

Car Free Day Spatial Market Access and Moonlighting in Mitigating Coastal Household Financial Vulnerability

Tri Yoga Sujatmiko^{1*}, Tri Frida Suryati², Ratna³, Supriadi⁴, Muh Ridwan Hayadin⁵
Department of Development Economics, Faculty of Economics and Business,
Universitas Muhammadiyah Mamuju, Indonesia

Corresponding Author: Tri Yoga Sujatmiko: Triyogas444@gmail.com

ARTICLE INFO

Keywords: Car Free Day, Spatial Market Access, Moonlighting, Financial Vulnerability, Coastal Households.

Received : 20, July

Revised : 02, August

Accepted: 20, September

©2026 Sujatmiko, Suryati, Ratna, Supriadi, Hayadin (s): This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

This study examines *Car Free Day* income, zero-rent spatial access, and civil servant moonlighting in mitigating coastal household financial vulnerability in Mamuju, Indonesia. Analyzing 80 coastal micro-entrepreneurs via multiple regression, results show that *Car Free Day* income ($t = 5.216$), rent-free spatial access ($t = 5.912$), and moonlighting ($t = 4.384$) significantly reduce financial vulnerability, explaining 56.2% of variance ($F = 32.472$, $p < 0.001$). Zero-rent spatial access yields the largest positive effect. Consequently, incidental public spatial incubation effectively serves as a crucial economic safety valve against seasonal climate shocks for vulnerable coastal households.

INTRODUCTION

Coastal household economies in developing countries face systemic vulnerability caused by environmental uncertainties, institutional isolation, and financial exclusion. In West Sulawesi Province, particularly Mamuju Regency, marine and fisheries sectors represent the primary economic pillar supporting over 30,887 traditional fishermen (Badan Pusat Statistik Provinsi Sulawesi Barat, 2024; Dinas Kelautan dan Perikanan Kabupaten Mamuju, 2020). However, BPS Mamuju Regency (2024) records a poverty rate of 7.15%, heavily concentrated in coastal traditional fishing settlements such as Simboro and Rangas. The acute financial vulnerability of these households stems from extreme seasonal income shocks during the west monsoon season, when rough seas in the Makassar Strait force small-scale fishermen using lopi-lopi boats to cease fishing operations entirely for months, plunging daily catch revenues to zero (Sujatmiko, 2024; Ardiansyah, 2021).

This vulnerability is exacerbated by financial market friction and credit rationing. Lacking high-value physical collateral and predictable cash flows, coastal households are classified as unbankable by formal financial institutions (Dinas Sosial Kabupaten Mamuju, 2023). Consequently, fishermen enter informal debt bondage with local middlemen (pongawa), accepting high-cost informal credit in exchange for selling future catches at monopsonistic, depressed prices (Hamzah, 2024). This asymmetric patron-client relationship erodes household capital accumulation and perpetuates intergenerational poverty traps. In Islamic economic ethics, leaving families in vulnerable, dependent, and impoverished conditions is explicitly discouraged, as articulated in Surah An-Nisa Verse 9 regarding safeguarding the economic welfare of future generations.

To mitigate these structural shocks, the Provincial Government of West Sulawesi and Mamuju Regency Government launched the weekly *Car Free Day* program along the 4.5 km Manakarra Arteri Highway (Pemerintah Provinsi Sulawesi Barat, 2023). While urban *Car Free Day* initiatives in major metropolitan areas are primarily studied for ecological and recreational outcomes, the Manakarra *Car Free Day* deliberately functions as a spatial economic incubation center. Operating every Sunday morning from 06.00 to 10.00 WITA, it recorded a circulating transaction volume of IDR 81,000,000 in a single four-hour event (Pemerintah Provinsi Sulawesi Barat, 2026). This public space intervention eliminates commercial rent costs and formal entry barriers, allowing coastal women (fishermen's wives) and civil servants (ASN) to engage in weekly micro-entrepreneurship.

