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Analyzing The Linkage Between Female Labor Force Participation And Female Working Poverty In Selected South Asian Economies

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Abstract:

The study aims to determine the relationship between female labor force participation and female working poverty in six South Asian economies (India, Bangladesh, Sri Lanka, Pakistan, Nepal and Bhutan), considering the role of urban population growth and current health expenditures. The study employs generalized least squares random effect model by utilizing latest available balanced panel data from 2015 to 2019. The findings reveal a significant inverse relationship between female labor force participation and female working poverty. It also indicates a significant positive relation between urban population growth, current health expenditures and female working poverty. It justifies the need of addressing the root factors behind female working poverty, rather than focusing solely on enhancing the current health expenditures and speeding up the urbanization for resolving the issue of female working poverty. The study highlights important areas for the future research to reduce female working poverty in South Asia.

Keywords: Female Labor Force Participation, Female Working Poverty, South Asian Economies, Balanced Panel Data, Random Effect Model

JEL Codes: J21, I32, O53, C23, C33

1. Introduction:

South Asian economies are characterized with diverse economic and social influences including legal systems, customs, and ethnicities which altogether exert multidimensional influences on the participation of females in different aspects of life. Various studies reflect that a number of factors obstruct the women from taking key roles in many areas of life and limit the effective utilization of the female potential in South Asian region. The ratio of women in the workforce reflects their level of involvement in economic activities. The workforce comprises individuals aged 15 years and above who contribute their labor to produce goods and services for a specific duration (World Bank, 2021). Poverty signifies a fundamental incapacity to participate in meaningful social interactions (United Nations, 2018). Twenty-seven percent of the South Asian working women live in poverty (Gormley & Jafree, 2020).

Addressing the issue of female working poverty is

one of the key economic concerns for South Asian countries in the contemporary world. The poverty rate in South Asia climbs to 10.5 percent (World Bank, 2023), and it is significantly higher compared to many parts of the world. Two-thirds of the poor population in Asia comprises women (UN Women | Asia and the Pacific, 2019). This shows that the region's poverty alleviation strategies have not proven fruitful in reducing the poverty rates to remarkable extents. Correspondingly, the labor force participation rate of South Asian females is 24.8 percent, which is lower by more than half of the global labor force participation rate of females standing at slightly over 50 percent (World Bank, 2021). Alleviating overall female poverty is associated with alleviating female working poverty because, by gaining access to greater economic opportunities, working women contribute to the economic wellbeing of the females in their families, children, and surroundings besides sustaining their own lives (World Bank, 2021). In this way, eradicating female working poverty is helpful in overcoming overall female poverty. Therefore, it is essential to understand the importance of effective female labor force participation and all other important factors which can potentially reduce female working poverty in the South Asian region.

2. Literature Review:

During the initial quantitative research practices, the subject of female labor force participation did not gain detailed attention of the researchers to get analyzed its segregated relationship with key economic parameters. There were certain technical limitations for the researchers including the limited availability of the data. Pampel and Tanaka (1986) studied the relation between economic development and labor force participation of females on a macroeconomic level. Sample data for 70 countries including all the regions was considered for the analysis except the Eastern Europe. However, the information of other closely related variables to the study such as income inequality, occupational segregation and divorce rate was not available for all the countries.

With the advancements in research practices, it was identified that income inequality could be reduced by promoting female labor force participation in the economy. Treas (1987) examined the impact of FLFP on income inequality in the US. According to the research, married women's participation in the workforce led to a decline in income inequality since 1940s. The income of working women reduced the gap between families with different levels of pre-tax income, leading to greater equality.

These studies served as empirical evidence for promoting women labor force participation in other parts of the world as well. Tansel (2002) conducted the economic analysis of FLFP in Turkey. The study revealed an increasing trend of FLFP in developed countries, but in Turkey and other developing countries, it depicted the declining trend. Tansel argued that women's full integration into the economy was crucial for equity and efficiency, but Turkey's low FLFP rates and regional variations would pose a challenge for the policymakers. It also lead to the evolving of new thought that labor force participation of females would serve as a key difference for the economies to remain underdeveloped. Further emphasizing this, the study conducted by Bina Agarwal (2002) determined the critical connection between the gender inequality and

the property ownership in underdeveloped rural South Asia. Despite progressive legislation, still the smaller proportion of South Asian women would own land, contributing to heightened women's poverty. Social, administrative, and ideological factors further compounded this disparity in the region.

