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CONFERENCE PAPER

Household Financial Fragility During COVID -19: the Power of Financially Literate Women

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Abstract: This paper analyses household financial fragility during the COVID-19 pandemic. Considering the barging theory in households' decision-making, this paper proposes that women's financial literacy and their involvement in paid and unpaid work will influence family financial fragility in times of crisis. The results show that women's financial literacy, their participation in the labour market, and their financial independence have a significant and positive effect on the family's financial situation during the pandemic. Moreover, the level of women's unpaid work was identified as a significant element that jeopardizes family financial stability. The results further support the bargaining power theory regarding a better understanding of the complexity of decision-making within households. The results point to a new channel for preserving family financial stability, through the improvement of women's financial literacy and the development of institutional and social support for their participation in the labour market.

Keywords: household financial fragility; financial literacy; indebtedness; women; unpaid work

JEL Classification: B54, D14, G50, G53

Introduction

Financial fragility is used to describe the individuals' and/or households' incapacity to cope with financial shocks and unexpected expenses (Clark & Mitchell, 2022). Ex-

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amples of such shocks is a decrease in working hours and salaries, job losses, changes in loan interest rates or stock markets and also physical disability, divorce, or death, (Ramli *et al*., 2022). The importance of financial fragility stems from the fact that it reduces or eliminates one's income and can lead to many adverse consequences in the end, such as an increase in debt, poverty, and subsequent bankruptcy (Chhatwani & Mishra, 2021). Financial fragility not only hurts individuals' well-being and the well-being of their families, but it can produce an opposing effect on society and the macroeconomics of the whole country (Ramli *et al*., 2022).

The COVID-19 pandemic represents a system-wide shock with complex and multidimensional consequences for fragile contexts (OECD, 2020 in Desai & Forsberg, 2020). The COVID-19 pandemic is an example of a public health crisis that escalated into an economic one. The various measures, that were introduced and imposed in order to deal with the virus, caused numerous shocks many were not prepared to bear. All aspects of life were impacted. Measures of distancing, lockdown, and home schooling altered the normal functioning of households, whereas income decline, due to business closures, decreased amount of work or job losses increased risk and created financial uncertainty (see for example Leduc & Liu, 2020; Bejaković *et al*., 2021).

A number of papers examined how the pandemic aggravated risks and adversely affected different aspects of economic activity (i.e. increased unemployment, business failure, etc.). The impact of the pandemic on the financial fragility of households is less well documented. Recent research in developed countries, mostly conducted among the US population, confirmed that the economic downturn due to the pandemic has exposed and increased the households' financial fragility (i.e. Demertzis *et al*., 2020; Clark *et al*., 2021; Lusardi *et al*., 2021). Under these crisis circumstances, not all the population was affected the same way. Women were for example financially impacted more than men - in the proportion of overall job losses, in the division of paid and unpaid work, in sharing household responsibilities, etc. (WTO, 2020; OECD 2021).

Analysis of the US data on financial fragility over time revealed that many households were financially fragile even during good economic times. For example, in 2009, after the 2007-2008 financial crisis, household financial fragility was very high and half of American families were not able to deal with a mid-size emergency expense, as measured by the inability to come up with $2,000 in 30 days. Additionally, not only had low-income households evaluated themselves as unprepared for unexpected expenditure or income shock but also a substantial proportion of middle-class households self-assessed as fragile (Lusardi *et al*., 2011). As the US economy recovered over time, fragility decreased, but there were still households that were fragile despite the economic upturn (Lusardi *et al*., 2011; Demertzis *et al*., 2020). Similar problems were observed in the Euro area and Central and Eastern countries, with housing-related shocks being identified as a significant threat to household over-indebtedness and consequently financial fragility (Ampudia *et al*., 2016; Bejaković & Mrnjavac, 2017).

A similar pattern was observed in the USA with respect to the COVID-19 pandemic. Even when the economy was doing well in terms of low unemployment and stock market rise, which was before the pandemic hit the economy, more than a quarter of households were financially fragile, under financial stress, and/or unable to save (Schneider *et al*., 2020; Clark *et al*., 2021; Lusardi *et al*., 2021). Furthermore, within the population, subgroups of people with i.e. lower education, lower financial literacy, and lower incomes as well as females and young adults, were at higher risk of falling into financial difficulties. For these groups that were lacking the financial knowledge and skills necessary to shield them against financial insecurity, gaps even increased. Thus, it can be concluded that financial fragility has been growing and the pandemic made the current inequalities even larger (Schneider *et al*., 2020).