Despite its rapid growth, a critical state-of-the-art research gap remains: empirical literature lacks a comprehensive quantitative model evaluating how incidental public spatial access, weekly informal turnover, and multi-job holding (moonlighting) by civil servants jointly interact to mitigate household financial vulnerability. Most prior studies treat *Car Free Day* events as descriptive urban phenomena or evaluate single-variable interventions (Nisa' et al., 2022; Windasari et al., 2021). Therefore, this research is motivated to construct and empirically validate a multiple linear regression model testing the impact of *Car Free Day* business income (X1), zero-rent spatial market access (X2), and family

job diversification / ASN moonlighting (X3) on household financial vulnerability mitigation (Y). The expected result is to demonstrate that spatial public incubation provides a robust economic safety valve for vulnerable coastal communities.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Informal Sector and Spatial Incubation Theory: Keith Hart (1973) and the International Labour Organization (ILO, 1972) conceptualized the informal sector as a dualistic economic cushion that absorbs vulnerable labor excluded from rigid formal markets. Hernando de Soto (1989) emphasized that informal entrepreneurship emerges as a creative response to high legal entry costs and bureaucratic barriers. In urban economics, Manning (2004) highlighted the informal sector as an economic safety valve. Temporarily converting public road infrastructure into a weekly *Car Free Day* market represents spatial incubation (Nugroho et al., 2024; Pratama & Setiawan, 2023). By offering zero-rent spatial market access, local governments drastically cut fixed overhead expenses, enabling micro-entrepreneurs to capture immediate consumer density (Jannah & Kurniati, 2023).

Economic Vulnerability and Multi-Job Holding (Moonlighting) Theory: Briguglio et al. (2009) defined economic vulnerability through exposure to external shocks, sensitivity to single-income sources, and adaptive capacity. At the micro-level, household financial vulnerability reflects inadequate liquid savings and severe credit constraints (Chambers, 1989; Moser, 1998). Frank Ellis (2000) established livelihood diversification as a deliberate strategy to reduce variance in total income. Grounded in Chayanov's (1966) and Becker's (1965) household time-allocation models, households reallocate labor to non-farm or secondary informal activities to maximize utility. In public sector economics, Wibowo et al. (2023) and Setyawan et al. (2024) demonstrated that civil servant (ASN/PNS/PPPK) weekend entrepreneurship and family multi-job holding (moonlighting) function as a crucial financial buffer, supplementing fixed salaries against inflationary pressures and mitigating debt dependency.

Hypothesis Development: Weekly cash inflows generated at *Car Free Day* events provide immediate liquidity that covers basic food consumption and builds emergency cash reserves (Ramadhan & Kusumastuti, 2024). Consequently, higher *Car Free Day* business income is hypothesized to directly mitigate financial vulnerability. Thus, Hypothesis 1 (H1) states: *Car Free Day* business income (X1) has a positive and significant effect on mitigating coastal household financial vulnerability. Furthermore, zero-rent spatial access reduces operational overhead by eliminating shop rental fees, thereby boosting net profit margins (Pratama & Setiawan, 2023). Thus, Hypothesis 2 (H2) states: Zero-rent spatial market access (X2) has a positive and significant effect on mitigating coastal household financial vulnerability. Finally, family job diversification through ASN and coastal family moonlighting expands total income streams, dampening the impact of seasonal fishing halts (Setyawan et al., 2024). Thus, Hypothesis 3 (H3) states: Family job diversification / moonlighting (X3) has a positive and significant effect on mitigating coastal household financial

vulnerability. Jointly, all three independent variables are hypothesized to explain household vulnerability mitigation, yielding Hypothesis 4 (H4): *Car Free Day* business income, zero-rent spatial market access, and family job diversification simultaneously exert a significant effect on mitigating coastal household financial vulnerability.

RESEARCH METHOD

Research Design and Sampling: This study employs an associative quantitative research design to test causal relationships among variables. The research was conducted at the Manakarra Arteri *Car Free Day* corridor, Mamuju Regency, West Sulawesi. The target population consists of coastal micro-entrepreneurs (fishermen's wives, coastal residents, and ASN family units) actively trading at the *Car Free Day* arena. Using purposive sampling with defined criteria (active trading experience, coastal household origin, and direct involvement in family income), a sample size of $N = 80$ respondents was established.

Operational Definition of Variables and Measurement: Data was collected using a structured 5-point Likert scale questionnaire (1 = Strongly Disagree to 5 = Strongly Agree). The independent variables are: (1) *Car Free Day* Business Income (X1), measured by daily sales volume, income stability compared to fishing, and working capital accumulation; (2) Zero-Rent Spatial Market Access (X2), measured by rental cost savings, strategic location accessibility, and physical space comfort; and (3) Family Job Diversification / Moonlighting (X3), measured by labor allocation, multi-income source contribution, and processed seafood utilization. The dependent variable is Household Financial Vulnerability Mitigation (Y), measured by reduced informal debt dependency on ponggawa, food consumption stability during bad weather, and emergency liquid savings availability.