However, the literature also witnesses views contrary to promoting the female labor force participation for overcoming the female working poverty in the region. The chapter "Poverty, Ideology, and Women Export Factory Workers in South-East Asia" by Foo and Lim (1989) challenges the prevailing views that women working in South Asian industries are affected by

ideology and poverty. Instead, the women are paid low wages by the industries as a necessary step to compete in the world market which would lower the effective cost of their products and enhance their competitiveness in the international markets. Another supporting instance of the opposite view is the empirical analysis between economic growth and labor force participation of females and by Rahman and Islam (2013), which thoroughly rejects the received literature and emphasized a U-shaped relation between FLFP and economic growth. The conducted study is a country-specific research on Bangladesh. However, it does not support the practicality of the U-shaped relation in the context of Bangladesh. Oppositely, there always have been an increasing FLFP with accelerating growth since 1990s in Bangladesh.

Contrary to above arguments of literature, Mehrotra and Parida (2017) analyzed the declining trends of labor force participation of females in India at macro and micro levels through income and substitution effect of real wage change and concluded that the improvement in the living standards is significantly related with negative income effects and correspondingly reduced Female LFPR in India. However, the expected quality of high living standard can be different in other South Asian countries which may consequently raise the urge among the females to become integral part of the labor force in the light of education, health and other factors. Besides cultural and demographic factors, the income level of the people also serves as key distinguishing factor towards labor force participation of females in world economies. Choudhry and Elhorst (2018) argued that the participation of women in labor markets was high low-income, agricultural economies. As in economies flourish and men move into highpaying jobs, women's participation declines, which causes wage discrimination in the economies. Moreover, women also face challenges in employment due to the nature of available jobs, such as home-based craft production. The study highlights the significance

of understanding these factors to effectively promote gender equality and economic growth.

The major factors affecting female labor force participation in one region can be different as compared to the other regions. Contreras and Plaza (2010) investigated the impact of cultural factors on FLFP in Chile. They found that education, age, number of children, and rural residence were key factors influencing women's employment choices. The hindrance caused by these factors contributes to the economic hurdles of the women of Chile. Correspondingly, Olowolagba (2022) studied the impact of religion and human development on FLFP in Africa. The study revealed that socio-cultural norms, patriarchal structures, and religious beliefs limit women's economic progress, resulting in low female participation rate around 23%. According to the study, poverty rate is high and gender gap exists in Sub Saharan Africa due to the limited access to economic opportunities and uneven resource distribution. Addressing these barriers is essential for achieving gender equality and reducing poverty in the region.

2.1 Research Gap:

The literature on the trends in labor force participation of females and the influence of FLFPR on important economic indicators such as economic growth, economic development, and income inequality is broadly available for different regions and countries (Klasen & Lamanna, 2009; Tsani et al., 2013). However, there is no macro-level study in the literature which addresses and analyzes the linkage between labor force participation rate of females and female working poverty for collective South Asian region (Albanesi & Prados, 2022).

2.2 Objective:

The objective of the study is to determine the empirical connection between labor force participation rate of females and female working poverty in six South Asian economies including Pakistan, India, Bangladesh, Nepal, Siri Lanka and Bhutan for the latest available balanced panel

data (IMF, 2020). The study examines this relationship by taking into account the impact of the supporting variables of urban population growth and current health expenditures on the female working poverty in the selected sample (Kapsos, Silberman, & Bourmpoula, 2014).

2.3 Significance of Research:

It is important to provide better working opportunities to females so that it can increase their earnings and potentially assist them to overcome working poverty (World Bank, 2021). It will also encourage more women to become part of the labor force and associate themselves with the working opportunities ensuring self-sustained livelihood (ILO, 2019). The study will provide empirical evidence that to what extent the labor force participation rate of females influences the female working poverty rate in the South Asian region (ADB, 2020). Resultantly, it will assist in the alignment of the female poverty reduction strategies with meaningful female labor force participation in South Asia (UN Women, 2018).

