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Industrial Policy and Firm Performance: A Perspective Based on Intangible Resources

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Abstract

Based on the Resource-Based View (RBV) and Public Choice Theory, this study examines the impact of an industrial policy instrument—the identification of "Time-Honored Brand" (THB) in China—on the performance of businesses. Leveraging the unique context of the Ministry of Commerce's 2006 re-identification of THBs, this study ingeniously constructs a control group for industrial policy and demonstrates the policy's effect through data from 974 THB firms. The findings reveal that the identification as a "THB" has a positive impact on the performance of large firms, while negative impact on small enterprises. The study reveals the different effects of the intangible resource given policy among different subjects and confirms the presence of public choice issues in policy implementation.

Keywords

China Time-Honored Brand, industrial policy, firm performance

1. Introduction

Industrial policy, as a significant lever for government intervention in the market economy, has been extensively employed in the economic development of China. However, the academic discourse on the necessity of industrial policy has been ongoing (Lin, 2011; Zhang, 2020). Theories in favor of industrial policy posit its role in addressing "market failures" and contributing to economic development theories; whereas arguments against industrial policy often focus on "government failure" and the distortion of incentives. In light of these debates, numerous scholars have suggested shifting the focus from the question of "whether industrial policy is effective" to "when is industrial policy effective" or "what kind of industrial policy is effective" (Tian, 2020).

To delve deeper into the impact of industrial policy, some researchers have attempted to categorize it, examining the differential effects of various types of industrial policies. Many scholars have empirically

discussed the influence of specific industrial policy instruments on businesses, such as financial subsidies, tax incentives, and low-interest loans (Luo, Huang, Tang, & Li, 2021). These policy instruments are part of fiscal and financial measures, and the implementation of industrial policy in China encompasses a variety of types, which warrants further in-depth study. Concurrently, some scholars have noted that due to the existence of public choice issues, the execution system of industrial policy is also a significant factor influencing the effectiveness of the policy (Mengiste, 2020), yet there is currently a scarcity of sufficient empirical evidence.

Additionally, the issue of endogeneity significantly influences the conclusions regarding the effectiveness of industrial policy in empirical studies (Stuart, Hoang, & Hybels, 1999). Given the selective nature of industrial policies, the formulation of such policies may be endogenous, meaning that enterprises receiving support from industrial policies might inherently be those with better development momentum, leading to an overestimation of the policy's effect. Conversely, if policies are protecting enterprises that were originally on a worse developmental path, this could result in an underestimation of the policy's impact. Therefore, to make accurate causal inferences about the effects of industrial policy, it is necessary to find a "counterfactual" control group for enterprises that have been supported or protected by industrial policies.

The identification of "Time-Honored Brand" (THB) is a protective industrial policy by the government targeted at specific enterprises (brands). Firms that acquire the identification are included in the registry of THBs and are permitted to use a standardized "THB" logo for their products or services (Mao, Zhang, Xu, & Xia, 2023). Since 1990, the national commercial authority has successively identified more than 1600 businesses as Time-Honored Brands. In 2006, the Ministry of Commerce reinitiated the identification process, requiring firms that had already obtained the Time-Honored Brand identification to reapply, and also allowing new firms to apply. Ultimately, 1128 enterprises were recognized as THBs. The special situation of the re-identification of THB by the commercial authorities provides a rare research opportunity for inferring the effects of industrial policy. First, the criteria for the THB identification mainly consider the historical and cultural value of the enterprise, thus minimizing the motives of "picking winners" or "protecting losers"; secondly, firms that acquired the THB identification for the first time after 2006 and those that had already been the THBs before exhibit consistency in meeting the THB criteria. However, due to contingent factors, some of these firms did not receive the THB identification since the 1990s, forming a quasi "counterfactual" control group for those identified in the 1990s. This paper attempts to utilize the special circumstances of the re-identification of THB policy, treating firms that acquired the THB identification for the first time as the control group, and firms that had been recognized by national commercial authorities before 2006 and were successfully re-identified as the experimental group, to explore whether the THB policy can promote the firm performance.

The findings of this study reveal that acquiring the "THB" identification has a positive impact on the performance of large firms, whereas negative impact on small enterprises. As a distinctive industrial

policy instrument, being recognized as a "THB" can confer two types of resource effects on enterprises: the "intangible resource" effect and the "tangible resource" effect. Due to the presence of public choice issues, small firms that are supported by industrial policies are at a disadvantage when it comes to securing "tangible resources." In terms of acquiring "intangible resources," small enterprises receive some benefits ("universally benefited"), but they ultimately do not see an enhancement in performance rather experience negative outcomes.