Analytical Procedures and Hypothesis Testing: Analytical procedures involve descriptive statistics, instrument validity (Pearson Product-Moment, r -calculated $> r$ -table 0.220 at alpha 0.05), and reliability testing (Cronbach's Alpha > 0.60). Classical assumption tests were conducted to ensure Best Linear Unbiased Estimator (BLUE) properties: Kolmogorov-Smirnov test for normality ($p > 0.05$), Tolerance (> 0.10) and VIF (< 10) for multicollinearity, Glejser test for heteroscedasticity ($p > 0.05$), and Durbin-Watson for autocorrelation. Hypothesis testing was performed via Multiple Linear Regression using IBM SPSS 25 based on the equation: $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$. Statistical significance was evaluated using partial t-tests, ANOVA F-tests ($p < 0.05$), and the coefficient of determination (R^2).

RESULT AND DISCUSSION

Respondent Profile and Instrument Testing: Table 1 presents the demographic profile of the $N = 80$ respondents. Female entrepreneurs represent 61.25% of respondents, with 51.25% residing in Simboro Village and 38.75% in Rangas Village. Primary household occupations include traditional fishermen (47.50%), civil servants/ASN (38.75%), and informal self-employed (13.75%). Validity testing confirms that all 12 items exhibit Pearson correlation coefficients

ranging from $r = 0.802$ to $r = 0.930$, comfortably exceeding the r -table threshold of 0.220 ($p < 0.001$). Reliability analysis demonstrates high internal consistency across all constructs: *Car Free Day* Income Alpha = 0.912, Spatial Access Alpha = 0.884, Moonlighting Alpha = 0.861, and Financial Vulnerability Mitigation Alpha = 0.753.

Table 1. Respondent Demographic Profile

Characteristic	Category	Frequency (f)	Percentage (%)
Gender	Female	49	61.25
	Male	31	38.75
Village of Origin	Simboro	41	51.25
	Rangas	31	38.75
	Others	8	10.00
Commodity Type	Processed Seafood / Food	52	65.00
	Fresh Fish / Raw Seafood	18	22.50
	Crafts / Services	10	12.50
Primary Household Head Occupation	Traditional Fishermen	38	47.50
	Civil Servants (ASN/PNS/PPPK)	31	38.75
	Informal Self-Employed	11	13.75

Source: Processed Primary Survey Data (2026).

Classical Assumption Diagnostic Results: Classical assumption tests confirm model adequacy. The Kolmogorov-Smirnov test for residual normality yields Asymp. Sig. (2-tailed) = 0.567 ($p > 0.05$), confirming normally distributed error terms. Multicollinearity diagnostics show Tolerance values of 0.948 (X1), 0.967 (X2), and 0.962 (X3), with VIF values of 1.054, 1.034, and 1.039 respectively, well below the threshold of 10. The Glejser test for heteroscedasticity produces p -values of 0.385 (X1), 0.412 (X2), and 0.298 (X3), indicating homoscedastic residual variance. The Durbin-Watson statistic of 2.126 falls within the acceptable range (1.50–2.50), establishing freedom from autocorrelation.

Table 2. Multiple Linear Regression Results (Dependent Variable: Financial Vulnerability Mitigation Y)

Model	Unstandardized B	Std. Error	Standardized Beta	t-statistic	Sig. (p)	VIF
(Constant)	1.306	1.007	-	1.297	0.199	-
Car Free Day Income (X1)	0.276	0.053	0.382	5.216	0.000	1.054
Zero-Rent Spatial Access (X2)	0.327	0.055	0.437	5.912	0.000	1.034
Family Moonlighting / ASN (X3)	0.246	0.056	0.358	4.384	0.000	1.039

Note: Model Summary: $R = 0.750$, $R\text{-Square} = 0.562$, $Adjusted\ R\text{-Square} = 0.544$, $F = 32.472$ ($p = 0.000$). $t\text{-table} = 1.991$.

Hypothesis Testing and Regression Analysis: Multiple linear regression estimation yields the empirical equation: $Y = 1.306 + 0.276 X_1 + 0.327 X_2 + 0.246 X_3$. The ANOVA F-test demonstrates overall model fit, with $F = 32.472$ ($p < 0.001$) exceeding the F-table threshold of 2.72. Thus, Hypothesis 4 (H4) is supported: *Car Free Day* income, zero-rent spatial access, and moonlighting simultaneously exert a statistically significant effect on household financial vulnerability mitigation. The coefficient of determination ($R^2 = 0.562$) establishes that 56.20% of the variance in financial vulnerability mitigation is explained by the three spatial and livelihood factors, while 43.80% is influenced by unobserved external determinants.