Research on European countries in the context of the COVID-19 pandemic is at best limited. Demertzis et al. (2020) analysing two broad data categories, concluded that in time before the pandemic, one third of EU households on average assessed themselves as not being able to meet unexpected, required expenses. The situation was even worse in the case of newer EU member countries, such as Croatia, where the proportion of incapable grew to one half of the households. For the group of best-performing countries, financial fragility slowly declined during the period, and these countries were better prepared for pandemic shocks. In contrast, in economically weaker countries, the proportion of financially fragile households grew in the aftermath of the crisis and has since fallen (Demertzis *et al*., 2020). On EU average, the percentage share remained broadly constant; however, there were variations between the countries. Additionally, in every analysed EU country, except one, a greater fraction of single women rather than single men, was identified as financially fragile (Demertzis *et al*., 2020).

The concept of financial fragility appeared in the United States after the financial crisis in 2007 and Lusardi et al. (2011) introduced it in order to analyse the capacity of households to face shocks and unplanned expenses following the crisis. Lusardi et al. (2011) highlighted the complexity of measuring financial fragility because it reflects two aspects of personal finance. On one side, financial fragility is a symptom of a lack of assets, and on the other side, it points to the lack of borrowing capacity of highly indebted households (Lusardi *et al*., 2011; Hasler & Lusardi, 2019). Thus, objective measures of financial fragility include quantitative data on the state of the household balance sheet, i.e. the level of assets and liabilities, and different liquidity or debt ratios, whereas subjective measures reflect respondents' perception. The advantage of the "perception" metric is the respondent's self-assessment of his/her ability to cope with unexpected expenses or income shock (Lusardi *et al*., 2011; Demertzis *et al*., 2020; Clark *et al*., 2021), in a way that encompasses both the respondent's assessment on the levels of assets and debt, and his/her expectations on the future financial situation (Hasler & Lusardi, 2019; Clark *et al*., 2021).

Accordingly, as argued earlier, in order to understand household financial fragility, not only is the level of its assets and liabilities important, but also the capability to manage personal finances (Hasler & Lusardi, 2019). The lack of functional financial knowledge and suitable skills necessary for sound financial decision-making in times of uncertainty and challenges emphasizes the importance of financial literacy for building financial resilience. Financial knowledge and financial skills, as components of financial literacy, are crucial for understanding and learning about financial concepts and objects (Barbić *et al*., 2019). Empirical research results in developed economies (the US in particular) reveal that financial fragility does not decrease with income and that middle-income households also struggle with financial difficulties, not only the households with low income. Furthermore, financial literacy, in general, is poor, even among those who have high incomes and those who are not financially fragile (Hasler & Lusardi, 2019). Women are among the subgroups that are more financially illiterate, especially in the area of understanding risk and uncertainty (Yakoboski *et al*., 2020), and consequently are more fragile. Research results on family financial decision-making indicate that both individual and joint family decisions are influenced by personal as well as family factors (Kim *et al*., 2017). Due to changes in cultural norms and social standards, the proportion of women participating in paid work (Lee & Beatty, 2002) and contributing to the family finances increased. These changes encourage changes in the family decision patterns. Relative education, employment, and wages are essential dimensions in financial decision-making in the household (Johnston *et al*., 2016). Thus, women's employment and financial literacy strengthen their bargaining power and empower their participation in decision-making intra-households (Kim *et al*., 2017; Banerjee *et al*., 2021). However, all family members' financial knowledge and preferences are not of the same value in intra-household financial decision-making; men still dominate (Da Ke, 2021). In families where women are less involved in family financial decision-making, households archive suboptimal financial outcomes (Guiso & Zaccaria, 2021; Banerjee et al., 2021). However, in situations when family economic costs are rising due to gender norms, the cultural norms are changing, and the allocation of decision power is more distributed within the household (Guiso & Zaccaria, 2021). Since a household's ability to handle financial difficulties and unexpected expenses is an important element of financial well-being, it is necessary to identify factors that can help households to alleviate financial fragility and restore stability. This study is a part of wider research on the effects of the COVID-19 pandemic on women's and family well-being and stress in Croatia.