This research may contribute in three key areas: First, the study discusses the implementation effects of industrial policies at the enterprise level within traditional industries, exploring the impact of a unique industrial policy instrument, the "THB" identification, on firm performance, and verifying the "tangible resource" and "intangible resource" effects of industrial policies. Second, by incorporating public choice theory into the analytical framework of industrial policy effectiveness, the paper provides empirical evidence confirming the existence of public choice phenomena in the implementation of industrial policies in China, and proposes that the state of policy execution is one of the significant factors affecting the effectiveness of industrial policies. Third, using the special situation of the "THB" re-identification, the paper innovatively constructs experimental and control groups for industrial policy, offering a new approach to mitigating endogeneity issues in related research.

2. Theoretical Foundation and Research Hypotheses

Industrial policy represents the sum of policies with specific industrial orientation formulated by the government to achieve certain economic and social objectives. The effectiveness of industrial policy hinges on several factors: first, whether the foundation for the policy instruments to function is in place; second, whether the efficacy of the policy instruments themselves is sufficient; third, whether there are forces that counteract the intended effects; and fourth, whether the formulation and implementation processes of the industrial policy are appropriate. Current research on industrial policy tends to focus on high-tech industries, with discussions on policy instruments primarily centered on tax incentives and financial subsidies (Aghion et al., 2015). Some scholars have examined the impact of low-interest loans, government subsidies, and tax incentives on enterprise-level outcome variables, while more studies define industrial policy through policy documents such as the government's five-year planning outlines. Discussions on the effectiveness of industrial policy mainly revolve around the influence of industrial policy on corporate behavior and performance, where corporate behavior includes investment behavior, innovation behavior, and economic performance (Luo et al., 2021).

Reviewing the aforementioned literature, we identify several potential shortcomings: (1) Previous research on industrial policy has predominantly discussed the effects of supportive industrial policies, with a focus on technology-listed companies or industrial enterprises, and has paid insufficient attention to the implementation effects of protective industrial policies in traditional industries; (2) The current research on the definition of industrial policy is insufficient in addressing potential endogeneity issues, where subsidy data obtained from public databases are often explicit and cannot overcome the potential

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influence of implicit subsidies; the issue with using policy documents as proxies for industrial policy is that policy documents merely reflect the government's intention to promote the development of certain industries, without adequate consideration of the actual implementation of industrial policy.

The Resource-Based View (RBV) and Public Choice Theory provide theoretical perspectives for understanding the transmission mechanism of industrial policy from the government to enterprises, based on which this paper proposes the "Policy Formulation-Policy Implementation-Enterprise Resources-Policy Outcomes" theoretical analytical framework. The RBV posits that enterprises are "bundles of resources," and those that consistently possess unique resources are more likely to secure enduring excess profits and competitive advantages (Wernerfelt, 1984). Viewing the impact of industrial policy on enterprises from the perspective of RBV, regardless of the type of industrial policy instrument, the ultimate outcome is the provision of strategic resources to enterprises. We argue that acquiring the "THB" identification brings at least two types of strategic resources to enterprises: (1) tangible resources, such as tax incentives, subsidies, and rewards (implemented by local governments); (2) intangible resources, such as brand endorsement and signaling effects. Public Choice Theory focuses on the economic behavior of economic agents in the political realm (Mengiste, 2020), suggesting that decision-makers and executors within the government pursue their political interests just as economic agents pursue their economic interests. Specifically, local governments have significant influence and control over local economic development, and under the pressure of a promotion tournament, local governments are motivated to selectively allocate scarce resources when implementing central industrial policies. Large enterprises play a more crucial role in local economic development and social stability, receiving particular attention from local governments and having a clear advantage in obtaining policy implementation from local authorities; small enterprises, due to their limited economic influence, even if included in the industrial policy support directory, receive relatively limited support in terms of resource allocation. Based on this, this paper proposes the following hypothesis from the perspective of tax incentives:

H1: Acquisition of the "Time-Honored Brand" identification contributes to reducing the tax burden for large firms, with no significant difference in the tax burden for small enterprises.