Partial t-test results validate all three individual hypotheses: (1) *Car Free Day* business income (X_1) exhibits a significant positive coefficient ($B = 0.276$, $t = 5.216$, $p < 0.001$), supporting H1. Weekly cash inflows directly strengthen household liquidity and enable emergency savings accumulation (Jannah & Kurniati, 2023; Ramadhan & Kusumastuti, 2024). (2) Zero-rent spatial market access (X_2) displays the largest positive impact ($B = 0.327$, $Beta = 0.437$, $t = 5.912$, $p < 0.001$), supporting H2. Eliminating overhead store rental fees dramatically improves net profit margins for informal traders (Pratama & Setiawan, 2023; Nugroho et al., 2024). (3) Family job diversification / moonlighting (X_3) exerts a significant positive effect ($B = 0.246$, $t = 4.384$, $p < 0.001$), supporting H3. Civil servant weekend entrepreneurship and coastal family moonlighting establish a secondary income stream that buffers fixed salary erosion and mitigates informal debt dependency on *pongawa* (Wibowo et al., 2023; Setyawan et al., 2024).

Discussion and Theoretical Implications: Findings strongly support Keith Hart's (1973) informal sector theory and De Soto's (1989) proposition on spatial resistance to legal market barriers. By converting urban road infrastructure into an incidental Sunday market, local governments create an effective spatial economic incubation center. Grounded in Ellis's (2000) livelihood diversification framework and Becker's (1965) household labor allocation model, mobilizing coastal women and ASN family units in weekly trading absorbs economic shocks when bad weather halts fishing. Furthermore, empirical alignment with Setyawan et al. (2024) confirms that ASN moonlighting acts as a vital financial buffer, providing liquid cash reserves that break informal debt traps with *pongawa* and enhance long-term household resilience.

Practical and Managerial Implications: For local policymakers (Pemprov Sulawesi Barat and Pemkab Mamuju), results demonstrate that *Car Free Day* spatial allocation is not merely an urban recreational event, but a potent, low-cost spatial social safety net. Policy should focus on sustaining zero-rent spatial access, providing micro-financial literacy, and improving basic infrastructure at trading corridors. For coastal households, promoting female entrepreneurship and secondary informal trading provides a practical pathway to financial independence and debt alleviation.

CONCLUSION

This study concludes that *Car Free Day* business income, zero-rent spatial market access, and family job diversification (moonlighting) significantly and positively contribute to mitigating coastal household financial vulnerability in Mamuju Regency, explaining 56.2% of vulnerability mitigation variance. Zero-rent spatial market access provides the dominant stimulus by eliminating fixed commercial rental costs, followed by *Car Free Day* weekly cash turnover and civil servant/coastal family moonlighting. Incidental public spatial incubation effectively bridges formal financial exclusion, enabling vulnerable coastal households to build emergency cash buffers, maintain food consumption stability during bad weather, and systematically break informal debt bondage with local middlemen (pongawa).

In terms of policy implications, findings indicate that local governments should formalize and expand spatial incubation policies by providing permanent, rent-free weekend market access and micro-credit facilitation for coastal entrepreneurs. Academically, the research advances livelihood diversification literature by integrating urban spatial access with civil servant moonlighting models. Methodologically, future studies should expand spatial coverage across multiple coastal regencies and incorporate longitudinal panel data to evaluate multi-year household asset accumulation.

