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Understanding the role of child abuse in divorce: A socioeconomic analysis using the ARDL approach

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ABSTRACT

This study aims to examine the complex relationship between child abuse and divorce within the Malaysian context, utilizing the ARDL approach. With a focus on the period spanning from 1989 to 2020, the primary objective was to uncover the dynamics underpinning the impact of child abuse on marital stability. The findings reveal that while female employment can positively influence divorce in the short run, this effect diminishes over the long run. Conversely, unemployment and poverty consistently positively impact divorce in the short and long run. Intriguingly, inflation emerges as a factor that can increase divorce rates in the long run. This research enriches the understanding of divorce determinants in Malaysia through a rigorous methodology and comprehensive analysis. The study's findings unveil a web of intriguing and sometimes unexpected connections between child abuse and divorce. Notably, the results demonstrate that the influence of child abuse on divorce extends to both short-term and long-term dynamics. This revelation underscores the urgency of addressing child abuse as a critical social issue and a potent determinant of family dissolution. By exposing the enduring link between child abuse and divorce, this research emphasises the need for comprehensive strategies to safeguard family cohesion and protect the well-being of children.

1. Introduction

It is reported that annually, more than 500,000 minors are documented as having suffered from abuse or neglect, and approximately one-third of these victimized children come into contact with the child welfare system (Annie, 2023). Child abuse carries numerous significant risks to a child's well-being, which can include post-traumatic stress disorder, physical harm, compromised sexual health, and interruptions in their education. It is important to recognize the severity of these risks and the lasting impact they can have on a child's life. The Family Law Pathways Advisory Group (2001) stressed the paramount importance of child abuse as a factor contributing to parental separation in a considerable percentage of cases. The correlation between higher incidents of child abuse and a greater likelihood of divorce can be explained through various psychological, emotional, and practical factors. The occurrence of child abuse disrupts the familial harmony and creates significant stress and tension within the family unit. The disclosure of abuse

frequently results in a deterioration of trust and communication between spouses. The psychological trauma and emotional stress inflicted by child abuse can intensify pre-existing discord and impede the ability of partners to navigate their relationship.

Parents naturally possess a protective instinct towards their children (Chen et al., 2022). When one partner recognizes the abuse, their emotional response can vary from anger and resentment towards the other partner to feelings of guilt and powerlessness for failing to safeguard the child (Whitney et al., 2023). Conflicting emotions elicited by child abuse can have a detrimental impact on the marital relationship by exacerbating conflicts and eroding the foundation of the bond. The tendency to assign blame can further escalate tensions, as partners may fault each other for not preventing or addressing the abuse. This dynamic can create a climate of resentment and hostility that can be difficult to overcome (Smoliak et al., 2022). Partners might respond differently to the revelation of child abuse, further straining the relationship. It is not uncommon for there to be a disparity in the way

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partners approach the issue of child abuse. One may be inclined to take a more proactive approach, seeking intervention and protection for the victim, while the other may be more dismissive or minimize the situation. This divergence in perspectives can create a considerable emotional divide between the two partners, with one partner advocating for stricter discipline and the other emphasizing empathy and communication. Such differing viewpoints on child-rearing can lead to conflicts and marital discord. In situations where the well-being and safety of the abused child are paramount, one partner may advocate for separation as a means of ensuring a secure environment.

Divorce is a legal procedure that terminates the union of married couples through religious or civil courts. This process allows individuals to remarry once all divorce proceedings have been finalized, as confirmed by the [United Nations in 2022](#). This complex procedure may be subject to numerous external factors, such as unemployment, which can significantly impact personal inclinations towards marriage and divorce, as well as decisions related to family planning. In a study conducted by [Zhang et al. \(2014\)](#), a significant inverse relationship between unemployment and divorce rates was observed. As the unemployment rate increases, the divorce rate tends to decrease. This correlation is consistent with the idea of the impact of divorce costs on marriage stability. Research shows that job loss can lead to a loss of income, increasing the likelihood of marital dissolution ([Barbuscia et al., 2023](#)). [Doiron and Mendolia \(2011\)](#) found that husbands who experienced job loss were more likely to pursue divorce. [González-Val Miriam Marcén \(2017\)](#) demonstrated that unemployment can have a significant impact on divorce rates, although this influence may vary geographically. [Tumin and Qian \(2017\)](#) found that experiencing unemployment during a separation can reduce the likelihood of divorce for men, in contrast to women.

While prior research has traversed various avenues dissecting divorce factors, the intricate link between child abuse and marital dissolution has remained relatively uncharted. In casting light upon this junction, our study unveils insights of considerable value, breathing life into an essential but often overlooked facet of marriage dissolution. Marital relationships form intricate tapestries woven with emotions, behaviours, and external influences. Including child abuse introduces a profoundly sensitive and emotionally charged dimension to this complex weave. By delving into the mechanisms through which heightened child abuse cases correlate with divorce, your study serves as a beacon, illuminating the intricate interplay between family dynamics, emotional turmoil, and the pivotal junctures contributing to the dissolution of marriages. However, no empirical investigation has been conducted to explore the connection between child abuse and divorce. Therefore, this study aims to explore the impact of child abuse on divorce and contributes substantially to the existing knowledge. It bridges an apparent gap in the literature by immersing itself in the less-explored domain of child abuse as a determinant of divorce. The gap that emerges between recognising child abuse's significance and its subsequent inclusion in the discourse on divorce dynamics serves as a pivotal motivator for this study. The evolving landscape of understanding and acknowledging the impact of child abuse on the intricate fabric of marital bonds underscores the need to delve deeper into this understudied realm. By shedding light on this complex interplay, this research endeavours to bridge the gap and contribute a nuanced perspective to the discourse on factors influencing divorce cases.