In addition to tangible resources, intangible assets such as brand or reputation are also vital strategic resources for enterprises, signaling product quality to the external environment upon which the organization depends for survival. THBs have long symbolized reliability, capability, integrity, and innovation, and brand equity is the most important asset of time-honored enterprises. The "THB" identification is an industrial policy at the national level to support time-honored enterprises, and enterprises that acquire the identification are included in the THB directory, allowing them to use a standardized "THB" logo in their products or services, which has a prominent brand endorsement effect. Numerous studies have explored the signaling role of government or partner endorsements, with endorsed enterprises more easily obtaining external resources, thereby influencing corporate behavior and performance (Wu, 2017). The "THB" identification is a national-level brand endorsement, and this

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industrial policy instrument directly provides enterprises with intangible resources without occupying scarce local government resources, and there is no difference between large and small enterprises in obtaining intangible resources. Since the brand endorsement effect is difficult to measure directly, this paper attempts to indirectly verify it through the franchising behavior of these firms. Before the widespread adoption of the internet, franchising was an important form for consumer-facing enterprises to leverage their advantages to achieve scale expansion, with brand strength being one of the key advantages of franchising. In the research context of this paper, enterprises that have received the "THB" identification, under the influence of brand endorsement and signaling mechanisms, have enhanced brand strength and have a stronger motivation to expand through franchising. There is no difference between large and small enterprises in obtaining intangible resources; therefore, this industrial policy instrument has the same promotional effect on both large and small enterprises. Based on this, the paper proposes the following hypotheses:

H2a: Compared to enterprises that have not received encouragement from industrial policies, enterprises recognized as "Time-Honored Brands" are more likely to adopt a franchise business model.

H2b: The impact of obtaining the "Time-Honored Brand" identification on the adoption of franchise operations is invariant for both large and small enterprises.

Assessing the implementation effects of industrial policy ultimately requires attention to whether the policy can promote the improvement of enterprise performance. Previous studies have overly focused on the changes in enterprise output due to industrial policy, neglecting the match between internal output and external demand. We reflect firm performance through the profit margin of enterprises, as profit margin incorporates the production capacity of enterprises and market demand into a unified indicator system, more comprehensively reflecting the survival capability of firms (Krusinskas, Norvaisiene, Lakstutiene, & Vaitkevicius, 2015). From the perspective of the resource effect of industrial policy, industrial policy helps enterprises to occupy tangible and intangible resources with scarcity, which is conducive to obtaining excess profits. Considering the public choice issues in the execution process of industrial policy, the same industrial policy may have different effects on different firms, such as large firms obtaining significant tangible resources, while the inflow of tangible resources for small enterprises is relatively limited; moreover, the core capability theory of enterprises believes that the ability to utilize resources is more important than owning resources themselves, and improper use of resources can even lead enterprises into the trap of the "resource curse"(Li, Fan, & Li, 2024). Based on this, the following hypotheses are proposed in this paper:

H3: The acquisition of the "Time-Honored Brand" identification has a positive impact on the performance of large firms, while it has a negative impact on the performance of small enterprises.

3. Empirical Research Design

3.1 Institutional Background of the "Time-Honored Brand" Identification

The "Time-Honored Brand" refers to enterprises recognized by the Ministry of Commerce of China since the 1980s. At the beginning of the founding of the People's Republic of China, there were approximately 16,000 time-honored brands nationwide. Since the 1990s, about more than 1,600 enterprises have been appraised as time-honored brands. In 2006, the Ministry of Commerce decided to re-identify all "Time-Honored Brand" enterprises (existing "Time-Honored Brand" enterprises also need to apply) and accepted new time-honored enterprises to participate in the selection, ultimately identifying 1,128 "THB" firms. The criteria for the "THB" identification require that the brand has a history of more than 50 years, possesses historical and cultural value, enjoys a good reputation, and maintains sound operational conditions. The identification is awarded by a panel of experts based on a unified evaluation of the application materials. The standards for the recognition of THB firms are not oriented towards economic value but focus on the cultural and historical value. Enterprises identified as "THBs" are included in the directory of THBs and are permitted to use a standardized "THB" logo in their products or services, while also receiving supportive policies from local governments.

