundation conceptual for development of more models advanced.

Evolutionary steps next present in form of the Computable General Equilibrium (CGE) model, which addresses Lots IO limitations with integrate mechanism endogenous prices, behavior optimization agent economy (home) stairs that maximize utilities and companies that minimize costs), as well as possibility substitution in production and consumption as response to change price relative. Dynamic CGE model, which introduces dimensions time to in framework analytical, enabling simulation track recovery economy post-disaster with consider capital accumulation, dynamics investment, and adjustments gradually going to balance new (Coronese & Luzzati, 2024). In context analysis inflation food post-earthquake, CGE models offer superiority in his abilities For decompose change price become various factor reason shock productivity sectoral, changes preference consumer consequence disaster, policy government, and dynamics trading interregional so that give a richer understanding of mechanism transmission. However, the review critical analysis carried out by the authors books economy disaster contemporary also identifies limitations of CGE that

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are not can neglected, especially assumptions of rational expectations and perfect foresight that are not realistic in situation post - disaster characterized by uncertainty radical ; the assumption of instant market clearing that ignores friction institutional and informational ; and complexity computational and data intensive requirements that often become barrier application practical, especially in developing countries with economic data system that has not been mature (Wahyudi & Susanti, 2023).

In respond limitations of data- based models balance mentioned, literature latest as documented in a way extensive in books published in the period 2023-2026 witnessed shift an increasingly paradigm accelerative going to approaches based complexity, especially Agent-Based Modeling (ABM) and the utilization of Big Data from non- conventional sources. ABM, with foundation methodology in simulation interaction agents heterogeneous behavior based on rules simple However adaptive, offering A a fundamentally more framework in accordance For catch phenomena emergen that becomes characteristics typical dynamics post-disaster, such as panic buying, contagion expectation inflation, and the formation of social norms new in transaction economy (Hallegatte et al., 2025). The advantage of ABM lies in its ability For modeling out-of-equilibrium behavior and transitions between different circumstances, which are actually is essence from dynamics economy post-earthquake, without bound by assumptions restrictive about rationality perfect or convergence going to balance single. More Far again, ABM integration with System Information Geographic Information System (GIS) allows modeling that is explicit consider dimensions spatial from disruption chain supply, heterogeneity damage infrastructure, and differences capacity adaptive interregional which has discussed in the section previously (Purnomo & Haryanto, 2025). In general parallel, data availability in unprecedented volumes and speeds Once happen previously from sources such as price crowdsourcing food through digital platforms, images satellite resolution high, and mobile positioning data has open new horizons for analysis economy real - time and granular disaster management spatial. Machine Learning techniques, especially deep learning for analysis image satellite Evening day as proxy activity economics, and Natural Language Processing for analyze sentiment and expectations inflation from social media, starting explored as complement and in a number of case, alternative for structural models conventional in projecting recovery price food post-disaster (Kurniawan & Hartono, 2024).

Although promising, adoption approaches new This No free from challenges. ABM, for example, faces criticism related with empirical grounding difficulties in estimating behavioral parameters agents and validate model output against empirical data as well as potential for overfitting and significant computational burden. While that, the use of Big Data gives rise to issues ethical around privacy, representation bias (because digital data tends to

overrepresent the population) certain), and need will capacity adequate technical and data infrastructure in institutions government (Santoso et al., 2024). Therefore that, synthesis literature leading to a emerging consensus that the future modeling economy disaster lies in the approach hybrids that are intelligent combine strength various methodology : using IO or CGE models for catch interdependence sectoral at the level macro, integrating ABM for modeling behavior micro and dynamics adaptive, as well as leveraging Big Data and Machine Learning to real -time parameter calibration and validation empirical. Evolution methodological This reflect increasing recognition ripe that complexity impact economy from disaster like earthquake earth need device the same analysis the complex, which is not trapped in dogmatism methodological but nature pragmatic and problem - oriented.

Management Evaluation Effectiveness Market Intervention : Lessons from Special Market Operations and Cash Food Assistance Post-earthquake

Debate academic and policy around the most effective instrument For dampen turmoil inflation food post-disaster has ongoing during a number of decade, with two approaches the main thing that is consistent become subject contestation : intervention directly on the side supply through market operations and release stock buffer government, versus intervention on the side request via cash transfer without conditions (Unconditional Cash Transfer/UCT) which aims to restore Power buy public affected. Harmonious interaction or heterogeneous between one element with other elements will influence results and will influence succeed whether or not objective (Azmi et al., 2022). Synthesis proof compiled empirical in books evaluation policy post- disaster publication in five years final give a clearer picture nuanced beyond dichotomy simple "market vs. state", with highlight that effectiveness relatively of each instrument is highly dependent on factors contextual like level severity disruption chain supply, local market depth, capacity institutional government, and preferences socio-cultural public affected (Widiastuti & Nugroho, 2024). Operation niche markets, which are specifically typical involving mobilization supply commodities food main from reserves government or procurement emergency For sold below market prices in locations strategic, have superiority theoretical in give impact direct and visible impact on prices at the market level consumers. However, implementation in the field often hampered by challenges heavy logistics post-disaster, especially when infrastructure transportation damaged, and potential unintended market distortions desired If intervention No designed and executed with careful, such as crowding out traders local which is precisely can slow down recovery system normal distribution (Hallegatte et al., 2025).

