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RESEARCH ARTICLE

The Impact of Nudge on Tax Compliance: A Study of Taxpayers in Lebanon

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Abstract

This study explores the complex area of tax compliance in Lebanon, using the principles of behavioral economics and nudges as intervention tools. The central problem is to understand how nudges can positively influence the tax behavior of Lebanese taxpayers and improve tax collection. This study tends to investigate how can nudges modify taxpayers' tax behavior in Lebanon. To achieve those objectives, questionnaires were administered to a randomly selected sample of 500 Lebanese taxpayers. The results show that nudges have a significant positive impact on tax compliance. The study underscores the need for continuous evaluation and adaptation of nudge strategies to ensure their effectiveness and relevance in diverse socio-economic contexts. Future research should expand on these findings to explore the nuanced impacts of different types of nudges across various settings.

Keywords: Nudge, Tax compliance, Lebanon

1. Introduction

According to Crozet (2018), the tax system is the backbone of a country's public finances. It is essential for generating revenues that finance public spending, including social services, infrastructure, education, health, and security. An efficient tax system not only supports government spending but also redistributes wealth and reduces economic inequality (Clemens & Veuger, 2020). However, tax non-compliance is a long-standing and persistent problem affecting many countries (Abdu & Adem, 2023), including Lebanon. Tax non-compliance takes many forms, including tax evasion, tax fraud, and tax avoidance. Tax evasion involves illegal activities aimed at reducing tax liabilities by hiding income or falsifying tax documents (Kemsley et al., 2024). Tax evasion goes beyond tax avoidance by involving deliberate acts of deception and misrepresentation. Tax avoidance, although a legal use of loopholes in the tax system to reduce taxes, also poses an ethical and economic problem (Yalamati, 2024).

Tax non-compliance has serious consequences for the economy (Abdulrasaq & Babatunde, 2024). It reduces the tax revenues available to finance essential public services, which can lead to budget deficits and increased public debt. In addition, it creates unfair competition between companies that comply with their tax obligations and those that don't, which can distort the market and discourage investment (Hendel & Guebbal, 2022). Governments around the world are continually looking for ways to ensure efficient tax collection (Hoy et al., 2024). Traditional strategies such as strengthening tax audits, increasing penalties, and improving tax legislation are often used to combat tax non-compliance (Azmi & Daud, 2024). However, these methods can be costly, difficult to implement, and sometimes ineffective in the face of sophisticated forms of tax evasion and avoidance (Kanagaretnam et al., 2024).

In this context, Sunstein and Thaler (2022) highlight that behavioral economics offers innovative perspectives for enhancing tax compliance. This field of study examines how psychological, social, cognitive, and emotional factors influence individuals' economic decisions, revealing that these decisions are not always as rational and optimal as

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traditional economic models assume. Instead, they are often shaped by cognitive biases and heuristics. For instance, people may overvalue immediate rewards over future benefits or follow social norms even when it's not in their best financial interest. By understanding these behavioral tendencies, policymakers can design interventions, or “nudges,” that steer individuals towards more compliant behavior without restricting their freedom of choice.

Behavioral economics uncovers why people might procrastinate on tax payments, underreport income, or misinterpret complex tax forms. By addressing these specific issues through targeted nudges, such as simplifying tax forms, sending timely reminders, or using social norm messages, tax authorities can significantly improve compliance rates. This approach is grounded in empirical evidence and offers a cost-effective, non-coercive alternative to traditional enforcement methods. Thus, behavioral economics provides a powerful toolkit for policymakers aiming to enhance tax compliance, reduce evasion, and ensure a fairer distribution of the tax burden across society.

One of the key concepts in behavioral economics is “nudge”. A nudge is a gentle intervention that modifies the choice architecture of individuals to encourage them to make decisions that benefit themselves and society, without coercing them or changing their economic incentives in any significant way. Nudges can take different forms, such as reminders, persuasive messages, changes in the presentation of choices, or the use of social norms. For example, studies have shown that sending letters to taxpayers informing them that the majority of their peers are paying their taxes on time can increase tax compliance rates. Similarly, personalized reminders sent before tax payment deadlines can reduce late payments. By subtly altering taxpayers' decision-making environment, nudges can help improve tax compliance effectively and at a lower cost.