The primary significance of this research lies in its examination of the under-explored relationship between child abuse and divorce, illuminating the complex interplay of factors that influence divorce cases. Although prior investigations have thoroughly examined the effect of unemployment on marital dissolution, the correlation between child abuse and divorce has received scant attention. This research offers crucial insights for policymakers, as our analysis has uncovered how certain economic factors can lead to an uptick in the divorce rate, and by accurately identifying these factors, effective social and economic policies can be implemented to address them. Our findings suggest that a

decline in divorce rates can be achieved through targeted interventions aimed at improving economic conditions and addressing related social issues. The conclusions drawn from this research furnish policymakers with evidence-based knowledge regarding the relationship between child abuse and divorce. Gaining a deeper understanding of the profound impact of child abuse on marital dissolution can aid in the formulation of more focused and effective family and child protection policies.

2. An overview of divorced persons in the labour force in Malaysia

This research study delves into an analysis of time-series data within the context of Malaysia, with a specific focus on employing the ARDL approach. The decision to conduct empirical research in Malaysia was based on a number of factors, including the country's consistent increase in the number of divorced individuals within the workforce and the corresponding rise in divorce cases over time. This trend is mirrored by a similar increase in child abuse cases, providing a compelling basis for this research endeavor. As illustrated in [Fig. 1](#), the graphical representation vividly portrays the evolution of the number of divorced persons engaged in the labour force from 1988 to 2020. This timeframe underscores a noticeable trend characterised by fluctuations and notable variations. Notably, the data suggests a pinnacle point in the late 2010s, particularly highlighted in 2017, where the labour force accommodated the highest recorded count of divorced individuals, totalling 296.60 thousand. In 2020, Malaysia witnessed a slight reduction in divorced individuals participating in the labour force. This decrease was attributed to the unprecedented global impact of the COVID-19 pandemic, which detrimentally affected Malaysia's economy and, consequently, the dynamics of the labour force. [Fig. 2](#) depicts that the number of divorce cases in Malaysia has consistently increased over the years. In 1991, there were 11,310 cases, and this number has risen steadily since then. During the late 1990s and early 2000s, there was a significant increase in divorce cases, with the numbers nearly doubling from 1998 to 2000 (15,639 to 15,218) and continuing to rise in subsequent years. However, in 2020, the number of divorce cases decreased to 45,754, which was lower than the previous year (56,862 in 2019). This decrease could be attributed to the COVID-19 pandemic and its impact on court operations and divorce proceedings.

3. Literature review

In the realm of psychology, [Hill \(1949\)](#) formulated the family stress theory, which elucidates the ebb and flow experienced by families. This theory posits that inter-parental relationships reverberate onto children, particularly in the context of poverty and economic strains. Economic pressures encompass factors like job losses (unemployment), income reduction, and escalating living costs, among others, resulting in stress and subsequently leading to instances of domestic turmoil, including child abuse ([Schenck-Fontaine et al., 2017](#); [Usher et al., 2020](#); [Shaari et al., 2023](#)). Similarly, external variables on structural shifts in lifestyle have been investigated. For instance, the surge in labour participation by both spouses intensified professional commitments due to increased work demands, alterations in work patterns ([Boiarintseva et al., 2022](#)), and imbalances in the equilibrium between work and personal life can impinge upon familial dynamics and heighten individual and familial stress ([Bryant & Awosan, 2022](#); [Chen et al. 2019](#)).

Drawing upon the family stress theory, this study employs it as a foundational framework to comprehend the impacts of poverty, unemployment, and inflation on divorce. In alignment with the theory, economic elements and social and family dynamics transformations can generate domestic stress, eventually leading to child abuse. By extrapolating the theory's constructs, economic variables such as poverty ([Ul-Haq et al., 2022](#)), unemployment, inflation ([Ahmed et al. 2022](#)), and economic fluctuations can precipitate parental stress, which could

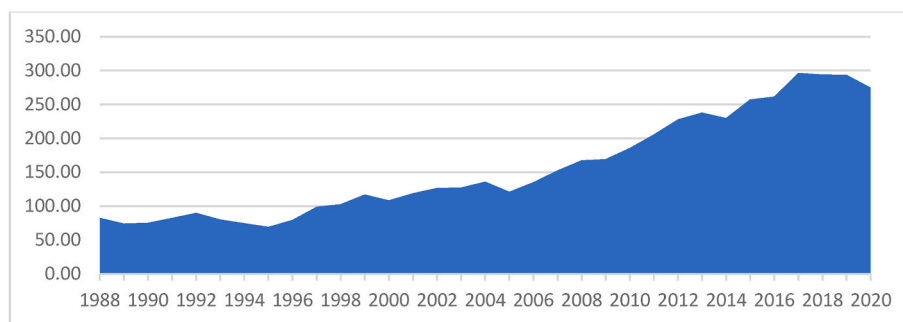


Fig. 1. Divorced persons in the labour force (000).

Source: Department of Statistics Malaysia

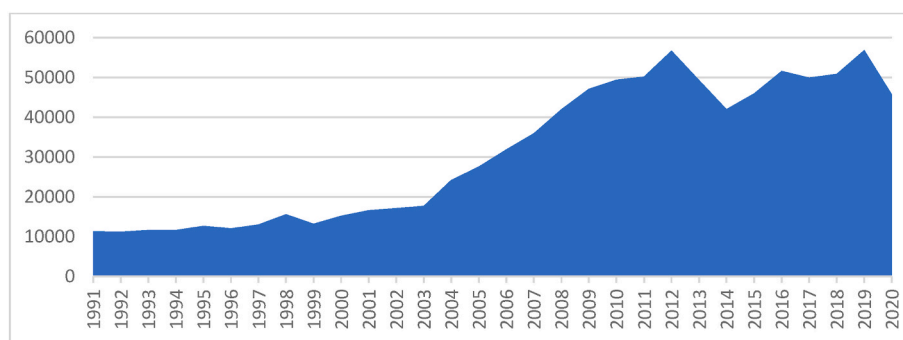


Fig. 2. Divorce cases in Malaysia.