3. Data Description:

To make an estimate of the impact of the labor force participation rate of female on the female working poverty rate, the latest available balanced panel data of six countries of South Asia including India, Bangladesh, Nepal, Sri Lanka, Pakistan, and Bhutan has been utilized in this study from 2015 to 2019. The data of female working poverty rate is used from the database of the International Labour Organization (ILO, 2020). The data of female labor force participation rate, current health expenditures, urban population growth, and GDP growth is taken from the World Bank database (World Bank, 2021). The use of panel data is effective to control the unobserved heterogeneity in this study (Hsiao, 2007).

| Variable Reference | Role | Measurer | nent | Data Source |
|---|-------------------------|--|---|---|
| Female Working Poverty Rate (FWPR) | Dependent Variable | The employed females percentage living below US \$1.90 purchasing power parity (PPP). | International Labor Organization Database | ILO (2020); Verick (2018) |
| Female Labor Force Participation Rate (FLFPR) | Independent Variable | Percentage of employed women and those women who are actively seeking work | World Bank, World Development Indicators | World Bank (2021); Albanesi & Prados (2022) |
| Urban Population Growth (UPG) | Independent Variable | Yearly change in the number of individuals who live in urban regions | World Bank, World Development Indicators | World Bank (2021); Gupte & Lintelo (2015) |

Table 1: Description of Variables

| Current Health Expenditures (CHE) | Independent Variable | Each country's share of spending in the health sector relative to its total economic size | World Bank, World Development Indicators | World Bank (2021); WHO (2020) |
|--|-------------------------|--|---|---|
| Gross Domestic Product Growth (GDPG) | Control Variable | The percentage change in the gross domestic product during an year | World Bank, World Development Indicators | World Bank (2021); Tsani et al. (2013) |

Source: World Bank World Development Indicators and International Labour Organization Database

4. Theoretical Framework:

The research investigates the connection between labor force participation rate of females and female working poverty in six South Asian countries, utilizing Human Capital Theory as a foundational framework (Verick, 2018). Human Capital Theory depicts that individuals invest in education, skill development and training of humans to maximize their productivity and working potential in the labor market. The study uses urban population growth and current health expenditures as supporting variables because urban areas have higher concentration of resources (Vučković & Adams, 2022), and increased investments in healthcare leads to obtaining better human capital skills (Yang, 2019). Health status of the workers are turned out to be very significant factors in labor force participation (Kalip & Burdorf, 2023). Therefore, by facilitating healthcare expenditures of women to increase their capital productivity and income, it is possible to improve the participation of females in the labor market (Halim, O'Sullivan, & Sahay, 2023). This can lead to the decline of female working poverty in South Asia.

4.1 Econometric Framework:

The Econometric equation for the model is presented below as,

$$FWPR_{it} = \alpha_{\bullet} + \alpha_{1}FLFPR_{it} + \alpha_{2}UPG_{it} + \alpha_{3}CHE_{it} + \alpha_{4}\sum Control_{it} + \mu_{it}$$

The autonomous term α_{\bullet} indicates baseline female working poverty rate when the explanatory variables including female labor force participation rate, urban population growth and current health expenditures are all zero. The coefficient terms α_1 , α_2 , α_3 account for the percentage change in female working poverty rate for one percent change in female labor force participation rate, urban population growth and health expenditures respectively, current

considering one explanatory variable at a time and holding the other explanatory variables constant (Wooldridge, 2019). The study considers GDP growth as a control variable to isolate the potential effect of explanatory variables on the female working poverty rate in selected South Asian countries (Greene, 2018). Error term μ_{it} indicates the discrepancy between the actual rate of South Asian female working poverty and the rate used by the study as per the available data. These are

primarily the unperceived factors which can be affecting the female working poverty rate for the selected South Asian economies in addition to the explanatory variables, but are not included in the model due to the limitations (Kennedy, 2008).

4.2 Model Specification:

The study tests three econometric techniques to identify which method would produce unbiased results to investigate the relationship between FLFP and FWPR in selected South Asian economies. Three models are examined to accomplish the relationship: Pooled OLS Model, GLS Fixed Effect Model, and GLS Random Effect Model (Greene, 2018). The goal is to select the technique producing the most accurate and dependable results by systematically evaluating different approaches (Wooldridge, 2019).