Our study contributes to the still relatively limited empirical literature that examines household financial fragility through the pandemic (Lusardi *et al*., 2020). Although there are several studies conducted in the US, the context of European countries is much less researched, Croatia in particular. Additionally, although some surveys, such as Eurostat, provide data on household financial fragility, they do not include information on financial literacy, which has been shown to be an important determinant of financial fragility (i.e. Lusardi *et al*., 2020; Clark *et al*., 2021; Demertzis *et al*., 2020). In our study, we aim to evaluate the role of women's financial literacy as an important factor related to financial fragility, namely, to assess whether the more financially literate women contribute to their families being more financially resilient and better at absorbing financial shocks in the pandemic. Our results provide evidence that women's financial literacy, income, and financial independence have a significant and positive effect on the family's financial situation during the pandemic. Additionally, the level of women's unpaid work is identified as a significant element that jeopardizes family financial stability.

Methodology

This study is a part of comprehensive research focused on women's well-being during the COVID-19 pandemic. Data were collected from January to March 2021 through an online survey. The study employed a quantitative research design, using the snowball-sampling method to recruit the participants. Since the authors were interested and focused on a specific population group – women - adopting this sampling technique was the most convenient to follow (see Margetić *et al*., 2022). It provided greater access to the target population.

Primary data were collected using a self-administrated online structured questionnaire. The questionnaire was structured into three parts. The first part encompassed questions concerning the social and demographic characteristics of respondents. The second part was focused on the women's responsibilities at work and home during the COVID-19 pandemic. However, the third part was dedicated to the financial context: financial literacy and financial fragility. We also asked respondents to evaluate their financial independence regarding other household members and their relative income compared to other household members in order to capture, women's bargaining power in the household (Gu *et al*., 2021). Besides the part of the questionnaire that enclosed demographic and social variables and variables that concern the construct of financial literacy, all other items were anchored on a 5-point Likert scale ranging from strongly disagree "1" to strongly agree "5".

Building upon Schneider et al. (2020), we used four statements in order to create a self-assessed survey-based measure that would capture the subjective perception of family financial fragility. Additionally, building upon Clark et al. (2021), we particularly focussed on financial literacy and examined its role in reducing financial fragility in the crisis time of the pandemic. The scale to measure financial literacy was borrowed from Lusardi and Mitchell (2008). Respondents answered "Big Three" questions that measured their knowledge about interest rates, inflation, and risk. The variables have values from zero to three. The justification for using this basic measurement of financial literacy was found in the results of Clark et al. (2021). They obtained almost similar results for the "Big Three" questions index compared with the expanded twelve financial knowledge questions index in modelling American households' financial fragility during the COVID-19 pandemic. The results indicate that even a basic level of financial knowledge can significantly improve people's financial resilience during a crisis.

The scales used to evaluate the construct of subjective perception of family financial fragility were borrowed from Schneider et al. (2020) and adapted for this research. The observed four variables were constructed from four statements that respondents had to evaluate using a five-point Likert scale, anchored by 1 (strongly disagree) to 5 (strongly agree). Four statements are: *"Financial situation of the family was good prior to the pandemic"*, *"Due to the pandemic, we delayed settling current obligations"*, *"We have enough savings to pay our obligations in next three months"* and *"I postponed consumption in the pandemic"*. We added the additional statement to create a control variable: *"Prior to the pandemic, we delayed settling current obligations"*, to capture the financial position of the family prior to the pandemic. Namely, it is expected that families that had financial problems before the pandemic would have more financial issues in times of crisis. In addition, the study used demographic variables as control variables. Age, education, family status, number of household members, and working status were measured using different scales (Table 1).

Along with a detailed explanation of the research purpose, emphasizing the voluntariness of participating in the research, the questionnaire was distributed online, throughout social networks. In total, 869 valid and usable questionnaires were received. The collected data were edited, categorized, or coded and processed using Statistical Package for Social Scientist (SPSS v 23). Descriptive and inferential statistics were employed to evaluate research questions.

Results

Table 1 presents the distribution of the sample according to the main demographic variables. As shown in the table, the majority of women were aged between 26-40, were well educated, were living with other adult household members (four or more), and had a permanent employment contract.