In Lebanon, tax non-compliance is a significant issue exacerbated by widespread corruption and a pervasive lack of trust in the tax administration. In such a context, the application of behavioral economics and the strategic use of nudges could provide a promising solution to improve compliance rates. Behavioral economics delves into the psychological, social, and cognitive factors that influence people's economic decisions, recognizing that these decisions are often not rational but are instead swayed by biases and heuristics. By understanding these factors, policymakers can design interventions that subtly guide individuals toward more compliant behavior without imposing strict penalties or heavy-handed enforcement.

Implementing behavioral interventions, such as reminders, social norm messages, and simplified tax forms, can help create an environment where tax compliance becomes a social norm. When these interventions are combined with structural reforms to address underlying issues within the tax system, the overall impact can be substantial. This dual approach can help build trust in the tax system, reduce corruption, and foster a culture of voluntary compliance. By making tax compliance easier and more appealing, Lebanon can boost public revenues, which are crucial for financing public services and supporting economic growth. Thus, behavioral economics offers a powerful and innovative toolkit for transforming tax compliance in Lebanon, ultimately contributing to a more stable and prosperous economy.

According to Abel (2014), taxpayers' distrust is significantly exacerbated by the corruption that permeates a country's political and administrative spheres. This corruption manifests itself in various forms, ranging from bribes and kickbacks to outright mismanagement and embezzlement of public funds. Such pervasive corruption undermines citizens' trust in the tax administration, creating a perception that their tax contributions are not being used effectively or fairly. As a result, taxpayers become less inclined to meet their tax obligations, often preferring to engage in tax avoidance practices to minimize their tax burden. This behavior leads to widespread tax evasion, which in turn deprives the State of essential resources needed to finance public services and infrastructure. The lack of adequate funding for these critical areas further erodes public trust in the government, creating a vicious cycle of non-compliance and underfunding. Consequently, the state finds itself struggling to provide basic services, which perpetuates the cycle of distrust and non-compliance among taxpayers. Addressing this issue requires comprehensive reforms aimed at reducing corruption, increasing transparency, and rebuilding public trust, thereby encouraging greater tax compliance and ensuring the availability of funds for essential public services and infrastructure development.

Lebanon's tax administration, like many others, faces the dual challenge of improving compliance while maintaining a positive relationship with taxpayers. Given the country's economic constraints and the necessity for effective revenue collection, the application of behavioral nudges presents a potentially cost-effective and impactful strategy. In Lebanon, corruption and tax evasion hinder the efficiency of the tax system, despite efforts to establish fiscal and financial stability. Lebanon's tax administration faces many challenges, including the complexity of tax laws, lack of transparency, and taxpayer mistrust. These problems lead to widespread tax evasion and a low rate of voluntary compliance. The challenges facing the Lebanese tax authorities are many and varied. Among them, the complexity of tax laws is a major obstacle. Taxpayers often struggle to understand their tax obligations, which can discourage them from complying fully with legal requirements. In addition, the lack of transparency in administrative processes increases taxpayers' distrust of the tax system, further encouraging tax evasion.

Thus, the Lebanese tax administration finds itself in a delicate situation where it must simultaneously combat internal corruption, restore taxpayers' confidence, and simplify tax laws to encourage voluntary compliance. The challenge is multifaceted, requiring a concerted effort to address the deep-seated issues undermining the system. Tackling internal corruption is critical to building a transparent and accountable tax administration, which is a prerequisite for gaining public trust. Restoring confidence among taxpayers involves demonstrating a commitment to ethical governance and ensuring that tax revenues are managed effectively and used for public benefit. Simplifying tax laws is also essential to reduce the complexity and confusion that often lead to unintentional non-compliance. Clear, straightforward tax regulations can make it easier for taxpayers to understand their obligations and reduce the burden of compliance. Therefore, only an integrated approach that addresses all these aspects can improve the efficiency of the tax system and significantly reduce tax evasion in Lebanon. This comprehensive strategy should include robust anti-corruption measures, transparency initiatives, public engagement campaigns to rebuild trust, and legal reforms to streamline tax processes. By adopting such a holistic approach, the Lebanese tax administration can foster a culture of voluntary compliance, enhance revenue collection, and support sustainable economic development.