To establish a baseline estimate, the study at first performs a pooled OLS regression to investigate the combined relationship between female labor force participation and female working poverty across the entire panel. After the pooled OLS estimation, the Breusch-Pagan heteroskedasticity test is performed to evaluate the model's homoskedasticity assumption. The probability value of Breusch-Pagan indicates the presence of heteroskedasticity (Breusch & Pagan, 1979). Furthermore, the probability value of the Wooldridge test reveals the presence of serial correlation, justifying the need for a more robust model to analyze the combined relationship between female labor force participation and female working poverty for the selected sample (Wooldridge, 2010). Both fixed effect and random effect models are tested, and the Hausman test is done to distinguish between them. The value of the Hausman test indicates the validity of assuming a random effect model (Hausman, 1978). According to the findings of this test, the GLS random effect model proves suitable over the fixed effect model and pooled OLS model. Based on the calculations, the study selects the random effect model because of its efficiency in considering the changes over time within the countries and the differences between them (Baltagi, 2005).

5. Empirical Findings:

The table two below presents the summary statistics of the variables. The average female working poverty rate stands at 5.46% from 2015 to 2019 (World Bank, 2021). The average value of female labor force participation is 31.18%, signifying that roughly one third of South Asian women participate in the labor force. However, this proportion ranges from 20 to 40 percent and varies across different economies of the region (ILO, 2020). The average growth rate of 5.56% indicates economic expansion in the South Asian region, but some economies experienced negative growth from 2015 to 2019 (ADB, 2021). Urban population growth is around 2.40% on average, and South Asian economies, on average, allocate 3.46% of the total GDP to the healthcare sector (WHO, 2020).

| Variable | Observations | Mean | Standard Deviation | Minimum | Maximum |
|----------|--------------|----------|-----------------------|------------|----------|
| FWPR | 30 | 5.46 | 4.240413 | 0.3 | 14.9 |
| FLFPR | 30 | 31.18374 | 7.15671 | 20.98564 | 40.30648 |
| UPG | 30 | 2.397715 | 0.8279269 | 0.6651467 | 3.469949 |
| CHE | 30 | 3.468775 | 0.8081925 | 2.457644 | 5.466156 |
| GDPG | 30 | 5.561951 | 2.280516 | -0.2204839 | 8.977279 |

| Fable 2: Sur | mmary Sta | tistics of Al | l Variables |
|--------------|-----------|---------------|-------------|
|--------------|-----------|---------------|-------------|

Source: Author's Estimation

Note: All findings are based on sample of 30 observations. FWPR= Female Working Poverty Rate, FLFPR= Female Labor Force Participation

Rate, GDPG= Growth Rate of Gross Domestic Product, UPG= Urban Population Growth, CHE= Current Health Expenditures

| Variables | FWPR | FLFPR | UPG | CHE | GDPG |
|-----------|---------|---------|---------|---------|------|
| FWPR | 1 | | | | |
| FLFPR | -0.4963 | 1 | | | |
| UPG | 0.5088 | 0.1567 | 1 | | |
| CHE | -0.0570 | 0.5800 | -0.0060 | 1 | |
| GDPG | 0.3883 | -0.0689 | -0.4338 | -0.1968 | 1 |

 Table 3: Correlation Analysis of All Variables

Source: Author's Estimation

Note: Above table presents pairwise correlation between all the studied variables. FWPR= Female Working Poverty Rate, FLFPR= Female Labor Force Participation Rate, GDPG= Growth Rate of Gross Domestic Product, UPG= Urban Population Growth, CHE= Current Health Expenditures

Table 4 below presents the diagnostic tests. P-value for breusch-pagan is 0.0215 and it is less than 0.05 chosen level of significance, it rejects

HO (constant variance) and indicates the presence of the heteroskedasticity in the data (Breusch & Pagan, 1979). P-value for Wooldridge test is 0.001, and it is lesser than 0.05 chosen level of significance, therefore it rejects Ho(no first-order autocorrelation) and shows autocorrelation (Wooldridge, 2010). The study employs robust standard errors to address the issue of and autocorrelation (White, heteroskedasticity 1980).

| Heteroskedasticity | Breusch-Pagan | Prob>chi2= 0.0215 |
|--------------------|-----------------|---------------------------------------|
| Serial Correlation | Wooldridge-Test | F-Statistics=47.794 Prob>F= 0.0010 |
| Multicollinearity | VIF | 1.43 |

 Table 4: Diagnostic Tests

Source: Author's Estimation

Note: Diagnostic tests for heteroskedasticity, autocorrelation and multicollinearity for the regression of the dependent variable female working poverty rate. The tests are performed for the entire data set.