Table 1: The description of the study sample

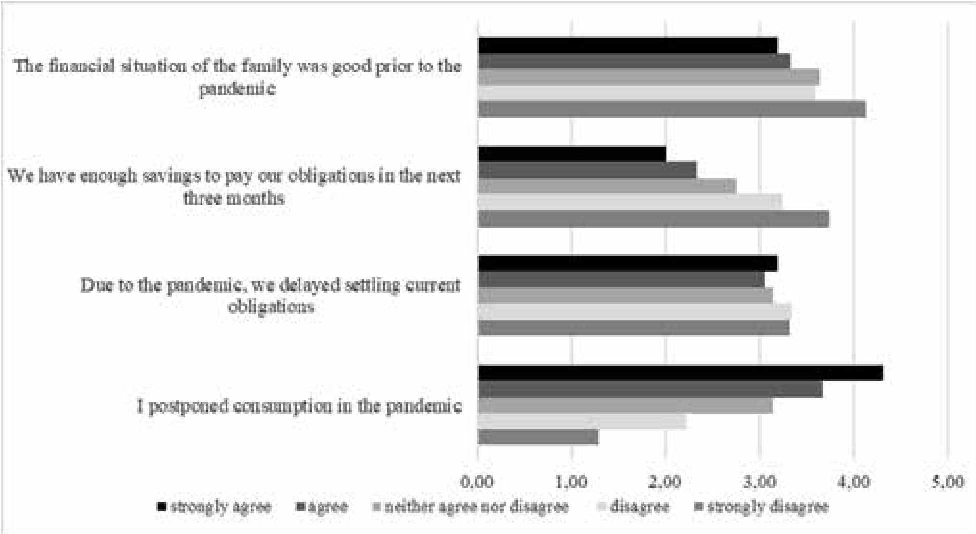
Variables	Frequency	Percentage	Mean	Median	Std. Dev	Range
Age			2.56	2.00	.741	4
18-25	28	3.2				
26-40	417	47.9				
41-50	345	39.7				
51-60	67	7.7				
61-70	12	1.4				
Education			3.49	4.00	.991	4
Elementary school	4	0.5				
Secondary education	203	23.3				
College education	130	14.9				
University education	429	49.3				
Master's degree or doctoral degree	103	11.8				
Family status			1.83	2.00	.375	1
Living with no other adult household member	147	16.9				
Living with other adult household members	722	83.0				
Number of household members			3.55	4.00	1.086	4
Living alone	30	3.4				
2 household members	121	13.9				
3 household members	233	26.8				
4 household members	308	35.4				
5 and more	177	20.3				
Working status			1.72	2.00	.968	1
Engaged in the labour market (full or part-time)	713	82.04				
Not engaged in the labour market labour market (unemployed, housewives, in retirement, etc.).	156	17.96				

Source: Authors

Figure 1 shows the distribution of answers of perceived family finances during the COVID-19 pandemic regarding the response to the statement, *"Before the pandemic, we delayed settling current obligations."* We documented a large discrepancy in household financial fragility between households that had problems with paying their obligations before the pandemic and those that did not have these problems. For instance, respondents that answered that they strongly agree that they were delayed in settling current obligations before the pandemic answered with a mean rank of 2 of a maximum of 5 on the statement *"We have enough savings to pay our obligations in next three months"*. In comparison, the respondents that reported strong disagreement on having problems with paying obligations before the pandemic reported a mean rank of 3.73. The more considerable disparity is found in answers to the statement *"I postponed consumption in the pandemic"*. The mean rank was distributed from 1.28 to 4.31 regarding the respondents' answers on delays in paying obligations before the pandemic. However, all respondents reported problems in settling current debts during the pandemic times regardless of the response to the statement *"Before the pandemic, we delayed settling current obligations"* (mean rank from 3.19 to 3.32).