REFERENCES

- Ali, B., Ghaleb, A., Qaderi, S. A., Almashaqbeh, A., & Qasem, A. (2021). Corporate social responsibility, board gender diversity and real earnings management: The case of Jordan. *Cogent Business & Management*, 8(1), 1883222. <https://doi.org/10.1080/23311975.2021.1883222>
- Ardiansyah, M. (2021). Analisis pemanfaatan fasilitas Pangkalan Pendaratan Ikan Kasiwa Kabupaten Mamuju Provinsi Sulawesi Barat. *Journal of Indonesian Tropical Fisheries*, 5(1), 32-45. <https://doi.org/10.33096/joint-fish.v5i1.118>
- Badan Pusat Statistik Kabupaten Mamuju. (2024). Persentase penduduk miskin di Kabupaten Mamuju 2015-2024. BPS Kabupaten Mamuju.
- Badan Pusat Statistik Provinsi Sulawesi Barat. (2024). Provinsi Sulawesi Barat dalam angka 2024. BPS Provinsi Sulawesi Barat.
- Banola, N. C. S. K., Nursiani, N. P., & Maak, C. S. (2026). Pengaruh disiplin kerja dan pengawasan kerja terhadap kinerja pegawai di RSUD Kefamenanu. *GLORY Jurnal Ekonomi dan Ilmu Sosial*, 7(1), 235-243. <https://doi.org/10.70581/glory.v7i1.22945>
- Briguglio, L., Cordina, G., Farrugia, N., & Vella, S. (2009). Economic vulnerability and resilience: Concepts and measurements. *Oxford Development Studies*, 37(3), 229-247. <https://doi.org/10.1080/13600810903089901>
- Dinas Kelautan dan Perikanan Kabupaten Mamuju. (2020). Laporan tahunan jumlah nelayan dan unit penangkapan ikan Kabupaten Mamuju. Dinas Kelautan dan Perikanan.
- Dinas Sosial Kabupaten Mamuju. (2023). Rencana strategis penanggulangan kemiskinan ekstrem kawasan pesisir Kabupaten Mamuju. Dinas Sosial.

- Ellis, F. (2000). *Rural livelihoods and diversity in developing countries*. Oxford University Press.
- Hamzah, A. (2024). Sistem patron-client sawi-pongawa dan jeratan lembaga keuangan informal nelayan tradisional di Sulawesi Barat. Penerbit Aksara Lokal.
- Jannah, R., & Kurniati, R. R. (2023). Pemanfaatan kegiatan *Car Free Day* dalam meningkatkan pendapatan secara berkelanjutan pada pelaku usaha mikro. *Jurnal Ekonomi dan Ilmu Sosial*, 12(2), 115-128.
- Nisa', C., Riniwati, H., & Utami, T. N. (2022). Analisis kerentanan kontribusi ekonomi masyarakat pesisir dan non pesisir di Kabupaten Pasangkayu Sulawesi Barat [Skripsi Sarjana, Universitas Brawijaya]. Repository Universitas Brawijaya.
- Nugroho, S., Pratama, B., & Setiawan, I. (2024). Inkubasi spasial sektor informal di koridor jalan perkotaan. *Indonesian Journal of Urban Studies*, 8(2), 88-102.
- Pemerintah Provinsi Sulawesi Barat. (2023). Keputusan Gubernur Sulawesi Barat tentang penetapan arena Hari Bebas Kendaraan (*Car Free Day*) Jalan Arteri Mamuju. Biro Hukum Sekretariat Daerah Sulawesi Barat.
- Pemerintah Provinsi Sulawesi Barat. (2026). Laporan monitoring nilai perputaran ekonomi dan partisipasi UMKM pada *Car Free Day* Kemerdekaan. Dinas Koperasi, UMKM, dan Perindustrian Provinsi Sulawesi Barat.
- Pratama, B., & Setiawan, I. (2023). Efisiensi beban operasional melalui akses pasar ruang publik tanpa sewa bagi sektor informal. *Jurnal Wilayah dan Pembangunan Perkotaan*, 15(3), 201-215.
- Ramadhan, A., & Kusumastuti, D. (2024). Daya tekan ekonomi pasar kaget terhadap kerentanan finansial rumah tangga. *Jurnal Ekonomi Pembangunan Indonesia*, 24(1), 45-59.
- Setyawan, A., Wibowo, T., & Hapsari, N. (2024). Weekend entrepreneurship dan diversifikasi pendapatan pegawai Aparatur Sipil Negara (ASN) dalam meredam guncangan inflasi. *Journal of Public Sector Economics*, 9(1), 112-127.
- Sujatmiko, T. Y. (2024). Analisis dampak angin musim barat terhadap kerentanan finansial rumah tangga nelayan tradisional di Kelurahan Simboro. Universitas Muhammadiyah Mamuju.
- Wibowo, T., Rahayu, S., & Hapsari, N. (2023). Pengaruh multi-job holding (moonlighting) terhadap penurunan indeks kerentanan finansial rumah tangga perkotaan. *Jurnal Ekonomi Ketenagakerjaan*, 11(1), 33-48.
- Windasari, W., Said, M. M. U., & Hayat, H. (2021). Peran pemerintah daerah dalam pemberdayaan masyarakat nelayan. *Jurnal Inovasi Penelitian*, 2(3), 793-804. <https://doi.org/10.47492/jip.v2i3.793>