This study tends to answer the following research question: "How can nudges change the tax behavior of taxpayers in Lebanon?" This question explores the impact of nudging techniques on the tax behavior of Lebanese taxpayers. Nudges, subtle behavioral interventions, are designed to influence individuals' decisions without restricting their freedom of choice. Understanding how these techniques can modify tax behavior in Lebanon helps determine their effectiveness as a public policy tool for improving tax compliance.

This study holds substantial significance as it provides critical insights for policymakers aiming to enhance tax compliance in Lebanon. By demonstrating the effectiveness of behavioral nudges, the research offers a cost-effective and efficient alternative to traditional enforcement measures, potentially increasing tax revenues without imposing additional burdens on taxpayers. The findings can directly impact economic stability by improving revenue collection, which is essential for funding public services and infrastructure. Furthermore, the study contributes to the field of behavioral economics, showcasing how psychological interventions can positively influence taxpayer behavior. By promoting a more cooperative relationship between taxpayers and the tax administration, the study fosters increased trust and voluntary compliance. Additionally, the scalable and replicable nature of nudge-based interventions allows for broader application within Lebanon and in other countries facing similar challenges, making the study's implications both far-reaching and transformative.

2. Literature review

2.1. Mainstream literature

2.1.1. Nudge theory and tax compliance: an in-depth analysis

Richard Thaler and Cass Sunstein are the pioneers of the nudge theory. They defined a nudge as any modification of choice architecture that predictably alters people's behavior without prohibiting any option or significantly changing their economic incentives. According to their definition, a nudge is an intervention tool based on behavioral economics aimed at modifying people's behavior without coercion (Thaler & Sunstein, 2008). Their theory is based on the idea that small adjustments in the decision-making environment can lead to significant improvements in people's behavior, guiding them toward beneficial choices without restricting their freedom to choose (Hertwig & Grüne-Yanoff, 2017). Understanding this definition is essential, as it lays the foundations for analyzing the impact of nudges on complex behaviors such as tax compliance.

Nudge theory, proposed by Thaler and Sunstein (2008), assumes that small changes in the decision environment can significantly influence people's behavior. For example, the use of messages based on social norms, which inform taxpayers that the majority of their peers comply with tax obligations, can encourage tax compliance. These interventions are designed to exploit individuals' cognitive biases and heuristics, encouraging them to adopt desired behaviors without resorting to coercive measures.

2.1.2. The concept of tax compliance

Tax compliance refers to taxpayers' voluntary adherence to tax obligations. It involves the correct declaration of income, the proper calculation of taxes due, and the timely payment of these taxes (Aidonojie, 2023). Alm and McClelland (2002) emphasize that tax compliance is essential to the efficient operation of tax systems, as it ensures that governments have the resources they need to finance public services and infrastructure. Non-compliance, on the other hand, can lead to budget deficits, inequitable distribution of the tax burden, and economic tensions. Defining tax compliance is crucial to understanding the importance of nudges in this context (Carvalho et al., 2023). If taxpayers fail to comply voluntarily with their tax obligations, governments have to resort to costly and often ineffective coercive measures. Nudges offer a promising alternative to encourage compliance without resorting to harsh sanctions, by fostering an environment where compliance with tax rules becomes the norm rather than the exception.

2.1.3. Relevance of nudge theory

Discussing the nudge theory is relevant because it provides a framework for understanding how subtle interventions can produce substantial results (Bhatt & Seetharaman, 2023). Drawing on principles of behavioral psychology, this theory explains why people react in predictable ways to seemingly minor changes in their decision-making environment. This helps to identify specific strategies that can be used to improve tax compliance effectively and inexpensively.

Behavioral economic theories explain how cognitive biases and heuristics affect economic decisions (Cascão et al., 2023). Individuals do not always make rational decisions based on cost-benefit analysis but are influenced by psychological and emotional factors. For example, risk aversion or status quo bias can prevent individuals from making optimal tax decisions, even when these are clearly in their financial interest. Understanding these theories is key to justifying the use of nudges in the context of tax compliance. By recognizing that individuals' economic decisions are often irrational, nudges can be designed to circumvent these biases and encourage more compliant and beneficial behavior (Alm et al., 2023). This understanding also makes it possible to design more targeted and effective interventions, taking into account the different ways in which cognitive biases influence tax behavior.