In the next step, to analyse the determinants of household financial fragility in times of pandemic, we estimated four linear regression models represented in Table 2. Each of four statements used to measure household financial fragility is regressed with the same four groups of variables. The first group of variables contained socio-demographic characteristics of respondents: age, education, and family status. The number of children and household members is excluded because they were statistically insignificant in all estimated models. The second group of variables includes women's participation in paid and unpaid work during the pandemic. The third group of variables was about the financial situation in the household: endangerment of other family members' job/income and the family's delay in settling current obligations before the pandemic. The fourth group of variables relates to women's finance: endangerment of woman's job/income, her relative income to other family members, women's financial literacy, and women's financially independency. Model 1 presents results for the statement *"Financial situation of the family was good before the pandemic"*; model 2 for the statement *"Due to the pandemic, we delayed settling current obligations"*; model 3 for the statement *"We have enough savings to pay our obligations in next three months"*, and model 4 for the statement *"I postponed consumption in the pandemic"*.

Figure 1: Perception of household financial fragility during the COVID-19 pandemic regarding answers to the statement *"Before the pandemic, we delayed settling current obligations."*



Source: Authors

The results presented in Table 2 confirm that household that had a financial problem before the crisis (significant in models 1–3) and in which the job/income of family members is endangered are struggling more with the money problems in times of crisis (significant in models 2–4). Regarding women's finance, endangerment of a woman's job/income and her relative income to the other family member are significant in two estimated models (models 2 and 3). At the same time, women's financial literacy and their financial independence are significant in three estimated models (models 1-3). Additionally, women's engagement in unpaid work at home is significant in three models (2-4). Regarding control variables, only women's education is significant in all four models, and women's age in the first model.

Table 2: Linear regressions explaining family financial fragility in the COVID-19 pandemic

	Model 1 The financial situation of the family was good prior to the pandemic					Model 2 We have enough savings to pay our obligations in the next three months				
	B	St.Er.	Beta	t	Sig.	B	St.Er.	Beta	t	Sig.
Constant	3.350	.358		9.346	.000	1.776	.467		3.806	.000
Age	-.125	.047	-.092	-2.682	***.007***	-.039	.061	-.020	-.643	.521
Education	.067	.036	.066	1.839	***.066***	.221	.047	.150	4.685	**.000**
Family status	.095	.104	.032	.913	.362	.178	.136	.041	1.308	.191
Working status	.042	.108	.015	.390	.697	-.032	.141	-.008	-.227	.821
Unpaid work	.015	.024	.021	.611	.541	-.082	.031	-.081	-2.627	**.009**
Endangerment of other family members job/income	-.010	.027	-.014	-.351	.726	-.139	.035	-.144	-3.928	**.000**
Prior the pandemic, we were in delay in settling current obligations	-.240	.041	-.204	-5.874	***.000***	-.301	.053	-.177	-5.66	**.000**
Endangerment of female job/income	.021	.030	.029	.705	.481	-.079	.039	-.077	-2.042	**.041**
Relative income	.069	.073	.034	.950	.343	.512	.094	.175	5.418	**.000**
Financial literacy	.265	.072	.127	3.670	***.000***	.325	.094	.107	3.449	**.001**
Woman's financial independency	.076	.026	.110	2.910	***.004***	.233	.034	.233	6.848	**.000**
R					.321					.522
R^2					.103					0.272
Adjusted R^2					.091					.262
F change					8.332					27.167
Sig.					.000					.000
	Model 3 Due to the pandemic, we delayed settling current obligations					Model 4 I postponed consumption in the pandemic				
	B	St.Er.	Beta	t	Sig.	B	St.Er.	Beta	t	Sig.
Constant	.541	.304		1.776	.076	2.437	.447		5.458	.000
Age	.007	.040	.004	.174	.862	.004	.058	.002	.061	.951
Education	-.065	.031	-.056	-2.122	**.034**	.179	.045	.145	3.963	**.000**
Family status	.006	.089	.002	.064	.949	-.084	.130	-.023	-.642	.521
Working status	.122	.092	.037	1.327	.185	-.153	.135	-.043	-1.131	.258
Unpaid work	.074	.020	.092	3.619	***.000***	-.080	.030	-.094	-2.669	**.008**
Endangerment of other family members job/income	.067	.023	.089	2.927	***.004***	.110	.034	.136	3.243	**.001**
Prior the pandemic, we were in delay in settling current obligations	.748	.035	.558	21.596	***.000***	-.046	.051	-.032	-.899	.369
Endangerment of female job/income	.138	.025	.170	5.467	***.000***	.028	.037	.033	.765	.444
Relative income	-.146	.062	-.063	-2.366	***.018***	.090	.090	.037	.997	.319
Financial literacy	-.138	.061	-.058	-2.242	***.025***	.131	.090	.051	1.448	.148
Women's financial independence	-.072	.022	-.091	-3.235	***.001***	.037	.033	.044	1.134	.257
R					.711					.240
R^2					.505					0.058
Adjusted R^2					0.498					.045
F change					74.046					4.439
Sig.					.000					.000