Source: Department of Statistics Malaysia

inadvertently manifest as stressors directed at children—an especially vulnerable segment of society. This theory offers a lens through which to explore the intricate interplay between economic conditions, familial strain, and its potential spillover effects, offering a conceptual framework to investigate the influences of poverty, unemployment, and inflation on divorce rates.

The influence of business cycles is commonly assessed through metrics such as unemployment rates (Lourenço & Rua, 2023; Salinari & Benassi, 2022). In studying the intersection of job market dynamics and marital outcomes, notable contributions have been made. For instance, Doiron and Mendolia (2011) explored the involuntary job displacement effect on divorce probabilities using discrete duration models, while Eliason, 2004) delved into a parallel investigation using a distinct Swedish dataset. Both studies revealed that job loss and negative income shocks are associated with heightened divorce probabilities. Similarly, Ul-Haq et al. (2023) found that unemployment and inflation can spur the divorce rate in China. Conversely, research predominantly focused on unemployment's impact on divorce, particularly within the United States (US) (Nunley, 2010), leveraging state-level or individual-level data. Hellerstein and Morrill (2011), Hellerstein et al. (2013), and Baghestani and Malcolm (2014) have all demonstrated a consistent correlation between declining unemployment and rising divorce rates.

Further exploration has unearthed nuanced variations in these relationships. Notably, Schaller's (2013) re-examination of business cycle effects on divorce indicated that heightened unemployment rates correlate with reductions in divorce occurrences. Jones' (2021) and Cohen's (2014) analysis of the 2008–2011 American Community Survey data inquired whether unemployment and divorce are intertwined. The findings displayed a dip in divorce rates post-2008, with a gradual recovery by 2011, signifying a negative recession impact. Similarly, Amato and Beattie (2011) scrutinised divorce trends across 50 US states, adopting psycho-social stress and cost of divorce perspectives. Remarkably, they, too, unveiled a consistent negative correlation between unemployment and divorce rates, lending credence to the “cost of

divorce” standpoint.

However, examining the interplay between the divorce rate and the business cycle, the study by González-Val Miriam Marcén (2017) in Spain unearthed nuanced outcomes hinging on geographical considerations. Coastal regions exhibited pro-cyclical divorce rates, whereas inland areas showcased counter-cyclical reactions to unemployment. The findings collectively suggest a multifaceted influence of economic recessions on divorce dynamics. These effects can emanate from stress mechanisms, reinforced cost barriers, or even strengthened familial bonds. Additionally, geographical factors emerge as an influential determinant in this intricate relationship.

Conducting a comprehensive panel study encompassing the period 1995–2016 across Organization for Economic Cooperation and Development (OECD) countries, Aola et al. (2020) delved into the intricate relationship between income, gender, unemployment, and divorce. Their findings unveiled intriguing dynamics: an elevation in female unemployment levels correlated with a decrease in the divorce rate, whereas male unemployment exhibited a positive association with divorce rates in the long run. This intriguing dichotomy hints at a socioeconomic preference for females to prioritise non-employment. The results might be attributed to the concept that increased investment of time by females in nurturing familial bonds tends to mitigate divorce rates. Zeng and Wu's (2000) work aligned with these findings, positing that women's engagement in the labour force catalyses financial independence, ultimately contributing to divorce rates. This phenomenon is evident in China, where divorce has become an economically viable option due to increased affordability (Chen et al., 2021). Contrasting perspectives emerged from the United States, as Cooke et al. (2013) concluded that female employment heightens divorce risk due to insufficient policy support.

Conversely, varying scenarios were witnessed across different countries. While female employment demonstrated negligible impact on divorce risk in Australia, Flanders, France, Germany, Italy, the Netherlands, and the UK, distinct patterns surfaced in Finland, Norway,

and Sweden. In these Nordic countries, female employment was linked to a notable reduction in divorce risk compared to unemployed counterparts. The interplay of gender roles and socioeconomic structures underscores the complex dynamics that govern the relationship between female employment and divorce. In the GCC (Gulf Cooperation Council) states, female educational level was also found to mitigate divorce rates (Mansour et al., 2020). Importantly, these results underscore the role of policy support in potentially mitigating or even reversing the divorce risk associated with female employment, particularly in nations with robust support mechanisms for gender equality. According to Jones (2021), divorce is also associated with the challenges of urban life, the difficulty in balancing work commitments and domestic responsibilities in households with two income earners, and a decreasing willingness to endure an unhappy marriage.

In the study conducted by Mondal (2023), a binary logistic regression model was utilized to determine the factors that influence the duration of a couple's relationship. The research involved various variables, including the age of the individuals at the time of divorce, their level of education, the survival status of the father during the divorce, the age at which the husbands got married, their occupations, and the dowry involved. Similarly, Lamela and Figueiredo (2023) conducted a research study on 460 divorced adults using self-reported surveys that covered aspects of their sociodemographic background, divorce-related factors, and indicators of personality development. The findings indicated that post-divorce life satisfaction was associated with autonomy, environmental mastery, self-acceptance, emotional self-regulation, and motivation for personality development.