2.1.4. Practical application of nudges in tax compliance

Empirical research provides substantial evidence for the effectiveness of nudges in various contexts, highlighting their potential as non-coercive tools for improving tax compliance and reducing tax evasion. For instance, social norm-based interventions, such as informing taxpayers that most people in their community have already paid their taxes, leverage the human tendency to conform to perceived social norms. These nudges can significantly increase compliance rates by appealing to individuals' desire to fit in with their peers (Hallsworth et al., 2017; Fellner et al., 2013; Kettle et al., 2016).

Another effective nudge involves personalized reminders. Sending tailored messages that address taxpayers by name and remind them of upcoming deadlines can make tax obligations feel more immediate and personal. These reminders can be even more effective when they include specific actions that taxpayers need to take, simplifying the decision-making process and reducing procrastination (John & Blume, 2018).

Simplification is another powerful nudge that can enhance tax compliance. Tax forms and instructions are often complex and intimidating, which can lead to errors or intentional non-compliance. By simplifying these documents and providing clear, easy-to-understand instructions, tax authorities can reduce the cognitive burden on taxpayers, making it easier for them to comply (Hallsworth et al., 2014).

2.1.5. Cognitive and emotional biases in tax behavior

To design effective nudges, it is essential to understand the cognitive and emotional biases that influence tax behavior. Cognitive biases, such as the availability heuristic, can lead individuals to overestimate the likelihood of rare events, such as being audited if these events are vividly recalled. By contrast, framing effects can influence how people perceive their tax obligations depending on whether the information is presented as a gain or a loss. For example, framing a tax rebate as a bonus for early filing can encourage timely compliance more effectively than presenting it as a penalty for late filing.

Emotional factors also play a significant role in tax behavior. Feelings of fairness and trust in the tax system can influence compliance. If taxpayers believe that the tax system is fair and that their contributions are used effectively, they are more likely to comply voluntarily. Nudges that enhance perceptions of fairness, such as providing transparency about how tax revenues are spent, can therefore improve compliance (Capoferri, 2018).

2.1.6. Case studies and examples

Several case studies illustrate the effectiveness of nudges in improving tax compliance. For instance, a field experiment conducted by the UK Behavioral Insights Team (BIT) found that including a simple message on tax reminder letters, stating that most people pay their taxes on time, significantly increased payment rates (Hallsworth et al., 2017). This intervention leveraged the power of social norms to encourage taxpayers to comply by highlighting the behavior of the majority. Another study in Guatemala used personalized text messages to remind taxpayers of their obligations, resulting in higher compliance rates (Kettle et al., 2016). These personalized messages made the tax obligations feel more immediate and relevant to the recipients, thereby enhancing compliance.

In the United States, the Internal Revenue Service (IRS) has experimented with various nudge techniques to improve tax compliance. One such technique involved sending letters that emphasized the benefits of compliance and highlighted the social norms around taxpaying. These interventions were designed to make taxpayers more aware of the positive aspects of complying with tax laws and the commonality of such behavior among their peers. The results showed measurable increases in compliance and reductions in tax debt, demonstrating the effectiveness of these nudges in encouraging voluntary compliance (John et al., 2014). These examples underscore the potential of behavioral insights to create simple yet powerful interventions that can significantly enhance tax compliance across different contexts.

2.1.7. Challenges and limitations

While nudges can be highly effective, they are not a panacea for all tax compliance issues. One challenge is that nudges may not work equally well for all individuals. Factors such as cultural differences, personal values, and economic conditions can influence the effectiveness of nudges. For example, what might be a compelling social norm in one cultural context may be less impactful in another. Additionally, nudges may lose their effectiveness over time if taxpayers become desensitized to the interventions, a phenomenon noted by Hallsworth et al. (2014). Overuse or repetitive exposure to the same type of nudge can lead to diminishing returns as individuals become accustomed to the messages and start ignoring them.