Table 5: Regression Results for Dependent Variable FWPR

| | Random Effect GLS | Fixed Effect GLS | Pooled OLS |
|--------------------------|-------------------|------------------|------------|
| FLFPR | -0.52*** | -0.65* | -0.50*** |
| | (0.18) | (0.79) | (0.15) |
| | | | |
| UPG | 2.67*** | 0.91 | 2.87*** |
| | (0.85) | (1.47) | (0.64) |
| | | | |
| СНЕ | 2.63*** | 2.60** | 2.42*** |
| | (0.60) | (1.57) | (0.67) |
| | | | |
| GDPG | 0.17 | 0.11 | 0.33 |
| | (0.12) | (0.09) | (0.21) |
| | | | |
| Constant | 5.15 | 14.05 | 3.85 |
| | (4.80) | (26.31) | (5.83) |
| | | | |
| | | | |
| Hausman (P-Value) | 0.54 | | |
| R-Squared (Overall) | 0.73 | 0.50 | 0.74 |
| Number of Observation | 30 | 30 | 30 |

Source: Author's Estimation

Note: The study mainly focuses on the regression results of Random Effect GLS Regression model as directed by the model specification. Regression Results of Fixed Effect GLS and Pooled OLS Models are only included for the purpose of transparency of the study. *p<0.1, **p<0.05, ***p<0.01 show statistical significance at 10%, 5% and 1% level respectively. Robust standard errors are presented in parentheses. R-Squared value of 0.7309 indicates that random effect model explains 73.09% of the total variation in

female working poverty rate of the South Asian economies selected for the study.

6. Interpretation and Discussion:

The coefficient value of FLFPR is -0.519, indicating that one percent rise in female labor force participation leads to 0.52 percent decline in female working poverty rate. Halim et al. (2023) reported that closing the gender gap by enhancing the labor force participation of females can lead to a 20 percent increase in GDP per capita. This

could potentially reduce working poverty among females, supporting the inverse relationship between labor force participation rate of females and female working poverty rate as determined in the study. However, Chattopadhyay et al. (2023) conducted a study showing that poorer household women participate more actively in economic activities but receive low wages, which affects their ability to escape working poverty. The study highlights the factor of discrimination based on gender in the workplace, which is the main cause difference of the in findings. Gender discrimination in the labor and financial markets hinders economic progress (Mahata et al., 2023), justifying the difference in the results. Moreover, gender discrimination in the workplace also varies across different economies (UN Women, 2024), further validating the possibility of differences in the findings of the two studies.

The coefficient value of UPG is 2.687, indicating that, holding all other variables constant, a one percent increase in urban population growth increases the female working poverty rate by 2.69 percentage points in selected South Asian economies. Between 2000 and 2011, the urban population in South Asia grew by up to 130 million, primarily in the form of informal settlements. However, poverty did not decline (World Bank, 2015). Gupte and te Lintelo (2015) found that the participation of women from settlements in low-paying informal jobs contributes to their working poverty, justifying the increase in female working poverty in South Asia as a result of informal urban population growth. The coefficient value of CHE is 2.633, which indicates that, holding all other variables constant, a one percent increase in current health expenditures in the selected South Asian countries exacerbates female working poverty by 2.63 percent. The growth in health expenditures is very small compared to the population growth in South Asia, making these expenditures insufficient for South Asian women, affecting their work capabilities (Verkerk et al., 2001), and leading to an increase in South Asia's female working poverty. Between 2000 and 2020, 386 million people in South Asia entered the working-age population, but only 86 million new employment opportunities were created (Alam et al., 2023). The lesser creation of new employment opportunities in South Asia indicates that employment in the healthcare sector has not grown proportionately to population growth (World Bank, 2020). As a result, even the increased growth in healthcare expenditures has not been able to provide healthcare facilities according to the requirements (IMF, 2018). Therefore, due to the lack of sufficient healthcare expenditures, employed women do not recover properly from diseases, decreasing their ability to effectively contribute to the labor force, resulting in decreased wages, and pushing them into working poverty (UNDP, 2017).