A distinct causal connection emerges between child abuse and divorce, revealing a complex interplay between these critical facets. The investigation conducted by Brown et al. (2002) highlights an intriguing bidirectional relationship, suggesting that child abuse frequently acts as a catalyst for parental separation, while conversely, parental separation often triggers instances of child abuse. Al Gharaibeh's (2015) study delves into the ramifications of divorce on children in the United Arab Emirates (UAE). Employing a structured questionnaire, the study surveyed 1742 divorced women, using SPSS for quantitative data analysis. The outcomes firmly underscore the adverse effects on children. The findings linked divorce to many adverse outcomes, including economic hardships, academic distractions, sleep disturbances, and behavioural obstinacy, underscoring the far-reaching implications of marital dissolution on children's well-being.

Interestingly, despite the acknowledged role of child abuse as a precursor to divorce, the corpus of research substantiating this relationship remains sparse. Notably, an absence of studies has aimed to solidify this correlation. However, the pivotal work of the Family Law Pathways Advisory Group (2001) paints a more concrete picture, affirming that child abuse frequently triggers parental separation, ultimately culminating in divorce in a significant majority of instances (60–80 per cent) across various studies. This reinforces the intricate dynamics between child abuse and divorce, substantiating the need for further comprehensive exploration in this crucial arena.

4. Methodology

This study examines the impacts of unemployment and working women on divorce in Malaysia. Therefore, some variables have been identified, and data on each variable have been collected. The data on the number of divorced people in the labour force as a proxy for divorce (D), the number of employed women as a proxy for working women (F), the number of unemployed people as a proxy for unemployment (U) and consumer price index as a proxy for inflation (CPI), have been gathered from two sources: the World Bank and the Department of Statistics Malaysia. The data spans from 1989 to 2020, and the Autoregressive Distributed Lag (ARDL) method is utilized to examine it. The model's specifications are as outlined:

$$DR_t = \alpha + \beta_1 F_t + \beta_2 U_t + \beta_3 INF_t + \beta_4 CA_t + \beta_5 POV_t + \mu_t \quad (1)$$

Where:

- DR: Divorce rates are measured in percentage.
- F: Female employment is measured in the number of people.
- U: Unemployment is measured in the number of people.
- INF: Inflation measured in percentage.
- CA: Child abuse cases measured in cases.
- POV: Poverty rate measured in percentage.
- α : Intercept or constant term of the model.
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$: Coefficients representing the effect of each respective variable on divorce rates.
- μ_t Error term capturing unobserved influences on divorce rates
- t: time

The model's primary objective is to unravel the underlying dynamics of divorce rates (DR) by considering various influential socioeconomic factors. Female employment (F) plays a pivotal role: an augmentation in female employment is anticipated to induce alterations in divorce rates. The coefficient β_1 affords insight into the strength of this connection. Similarly, the impact of unemployment (U) is noteworthy. An escalation in unemployment corresponds to shifts in divorce rates, and the coefficient β_2 quantifies this effect. In the context of inflation (INF), its fluctuations hold potential sway over divorce rates. The coefficient β_3 delineates how divorce rates react to inflation-level shifts. Child abuse (CA) is a significant element that might underpin escalated divorce rates. The coefficient β_4 gauges the magnitude of this correlation.

Moreover, the model acknowledges the potential influence of poverty (POV). Elevated poverty rates could potentially spark changes in divorce rates, with the coefficient β_5 encapsulating this interrelation. The intercept (α) is the foundational baseline for divorce rates when all other predictor variables hold zero values. Conversely, the error term (μ_t) encapsulates variability in divorce rates that the model fails to account for—often attributed to hidden factors or random fluctuations. This model's structure offers a methodical avenue to assess how shifts in female employment, unemployment, inflation, child abuse cases, and poverty rates distinctly shape divorce rates in Malaysia. The coefficients supply an avenue to comprehend the extent and direction of these influences, thereby illuminating the intricate interplay between socioeconomic factors and divorce trends.

All the data will be transformed into logarithms to explain the results of this study in percentage. Therefore, a new model after the logarithms is as follows:

$$LND_t = a + \rho_1 LNF_t + \rho_2 LNU_t + \rho_3 LNINF_t + \rho_4 LNCA_t + \rho_5 LNPOV_t + e_t \quad (2)$$

In the pursuit of employing the cointegration technique via the ARDL approach, it becomes imperative to navigate through the guidelines governing the establishment of co-integrating relationships within the variables under scrutiny in this study. As prior research suggests, the crux of this process hinges on the outcomes derived from unit root tests. It's worth noting that the Johansen cointegration methodology harbours certain limitations, particularly its reliance on a pure I(1) order of integration. Recognising these limitations, Pesaran and Shin (1995) and Pesaran et al. (2001) introduced a novel cointegration framework to surmount these challenges. This novel approach, the ARDL bounds test, offers a more versatile solution. It accommodates cases where the order of integration is purely I(0), I(1), or a combination of both. Moreover, the ARDL bounds test is equipped to discern cointegration relationships across varying optimal lag structures, rendering it a versatile tool. An added advantage lies in its compatibility with studies working with smaller sample sizes. Within this context, the formulation of the long-run ARDL model emerges as a pivotal step. It involves discerning the enduring relationships among the variables, accounting for their

interplay and long-term impacts. This approach significantly enriches our understanding of the intricate dynamics at play, thereby enhancing the credibility of the insights gleaned from the study.:

$$\begin{aligned} \text{LNDR}_t = & \alpha + \rho_1 \text{LNF}_t + \rho_2 \text{LNU}_t + \rho_3 \text{LNINF}_t + \rho_4 \text{LNCA}_t + \rho_5 \text{LNPOV}_t \\ & + \sum_h^o \rho_6 \text{LND}_t + \sum_i^p \rho_7 \text{LNF}_t + \sum_j^q \rho_8 \text{LNU}_t + \sum_k^r \rho_9 \text{LNINF}_t \\ & + \sum_l^s \rho_{10} \text{LNCA}_t + \sum_m^u \rho_{11} \text{LNPOV}_t + \pi_t \end{aligned} \tag{3}$$