Another limitation is that nudges typically work best in conjunction with other measures. While they can enhance voluntary compliance, they are unlikely to be sufficient on their own to address more severe forms of tax evasion and fraud. This is particularly true for individuals who are deeply entrenched in non-compliance behaviors or who have significant financial incentives to evade taxes. Therefore, nudges should be part of a broader strategy that includes robust enforcement mechanisms and efforts to simplify the tax system (Alm et al., 2023). Combining nudges with clear, enforceable penalties for non-compliance and making the tax process more transparent and straightforward can create a more comprehensive approach to improving tax compliance.

2.2. Hypotheses development

Previous empirical research shows the effectiveness of nudges in a variety of contexts, highlighting their potential as non-coercive tools for improving tax compliance and reducing tax evasion. By integrating these concepts and theories, we can develop innovative strategies to strengthen tax compliance, reduce tax evasion, and, ultimately, improve the efficiency of tax systems. These strategies can include social norm-based interventions, personalized reminders, and other behavioral techniques designed to exploit the cognitive and emotional biases that influence taxpayers' decisions. Previous research shows that nudges can have a significant impact on tax compliance (Paunov et al., 2019; Mackay et al., 2019; Antinyan & Asatryan, 2020; Van Roekel ae al., 2022). There is a wide gap in the literature regarding the impact of nudges on tax compliance in the context of Lebanon. From here the following hypothesis is postulated: Nudges significantly increase tax compliance among Lebanese taxpayers.

3. Design

This explanatory study uses a quantitative mono-method to explore the impact of nudges on tax compliance among Lebanese taxpayers. The choice of a quantitative mono-method approach was deliberate, aiming to capture measurable insights into the impact of nudges on tax compliance behavior within a controlled environment. By focusing on quantitative data collection and analysis, the study aimed to provide statistically significant findings that could be generalized to the broader population of Lebanese taxpayers. This approach facilitates a systematic evaluation of how different types of nudges, such as social norm messaging or personalized reminders, influence compliance rates and taxpayer attitudes toward tax obligations.

Based on a positivist philosophy, it favors empirical observation and rigorous analysis to establish causal relationships between nudge interventions and tax behavior. The study's positivist orientation underscores its commitment to objective measurement and empirical verification, ensuring robustness in establishing causal links between nudge interventions and observed changes in tax compliance behavior. By adhering to rigorous research standards, including sampling procedures, questionnaire design, and statistical analysis techniques, the study seeks to contribute valuable insights into effective policy interventions aimed at enhancing tax compliance in Lebanon and similar contexts.

Structured questionnaires were administered to 500 taxpayers in Lebanon The questionnaires included closed and open-ended questions measuring tax attitudes, perceptions, and behaviors. The structured questionnaires included both closed-ended and open-ended questions designed to measure various aspects of tax attitudes, perceptions, and behaviors among the participants. Closed-ended questions provided quantitative data on specific behaviors such as timely filing of tax returns and perceptions of tax fairness, while open-ended questions allowed participants to express nuanced opinions and experiences related to tax compliance and the effectiveness of nudges.

4. Findings

Table 1 shows the geographical distribution of survey respondents across five regions in Lebanon which are Bekaa, Beirut, Mount Lebanon, North, and South. The Bekaa region had the highest number of responses representing 44.0% of the total respondents. Beirut, the capital city, accounted for 14.1% of the total. Mount Lebanon had a moderate level of participation, with responses equivalent to 20.1% of the total respondents. The North region had the lowest number of responses accounting for 8.2% of the total. The South region provided responses, representing 13.6% of the total.

Table 2 shows several statistical tests. In the Mann-Whitney U, the U value is 2823.000. This is the result of the Mann-Whitney U test, which

Table 1. Geographical region of respondents.

Region	Percentage of Total Respondents (%)
Bekaa	44.0
Beirut	14.1
Mount Lebanon	20.1
North	8.2
South	13.6
Total	100

Table 2. Statistical tests.

Test Statistics[a]	Nudges and Tax Compliance
Mann–Whitney U	2823.000
Wilcoxon W	9726.000
Z	−3.177
Asymp. Sig. (2-tailed)	0.001

[a] Source: Done by the Authors.

compares differences between two independent groups when the dependent variable is either ordinal or continuous, but not normally distributed. In the Wilcoxon W test, the W value is 9726.000. In the context of the Mann-Whitney U test, the Wilcoxon W is another way of reporting the sum of ranks for the groups compared. The Z value is −3.177. This is the standardized test statistic, which shows how many standard deviations the observed difference is from the null hypothesis of no difference. A negative value indicates that the ranks of the first group are generally lower than the ranks of the second group. The p-value is 0.001. This is the significance level of the test, indicating the probability that the observed difference is due to chance. A p-value of 0.001 means there is a 0.1% probability that the results are due to random variation, which is very low.