Cash transfer without conditions, on the other hand, operate through different logic : instead try control price in a way direct, instrument This give source Power financial to House ladder affected For buy food in local markets with prevailing prices, with assumptions that improvement request effective This will give incentive for trader For restore supply and, in term medium, price will return to balance through market mechanisms. Literature evaluation impacts reviewed in books latest in a way consistent documenting UCT's excellence in matter speed distribution, efficiency cost administration, and flexibility in respond preference House heterogeneous stairs every family can use the funds For buy type the most suitable food with needs and tastes they, instead forced to consume commodities provided by the government (Fadillah & Rahman, 2025). More Far again, UCT has potential local multiplier effect : funds spent in markets and stalls local will turn in economy local, support recovery eye livelihood trader small and producers local, which in turn strengthen resilience economy community in term long. However, the effectiveness of UCT in dampen inflation food is highly dependent on responsiveness side supply ; in a situation where disruption chain supply is very severe and elasticity supply term short approach zero, injection request through UCT instead risky trigger higher inflation tall without balanced improvement availability goods, creating the situation of too much money chasing too few goods is counterproductive (Wahyuni & Firmansyah, 2024).

Learning key from synthesis various studies cases studied in books 2021-2026 edition is that dichotomy between market operations and cash transfers is false simplification ; second instrument the should viewed as interconnected components complete in A portfolio adaptive and sequenced interventions temporally. In the phase I quick post-earthquake, when the market was really collapse and supply commodities main No available at a price whatever, intervention directly on the side supply Good through market operations, distribution help natural food, or support logistics For recovery chain supply private is inevitability For prevent crisis humanity and hunger (Suharto & Pratiwi, 2023). Along with recovery market functions gradually, focus intervention can diverted in a way progressive to instrument market- based like UCT, which provides autonomy more big to House stairs and supports revitalization economy local. Books about governance disasters in Indonesia in general specific highlight importance coordination between government central government regions, and non-state actors in implementation post-earthquake market interventions, as well as the need build system logistics contingency and mechanism monitoring tough price before disaster occurs (ex-ante preparedness) as prerequisite effectiveness ex-post intervention (Nugraha & Setiawan, 2024). More further, literature evaluative latest emphasize importance consider dimensions justice and protection social in design intervention, ensuring that help reach the most vulnerable groups like House poor

households, women head families, elderly, and people with disabilities that often face obstacle double in access food post-disaster.

Evaluation effectiveness is also not can released from analysis economy political from post-disaster market intervention. Books that examine dimensions institutional from management disasters in Indonesia in general critical highlight How interest political term short, pressure from groups interests and dynamics bureaucracy inter-institutional often distorts design and implementation policy stabilization price, keep it away from optimal prescription indicated by the analysis economy (Hidayat & Kurniawan, 2023). For example, market operations are often more chosen by politicians Because offer greater visibility and photo opportunities tall compared to cash transfers which are relatively No visible, although in a number of the second context Possible more effective and efficient. Likewise, the pressure from association trader or industry local rice mill can influence decision government about volume and price in market operations, which have the potential compromise objective stabilization price for accommodation interest sectoral (Ramadhan & Ningsih, 2024). Therefore that, research and advocacy agenda policy to front need give more attention big No only on the aspect technical from effectiveness cost -effectiveness of various instrument intervention, but also on the dimension economy politics that shape room decisions and determine results end on the field. Only with comprehensive and multi-dimensional understanding here it is We can hope For designing system management inflation food true post - disaster resilient, adaptive, and pro - welfare the most affected communities.

CONCLUSION

Earthquake earth proven create anomaly inflation local that is not can explained only by conventional market mechanisms, but is resultant complex from disruption physique chain supply, panic buying behavior that creates scarcity pseudo, and elasticity changing prices fundamentally post -disaster. Volatility price commodities strategic like rice, chilies, and cooking oil have distinctive temporal structure, with surge acute phase the beginning then followed by a prolonged period of price stickiness consequence change structural on costs distribution and market concentration. More continue, transmission impact shock price food to inflation general show differentiation significant spatial, where the archipelago area with limitations connectivity and dependency high on supply inter-island experience far pass-through effect amplification more big as well as duration persistence higher inflation long compared to land areas that have infrastructure distribution more mature and diversified. From the side methodological, review This take notes existence shift an increasingly paradigm accelerative from equilibrium models deterministic such as Input-

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Output and CGE towards approach based complexity such as Agent-Based Modeling and Big Data analysis, which are assessed more capable catch non-linear dynamics, behavior adaptive agents, and heterogeneity spatial that becomes characteristics typical situation post-disaster. Finally, evaluation to effectiveness market intervention asserts that No there is approach universally superior single ; proven market operations essential in the phase I when supply total collapse, while cash transfers without condition offer superiority in matter speed, efficiency, and local multiplier effects on the phase recovery, so that approach sequenced hybrids temporally and calibrated in a way contextual become prescription the most robust policy.

Implementation from results review This leading to the need for development system warning early inflation post-disaster which is spatial differentiated, with give weight greater risk height and allocation source Power more contingencies big to the island regions which are structural more prone to to amplification inflation. Government regions and centers need adopting a predictive model hybrid that integrates strength big data analysis from non-conventional sources like image satellite Evening days and crowdsourcing prices For detection early disruption chain supply, to enable mobilization more response fast and focused. More continue, design post-earthquake market intervention must designed as A portfolio adaptive which is automatic adapt composition the instrument based on phase recovery and level severity damage infrastructure, with prioritize market operations are limited to the weeks First For prevent scarcity acute, then gradually transition going to scheme help cash without empowering conditions economy local and respectful preference House ladder affected. Finally, it is necessary strengthening institutional and pre-placement stock supports at the nodes logistics strategic, especially in the island region, as part from ex-ante preparedness strategy to cut off chain transmission inflation before He creeping and taking root in expectation public.

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