Here, the symbol Δ signifies the difference operator, while Equation (3) embodies the ARDL (o, p, q, r, s, u) model. The Akaike Information Criterion (AIC) comes into play to determine the optimal lag. Subsequently, the focus shifts towards the estimation of the error correction model. This step serves a dual purpose: to substantiate the existence of a long-run association between inflation, unemployment, female employment, and divorce rates and to scrutinise the immediate connections among these variables. In light of this, the error correction term assumes prominence and finds its place within the model's framework. It is best encapsulated as follows:

$$\begin{aligned} \Delta \text{LNDR}_t = & \delta + \sum_h^o \delta_1 \Delta \text{LNDR}_t + \sum_i^p \delta_2 \Delta \text{LNF}_t + \sum_j^q \delta_3 \Delta \text{LNU}_t \\ & + \sum_k^r \delta_4 \Delta \text{LNINF}_t + \sum_l^s \delta_5 \Delta \text{LNCA}_t + \sum_m^u \delta_6 \Delta \text{LNPOV}_t + \delta_7 \text{ECT}_t + \gamma_t \end{aligned} \tag{4}$$

Δ denotes the intercept, while δ_1 to δ_6 represents the short-run coefficients. The error correction term, ECT, is significant in this construct. Particularly noteworthy is δ_7 , the coefficient affiliated with the error correction term, which serves as a barometer for assessing the pace at which short-term imbalances are rectified. This coefficient's significance and negative nature are of paramount importance, as they collectively affirm the presence of a substantive long-term interconnection between the variables.

5. Results and discussions

The results of the descriptive statistics reported in Table 1 reveal important insights into the variables under study. The mean and median values provide a snapshot of central tendencies. The mean LNDR is 0.3159, suggesting a moderate average divorce rate. LNF shows a high mean of 8.1721, implying significant female participation in the workforce. LNPOV and LNU mean values at 1.7203 and 5.8760, respectively, highlight the socioeconomic challenges. However, LNCA, with a mean of 7.4180, presents concerning levels mirrored by a positively skewed distribution. LNINF has a relatively low mean of 0.8459, indicating a degree of economic stability. Higher kurtosis in LNPOV, LNCA, and LNINF indicates heavy-tailed distributions, implying rare extreme values. LNPOV's negative skewness suggests a concentration towards higher poverty levels. The low probabilities for LNPOV and LNCA hint at statistically significant deviations. Overall, the statistics underscore the complex interplay of variables influencing divorce in Malaysia, with child abuse, female employment, and poverty as crucial focal points for further exploration in the ARDL analysis.

The unit root test results in Table 2 using the Augmented Dickey-Fuller (ADF) approach provide valuable insights into the stationarity properties of the variables in your study. When considering the results

Table 1
Descriptive statistics results.

	LNDR	LNF	LNPOV	LNU	LNCA	LNINF
Mean	0.3159	8.1721	1.7203	5.8760	7.4180	0.8459
Median	0.2645	8.1776	1.8000	5.9063	7.2363	0.9708
Maximum	0.7074	8.6778	2.8332	6.2309	8.7612	1.6939
Minimum	-0.1031	7.6840	-0.5108	5.3702	5.2523	-0.539
Std. Dev.	0.2190	0.3039	0.7364	0.2350	0.8608	0.5633
Skewness	0.1220	0.1448	-0.9759	-0.3518	-0.3720	-0.7413
Kurtosis	2.1193	1.8604	4.3574	2.5361	2.9347	3.0441
Probability	0.5730	0.3979	0.0231	0.6228	0.6894	0.2307

Table 2
Unit root test results.

Variable	Constant without trend			Prob.*
	Level		1st difference	
	t-Statistic	Prob.*	t-Statistic	
LNPOV	-1.9879	0.2903	-4.8685	0.0005
LNU	-1.1699	0.6745	-4.4319	0.0015
LNCA	-2.2268	0.2013	-6.2400	0.0000
LNINF	-3.7636	0.0078	-6.1175	0.0000
LND	0.3141	0.9753	-5.3773	0.0001
LNF	-0.0605	0.9453	-5.2969	0.0002
Variable	Constant with trend			Prob.*
	Level		1st difference	
	t-Statistic	Prob.*	t-Statistic	
LNPOV	-1.9325	0.6137	-4.9062	0.0023
LNU	-4.1199	0.0173	-4.7299	0.0036
LNCA	-4.0568	0.0170	-6.2758	0.0001
LNINF	-4.6396	0.0043	-6.0963	0.0001
LND	-3.2744	0.0893	-4.3719	0.0110
LNF	-2.3016	0.4208	-4.5461	0.0076

without trends, LNPOV, LNU, LNCA, LNINF, LNDR, and LNF all exhibit t-statistics indicating non-stationarity at the level. However, after first differencing, all variables show t-statistics that point to stationarity, indicating that they become stationary once differenced. When incorporating trends, similar patterns emerge. While some variables, like LNPOV and LNF, continue to exhibit non-stationarity at the level, they become stationary upon first differencing. Notably, LNU, LNCA, and LNINF maintain stationarity after both level and first difference, suggesting their stability over time. These results imply that the variables in your study require differencing to achieve stationarity, reinforcing the need for employing the ARDL approach. The differentiation process helps mitigate potential spurious regression issues and ensures that the relationships among these variables are more likely to be reliable and meaningful in subsequent analyses.