Based on the results, the p-value of 0.001 is well below the typical alpha level of 0.05, indicating that the difference between the groups is statistically significant. This means there is strong evidence to suggest that behavioral nudges by the tax administration have a significant impact on taxpayers' compliance, as measured on a scale of 1–10. The Z value of −3.177 further supports this, showing that the difference between groups is not only statistically significant but also meaningful in terms of effect size. In summary, the test results suggest that behavioral nudges used by the tax administration can significantly encourage taxpayers to comply with their tax obligations, as evidenced by the statistically significant Mann-Whitney U test results.

Thus, the statistical evidence provided by the Mann-Whitney U test, the Z value, and the p-value strongly support the hypothesis. Thus, based on these test statistics, it can be concluded that nudges significantly increase tax compliance among Lebanese taxpayers.

5. Conclusion

This study aimed to explore the impact of nudges on tax compliance among Lebanese taxpayers, employing a quantitative mono-method approach grounded in positivist philosophy. Through the administration of structured questionnaires to a representative sample of Lebanese taxpayers, this research provided empirical insights into the effectiveness of nudge theory in promoting tax compliance.

The findings of the study indicate that nudges, particularly those based on social norms and personalized reminders, have a significant positive impact on tax compliance. The statistical analysis, specifically the Mann-Whitney U test, revealed a p-value of 0.001, underscoring the statistical significance of the observed effects. These results confirm that nudges can effectively encourage taxpayers to adhere to their tax obligations without the need for coercive measures.

The study's findings support the hypothesis that nudges significantly increase tax compliance among Lebanese taxpayers. By leveraging cognitive biases and heuristics, nudges create a decision-making environment that promotes voluntary compliance. This research contributes to the growing body of evidence supporting the use of behavioral economics in public policy and tax administration.

6. Recommendations

Tax authorities should consider incorporating messages that highlight the high compliance rates among peers in tax communications. For example, reminder letters and emails could include statements such as, “Most people in your community have already paid their taxes.” Further, personalized messages addressing taxpayers by name and providing specific action steps can enhance the immediacy and relevance of tax obligations. Tax authorities should utilize data analytics to send tailored reminders before key deadlines. In addition, simplifying tax forms and instructions can reduce the cognitive burden on taxpayers, making compliance easier. Clear, concise, and user-friendly forms should be a priority for tax administrations.

Enhancing transparency about how tax revenues are used can improve perceptions of fairness and trust in the tax system. Publicizing the benefits and projects funded by tax revenues can encourage voluntary compliance. Also, continuous assessment and adaptation of nudge strategies are essential. Tax authorities should regularly evaluate the effectiveness of different nudges and adjust their approaches based on empirical evidence and taxpayer feedback.

7. Implications

The implications of this study are significant for policymakers and tax authorities. By demonstrating the effectiveness of nudges in enhancing tax compliance, this research provides a compelling case for integrating behavioral economics into tax administration practices. The non-coercive nature of nudges makes them an attractive complement to traditional enforcement measures, potentially reducing the need for costly audits and penalties.

Moreover, the findings suggest that nudges can play a critical role in addressing tax non-compliance in other contexts beyond Lebanon. Policymakers in various countries can draw on the insights from this study to design and implement nudge-based interventions tailored to their specific socio-economic environments.

The broader application of nudge theory in public policy can lead to more efficient and effective governance. By understanding and leveraging the psychological factors that influence behavior, governments can design policies that not only encourage compliance but also foster a more cooperative and engaged citizenry.

In conclusion, this study underscores the potential of nudges as a powerful tool for improving tax compliance. The evidence-based recommendations provided can guide tax authorities in implementing effective nudge strategies, ultimately contributing to more efficient and equitable tax systems. Future research should continue to explore the nuanced impacts of different types of nudges in diverse contexts, further enriching our understanding of how to optimize behavioral interventions in public policy.

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Ethics statement

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