7. Practical Implementation:

The findings of the study emphasize formulating policies that encourage female labor force participation in South Asia, because the increase in FLFPR decreases the working poverty of employed females in South Asian economies (ADB, 2019; World Bank, 2021). The study indicates that solely focusing on enhancing the urban population growth and current health expenditures will not lower the working poverty of females in South Asia. Rather, targeted interventions in economic growth strategies are required to address the factors such as the misallocation of current healthcare expenditures and uncontrolled urbanization (ILO, 2021). The study reveals that the increase in healthcare expenditures in South Asian economies also increases the female working poverty rate. This raises concerns regarding the sufficiency and efficiency of healthcare spending in South Asia. Policy formulators should aim to improve the effectiveness of the healthcare services so that working females in South Asia can maintain their health status and manage healthcare spending to avoid falling into working poverty (WHO, 2020). The study also points out that due to the urban population growth, the working poverty of females has increased in South Asia. It sheds light

on addressing the possible factors, including expensive urban housing, insufficient employment opportunities, wage disparities, safety concerns, etc., in urban areas of South Asia, all of which may hinder women from freely participating in labor force and escape from the working poverty (UNICEF, 2018).

8. Limitations:

The study does not take into account Afghanistan due to the unavailability of the data of labor force participation of females. It exclusively explains the impact of female labor force participation rate on female working poverty rate for the South Asian economies without considering Afghanistan (ILO, 2020). Moreover, the data of some variables utilized in the study was not available after 2019 for some of the South Asian countries, due to which the study restricts itself to 2019. The study utilizes the latest available balanced data of all the variables from 2015 to 2019. Therefore, the afterwards trends of the estimators utilized in the study for analyzing the relation between labor force participation of females and female working poverty in South Asian economies can vary from the time when the study was conducted (World Bank, 2015). The study does not take into account Maldives while analyzing the effect of labor force participation of females on female working poverty because of its considerably smaller geography and population size compared to the rest of the South Asian economies (UN, 2018). According to the findings, women can potentially escape working poverty by participating more in the workforce. However, this framework can be considered within the social context of specific economy as the cultural norms, education and the availability of childcare subsidies can significantly impact a woman's decision to enter or remain in the workforce and correspondingly effecting their ability to escape the working poverty (R. Kumari, 2018).

9. Future Research:

It highlights the need for conducting future studies to find effective channels to target interventions for female-inclusive economic development in South Asia (ILO, 2022; WB, 2023). The study unveils areas for future research, such as why increased healthcare expenditures and urban population growth in South Asia do not contribute to reducing female working poverty, but rather show an opposite relation with the female working poverty rate. This suggests that research should focus on enhancing the efficiency of healthcare spending towards working women in South Asia (WHO, 2020). Similarly, the study highlights the need to address key factors for ensuring balanced urban population growth in South Asia through future studies (UNDP, 2019).

10. Conclusions:

The study determines the relationship between labor force participation of females and female working poverty in the selected South Asian economies. It shows a significant negative relationship between the two variables. It indicates that increasing the labor force participation of females can help reduce the female working poverty in the region. However, the findings do not align with the concept of human capital theory, showing positive relationship between female working poverty, urban population growth, and current health expenditures. This implies that current health expenditures and urban population growth have not proved effective in reducing the female working poverty in South Asia. Despite certain limitations, the study highlights the urgent need for improvement in South Asia's healthcare expenditures and urban population growth. Conclusively, this research serves as a foundation for the future studies in development and labor economics, offering a macro-level perspective by collectively analyzing the six major economies of South Asian region.

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Muhammad Danish Raza led the research, including the design, identification of the research gap, analysis, interpretation, summarization of key findings, and practical implementation. Nawal contributed significantly to the methodology, data collection, and econometric framework, and is therefore recognized as an equal contributor. Ezza

Imran supported the study through the literature review and theoretical framework. All authors approved the final manuscript.

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No potential conflict of interest was reported by the authors.

Disclaimer:

The views and opinions expressed in this paper are those of the authors alone and do not necessarily reflect the views of any institution.

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