Note: Relative income: 1-Woman earns more or the same income as other household members; 2 – Woman earns less than other household members

Source: Authors

According to the results, households with more educated women are coping better with finances times of crisis. This is additionally supported with results on women's financial literacy measured by three basic questions of financial knowledge. These results implicate the importance of supporting women education especially in area of finances for supporting household financial stability. These results are in line with the results of Clark et al. (2021) and Pepur et al. (2021) that confirm the importance of financial education for better financial decision making. Additionally, results on education and financial literacy are supported with the results on women's relative income and unpaid work compared to other household members. Namely, woman more engaged in unpaid work have less opportunities to participate at paid work and consequently earns less (Addati *et al*., 2018; OECD, 2021; Bulog *et al*., 2022). It is interesting to note that households with more financially independent women are coping better with finances during the crisis. Those findings motivated us to more deeply explore the characteristics of financially independent women in the household. Therefore, in the next step, we estimate additional model to inspect what is the profile of financially independent women. The results of linear regression analysis are presented in Table 3.

Table 3: Linear regression explaining a profile of financially independent women

	B	Std. Error	Beta	t	Sig.
Constant	5.007	.449		11.160	.000
Age	-.071	.070	-.036	-1.025	.306
Education	.229	.050	.155	4.578	**.000**
Family status	-.163	.155	-.037	-1.051	.293
Number of kids	.070	.083	.047	.847	.397
Number of household members	-.135	.073	-.093	-1.853	.064
Working status	-1.079	.144	-.257	-7.496	**.000**
Relative income	-.468	.098	-.160	-4.751	**.000**
Financial literacy	.097	.028	.113	3.448	**.001**
R					.433
R^2					.187
Adjusted R^2					.179
F change					23.070
Sig.					.000

Note: Working status: 1 - Engaged in the labour market (full or part-time); 2 - Not engaged in the labour market labour market (unemployed, housewives, in retirement, etc.). Relative income: 1-Woman earns more or the same income as other household members; 2 – Woman earns less than other household members

Source: Authors

According to the estimated model presented in Table 3, women who are more educated and financially literate, have paid work, and earn more or the same as other household members, consider themselves as financially independent compared to other household members. These results additionally supported previous findings that women's general education and especially financial knowledge are important for success in managing personal finances, and further support the bargaining power theory in the complexity of decision-making within households.

It is obvious that women with financial knowledge appreciate their education and participate in the labour market in order to earn their own income. In that way, with their knowledge, and income, women contribute to the reduction of household financial fragility and increase in household well-being. These results indicate the importance of the development of the social support for education and woman's inclusion in the labour market aiming at the financial support of the family and the whole of society. In that context, it worth noting that the number of children and number of other household members is not statistically significant in any model. That implies that the number of household members/children do not jeopardize the financial position of woman and the household.

Conclusion

In this study, we investigated household financial fragility during the pandemic. Household financial fragility depends on household asset, income and indebtedness. This pandemic jeopardized the household income and forced some households to increase their indebtedness. Imposed measures during the pandemic forced some women to take on additional unpaid work and consequently exposed their position in the paid market. That motivated us to investigate more deeply the role of women in household finances. Obtained results confirmed that households with financial problems prior to the pandemic were struggling with money issues more during the pandemic. Additionally, our results underlined the importance of women education and especially financial knowledge for protecting household financial stability. Women's ability to earn an income is a household protective mechanism against financial problems during the crisis.

The research results should be viewed in light of the fact that our research was concentrated exclusively on the woman's point of view. Thus, in the future, research should be expanded to also include the male population. Additionally, it would be valuable to investigate the division more deeply in roles between men and women regarding investments, indebtedness, and participation in paid and unpaid work as a part of overall financial decisions, which significantly affect household financial fragility/stability.

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