The bound test results reported in Table 3 offer important insights into the cointegration relationships among the variables in your study. The null hypothesis tested here is whether there is no cointegration relationship among the variables (i.e., no long-term equilibrium relationship). The F-statistic calculated is compared against critical values at different significance levels (10%, 5%, 2.5%, and 1%). In this case, the calculated F-statistic is 10.29445. Comparing this value to the critical values, we find that the F-statistic exceeds the critical values at all significance levels (10%, 5%, 2.5%, and 1%). This suggests strong evidence

Table 3
ARDL bounds test results.

F-Bounds Test		Null Hypothesis: No relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.29445	10%	2.08	3.00
		5%	2.39	3.38
		2.5%	2.70	3.73
		1%	3.06	4.15

against the null hypothesis of no cointegration relationship, indicating that there indeed exists a long-term equilibrium relationship among the variables in your model.

Furthermore, the calculated F-statistic of 10.29445 is substantially higher than the critical values, reinforcing the statistical significance of the cointegration relationship. This implies that your chosen variables, including LNPOV, LNU, LNCA, LNINF, LND, and LNF, are likely to be cointegrated, indicating they move together in the long run, possibly affecting the divorce trends in Malaysia. As a result, you have a solid basis to proceed with your ARDL model, as cointegration justifies investigating the long-term relationships among these variables and their impacts on divorce cases in Malaysia.

The findings further shed light on the enduring ramifications of variables such as female employment, poverty, unemployment, child abuse, and inflation on divorce rates in Malaysia. Regarding the long-run impacts, the coefficient for LNF, amounting to -0.0713 , signifies that a 1% augmentation in female employment is linked to an approximate 0.0713% reduction in divorce cases over the extended term. It's important to note that this coefficient lacks statistical significance, suggesting that the connection between female employment and divorce is not firmly established in the long run. In contrast, the LNPOV coefficient, standing at 0.0224, underscores that a 1% increase in poverty corresponds to roughly a 0.0224% upswing in divorce cases in the long run. This underscores how elevated poverty levels contribute to heightened divorce rates over a prolonged timeframe. Similarly, the LNU coefficient, at 0.6243, implies that a 1% increase in unemployment results in a notable 0.6243% surge in divorce cases over the extended horizon. This highlights the potent influence of unemployment on divorce trends spanning the long term.

Furthermore, the LNCA coefficient, positioned at 0.1352, points to a 1% increase in child abuse, leading to an approximate 0.1352% escalation in divorce rates. This accentuates the persistent impact of child abuse on divorce rates as time unfolds. The LNINF coefficient, denoting 0.045, signifies that a 1% inflation hike corresponds to roughly a 0.045% elevation in divorce cases in the long run. This underscores how inflation contributes to increased divorce rates over an extended period. In essence, these outcomes elucidate the intricate interplay of factors influencing divorce rates in Malaysia. They underscore the enduring significance of variables such as unemployment, child abuse, poverty, and inflation in shaping divorce trends across immediate and extended periods.

The results of the ARDL test presented in Table 4 offer valuable insights into the dynamic relationships among the variables within our model. In the short run, several noteworthy observations emerge from examining the coefficients. The coefficient for LNF, which stands at 1.8469, indicates that a 1% increase in female employment leads to an approximate 1.8469% rise in divorce instances in the short term. This

underscores the prominent role that heightened female employment plays in driving up divorce rates in the immediate period, in line with (Fokkema and Liefbroer, 2004). The LNPOV coefficient, at 0.0679, suggests that a 1% increase in poverty aligns with a roughly 0.0679% rise in divorce rates within the short run. This implies that higher poverty might positively influence short-term divorce rates. This result is supported by Alola et al. (2020), who employ panel data analysis within the context of the Organization for Economic Cooperation and Development (OECD) nations, as opposed to Malaysia and Indonesia (Amri et al., 2022). Nonetheless, their approach is distinct from ours in several respects, including the use of annual data and a focus on the long-run effects of the variables.

One possible explanation for the correlation between higher female employment and increased divorce rates lies in the changing power dynamics within households. As women gain greater economic independence, they may feel more empowered to make decisions about their lives, including ending an unhappy marriage. This shift in power can lead to a renegotiation of marital roles and responsibilities, which in some cases may result in a decision to divorce. The challenges of balancing dual careers, in which both partners are employed, can also contribute to marital strain. The demands of juggling work, household chores, and child care can increase stress levels and exacerbate existing tensions, potentially leading to a decision to divorce.

Similarly, the coefficient associated with LNU, recorded at 0.5904, indicates that a 1% increase in unemployment is correlated with a 0.5904% increase in divorce cases within a short period. This implies that there is a strong connection between unemployment and divorce rates in the immediate context. Conversely, Amato and Beattie (2011) found that unemployment has the potential to decrease divorce rates. Their research analyzed state-level data from 1960 to 2005 in the United States to explore how changes in the unemployment rate impact the likelihood of divorce. In contrast, our study employs the ARDL approach to examine the effect of unemployment on divorce in the context of Malaysia. One possible mechanism through which higher unemployment rates may lead to divorce is the erosion of marital satisfaction. The financial pressures from unemployment can cause arguments, resentment, and emotional distance between partners. The strain of coping with reduced income, mounting bills, and a diminished quality of life can create an environment that fosters discontent, potentially leading to a breakdown in communication and emotional connection.

The coefficient for LNCA, at 0.4103, illustrates that a 1% increase in child abuse corresponds to roughly a 0.4103% upsurge in divorce cases during the short term. This highlights the notable impact of child abuse on immediate divorce trends. Significantly, this research presents ground-breaking insights by demonstrating a previously unexplored connection: higher instances of child abuse can lead to elevated divorce rates in the short and long run. This novel finding underscores the profound impact of trauma and emotional distress stemming from child abuse on marital dynamics. Such distress may magnify pre-existing conflicts, rendering it challenging for partners to navigate their relationship amidst these heightened tensions. In the context of parenting, a natural protective instinct emerges towards one's children. When confronted with child abuse cases, the emotional response among partners can be multifaceted. Anger and resentment towards the responsible partner may coexist with profound guilt and helplessness for not preventing the abuse. This complex emotional landscape introduces internal conflicts that can destabilise the bedrock of the marital bond.

Conversely, the LNINF coefficient, at -0.0680 , suggests that a 1% increase in inflation is associated with a decrease in divorce cases of approximately 0.0680% in the short term. This suggests that moderate inflation may have a mildly mitigating effect on short-term divorce rates. The study indicates that inflation can decrease the divorce rate in the short term but increase it in the long term. Additionally, Ul-Haq et al. (2023) found a statistically significant, positive, and persistent influence of inflation on divorce rates in China. Their research employed various models, including the panel fixed effects model, panel random effects

Table 4
Short-run and long-run estimates.

Short-run Elasticities				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNF	1.8469	0.4306	4.2889	0.0009
LNPOV	0.0679	0.0204	3.3373	0.0053
LNU	0.5904	0.1914	3.0848	0.0087
LNCA	0.4103	0.0787	5.2148	0.0002
LNINF	-0.0680	0.0260	-2.6135	0.0215
ECT	-1.4924	0.3771	-3.9572	0.0022
Long-run Elasticities				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNF	-0.0713	0.0526	-1.3563	0.1981
LNPOV	0.0224	0.0070	3.1910	0.0071
LNU	0.6243	0.0391	15.9614	0.0000
LNCA	0.1352	0.0190	7.1147	0.0000
LNINF	0.045	0.0128	3.5243	0.0037
C	-3.964	0.2946	-13.4574	0.0000

model, and the fixed effects-Driscoll and Kraay standard errors (DKSE) model, and analyzed the influence of inflation on 31 Chinese provinces. Inflation, as a persistent increase in general price levels, has significant economic implications that can affect various aspects of individuals' lives. High inflation can erode purchasing power, putting pressure on household budgets, and leading to increased stress, arguments over financial matters, and a reduced quality of life for couples.

The coefficient affiliated with the error correction term (ECT), quantified at -1.4924 , signifies that the system corrects at an approximate rate of 1.4924% during each period towards its long-term equilibrium. This suggests that in the event of a deviation from the long-term equilibrium, the system adjusts by this magnitude in each subsequent period.

We conducted FMOLS and DOLS tests to enhance the robustness of our analysis, the findings of which are presented in Table 5. The results of both tests demonstrate the impact of poverty, unemployment, and child abuse on the rise in divorce rates in Malaysia. Moreover, a higher level of female employment emerges as a crucial factor in mitigating child abuse in Malaysia, consistent with the outcomes of the ARDL approach. Additionally, our analysis utilizing the FMOLS method uncovered an additional dimension, indicating that inflation can also contribute to divorce rates in Malaysia. These findings collectively strengthen our comprehension of the complex factors influencing divorce trends in the country.

The diagnostic tests conducted provide insights into the quality and reliability of your ARDL model. These tests assess various assumptions and potential issues within the model. In summary, the results of the diagnostic tests reported in Table 6 indicate that your ARDL model appears to meet several key assumptions, including the absence of serial correlation and heteroscedasticity. The model is normally dis. Additionally, the model seems relatively free from omitted variable bias or functional form misspecification.

Fig. 3 shows the results of the CUSUM (Cumulative Sum) and CUSUM of Squares tests used to assess the stability of coefficients in a model over time. When the blue line falls within the red lines in both tests, it indicates that the model's coefficients remain relatively stable and that there is no strong evidence of parameter instability or structural breaks in your ARDL model. This is a positive outcome as it suggests that the relationships you have identified among the variables are consistent and do not significantly change over the period you analyzed (from 1989 to 2020). The stability of coefficients enhances the reliability of our model's results and the conclusions you draw from them.

6. Conclusions

In conclusion, this study explored the intricate relationship between child abuse and divorce within the Malaysian context, employing the ARDL approach. The overarching objective was to shed light on the

Table 5
Robustness checks.

DOLS				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNF	-0.5590	0.1143	-4.8897	0.0009
LNPOV	0.0716	0.0353	2.0297	0.0730
LNU	0.4334	0.1273	3.4046	0.0078
LNCA	0.3074	0.0379	8.1044	0.0000
LNINF	0.0341	0.0309	1.1021	0.2990
FMOLS				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNF	-0.8973	0.0327	-27.4138	0.0000
LNPOV	0.0275	0.0090	3.0437	0.0053
LNU	0.7314	0.0406	18.0280	0.0000
LNCA	0.4678	0.0126	37.1988	0.0000
LNINF	0.0609	0.0092	6.6234	0.0000

Table 6
Diagnostic tests results.

Diagnostic Test	F-statistic	Probability
Serial Correlation	0.0161	0.9841
Heteroscedasticity	0.9173	0.5680
Jarque-Bera	2.5195	0.2837
Ramsey RESET	0.9428	0.5820

nuanced dynamics that underlie the impact of child abuse on marital stability, spanning a substantial timeframe from 1989 to 2020. Through rigorous methodology and analysis, this research sought to contribute valuable insights to the existing knowledge concerning divorce determinants in Malaysia. The findings of this study have unveiled an array of intriguing and, at times, unexpected connections between child abuse and divorce. Notably, the results demonstrate that the influence of child abuse on divorce manifests both in the short and long run. This revelation underscores the urgency of addressing child abuse as a grave social concern and a potent determinant of family dissolution. This research underscores the need for comprehensive intervention strategies to preserve family unity and ensure children's well-being by unveiling the persistent link between child abuse and divorce.

The examination of other socioeconomic variables adds layers of complexity to our understanding of divorce trends in Malaysia. While female employment notably influences divorce in the short run, this effect diminishes over the long run. On the other hand, unemployment emerges as a consistent driver of divorce in both the short and long term, illuminating the profound influence of economic stress on marital stability. Furthermore, the impact of poverty on divorce underscores the critical importance of addressing economic disparities and promoting financial well-being among families. The interplay between inflation and divorce takes a nuanced form, with the short-term decrease in divorce counterbalanced by its long-term impact on child abuse, highlighting the complex and multifaceted nature of the relationship between economic factors and marital outcomes.

These findings resonate with the broader landscape of family dynamics and societal challenges, inviting policymakers, practitioners, and scholars to delve further into the mechanisms that shape marital dissolution. As societies grapple with evolving familial structures and societal pressures, this research serves as a poignant reminder of the need for comprehensive support systems that prioritise the well-being of families and children. Ultimately, this study contributes to a deeper understanding of the intricate web of factors contributing to divorce in Malaysia and provides a stepping stone for further research and action to preserve family unity and strengthen the fabric of society.

The findings of this study hold significant policy implications that can inform targeted interventions and strategies aimed at addressing the intricate relationship between child abuse and divorce, as well as the broader socioeconomic factors influencing marital stability in Malaysia. Given the pronounced impact of child abuse on divorce rates, policy efforts should focus on bolstering child protection measures. Strengthening child welfare systems, enhancing reporting mechanisms, and providing accessible support services for abused children and their families are essential steps toward mitigating the detrimental effects of child abuse on family cohesion. Developing specialised counselling services that cater to families experiencing child abuse can serve as a lifeline for those in distress. Offering targeted support to couples navigating the emotional aftermath of child abuse can potentially prevent the escalation of conflicts and contribute to healthier, more resilient marriages.

6.1. Limitations and suggestions for future research

While this study contributes valuable insights into the complex relationship between child abuse and divorce and the broader socioeconomic factors influencing marital outcomes, several limitations

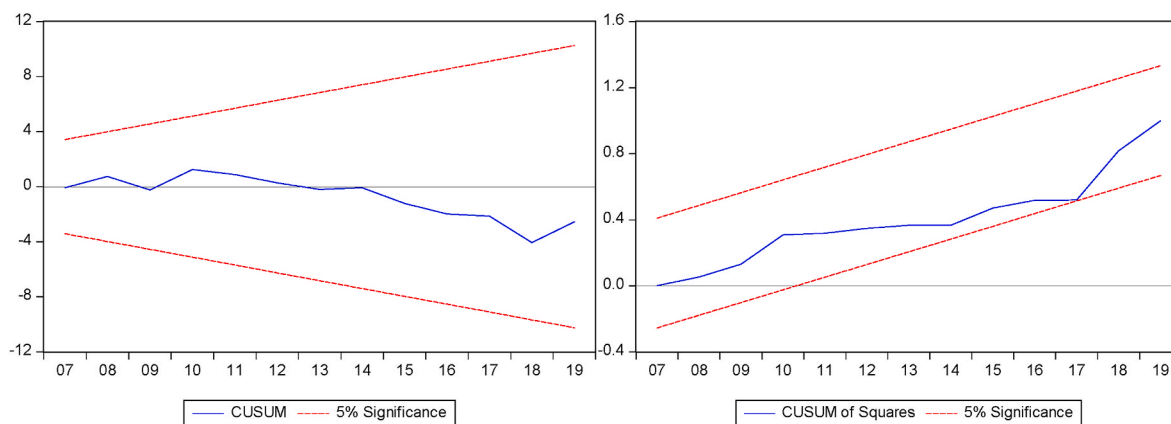


Fig. 3. CUSUM and CUSUM of squares results.

warrant consideration. These limitations, in turn, provide avenues for future research to build upon and expand our understanding of the intricate dynamics shaping marital stability. While this study reveals associations between variables, establishing causal relationships can be challenging. The directionality of the relationships between child abuse, divorce, and other socioeconomic factors remains complex. Future research could explore causal mechanisms through longitudinal or experimental designs to provide stronger evidence of causality. The study might not account for all relevant variables influencing divorce rates, such as cultural factors, legal changes, or individual differences in coping strategies. Future studies could incorporate various variables to capture a more comprehensive picture of the factors affecting marital outcomes. Malaysia is culturally diverse, and divorce rates can vary across regions due to differences in social norms and economic conditions. Future research could delve into regional variations to understand how cultural and economic factors interact to influence divorce rates. Extending the temporal scope of the study could reveal trends, fluctuations, and patterns over longer timeframes. A longitudinal approach could provide insights into the evolution of these relationships and their stability or change over time.

CRedit author statement

Mohd Shahidan Shaari: Conceptualization, Methodology, Writing-Original draft preparation. **Diana Nabila Chau:** Data curation, Writing-Original draft preparation. **Temitayo Blessing Majekodunmi:** Visualization, Investigation, Writing- Original draft preparation. **Miguel Angel Esquivias:** Writing- Reviewing and Editing, Validation, Funding acquisition.

Ethical statement

The authors affirm that no ethical issues have been encountered or need to be reported in this manuscript.

Data availability statement

Data obtained from the Department of Social Welfare (2022), Malaysia, and other public datasets.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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