This paper posits that the special circumstances of the re-identification of "THBs" by the Ministry of Commerce have created an excellent research opportunity for studying the effects of industrial policy: (1) Enterprises that are included in the Ministry of Commerce's "THB" list are brought under the purview of industrial policy support according to the same criteria, suggesting that these enterprises possess a high degree of homogeneity, with the effects of "picking winners" or "protecting losers" being relatively weak; (2) Enterprises that received the "THB" identification for the first time after 2006 and those that were re-identified exhibit uniformity in meeting the "THB" criteria. However, due to contingent factors, this group of firms did not receive the "THB" identification in the 1990s, serving as a quasi-"counterfactual" control group for the "THBs" of the 1990s; (3) The identification of "THB" at the enterprise level is clearly defined, resolving the ambiguity or the issue of an overly extended causal chain that many studies face when constructing industrial policy variables at the enterprise level.
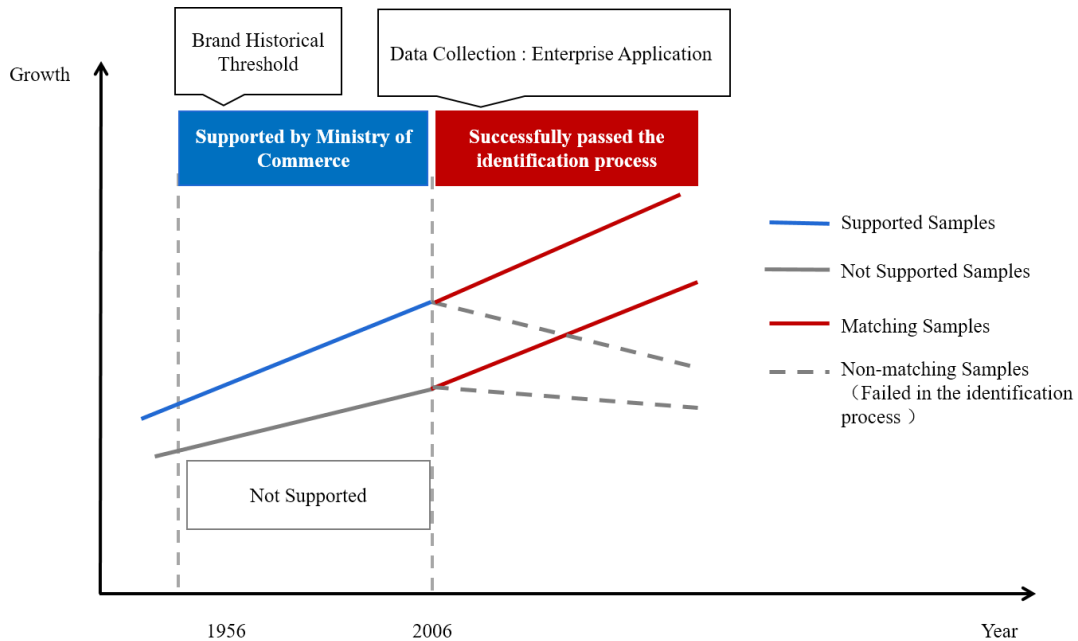
Figure 1. The Context of the "Time-Honored Brand" Re-identification

3.2 Sample Source and Data Selection

This study focuses on the 1,128 "THBs" identified by the Ministry of Commerce, manually collating the materials submitted by these enterprises during the 2006 application. The aforementioned materials primarily encompassed corporate profiles, operational conditions for the three years preceding the application, and substantiating documents for cultural heritage, among others. In aggregate, this paper obtained a sample of 974 enterprises. Marketization data were sourced from the "China Marketization Index: The Relative Progress of Marketization in Various Regions 2006 Report" (Fan, Ma, & Wang, 2019).

3.3 Variable Definitions

Performance. Enterprise performance is measured using the profit margin, which is calculated as the ratio of the total profit of the enterprise to its operating income for the year.

Tax Burden. Reflecting the resource effect of industrial policy on enterprises, this paper measures the level of tax burden using the comprehensive tax burden rate of the enterprise. It is calculated as the ratio of the total actual tax payments made by the enterprise each year to its operating income for that year.

Chain Operation Behavior Chain. This paper verifies the brand effect of the enterprise through its chain operation behavior. We Construct a dummy variable, where enterprises with chain expansion behavior are coded as 1.

Industrial Policy Policy. The construction of the policy variable is particularly crucial for research on industrial policy issues. By leveraging the special situation of the re-identification of "THB" policy, this paper constructs the research and control groups for industrial policy. Firms that were identified as "THBs" before 2006 are considered as firms encouraged by industrial policy, with the Policy variable taking the

value of 1; enterprises that were first recognized as "THBs" after 2006 are considered as the control group, with the Policy variable taking the value of 0. Both groups of enterprises meet the "THB" recognition standards, which give secondary importance to operating conditions, mitigating the endogeneity issues in industrial policy issues, namely the "picking winners" or "protecting losers" effects (Stiglitz, 2015); the control group enterprises meet the "THB" recognition standards but had not yet been supported by this industrial policy at the time of application, making the observation of industrial policy at the enterprise level clear and explicit.

Control Variables. This paper controls for enterprise size, age, regional marketization level, industry, and regional factors, following existing research. Enterprise size (size) is measured using the natural logarithm of the number of employees. The marketization level (market) is determined using the Fan Gang Index data for various provinces in 2005. The enterprise brand age (age) is calculated based on the verifiable year of the brand's establishment. Industry (industry) is set with dummy variables according to the "National Economic Industry Classification" (GB/T4754-2017). Region (region) is divided into eastern, central, and western regions, with dummy variables set accordingly.

4. Empirical Results and Analysis

4.1 The Resource Effect of Industrial Policy

As shown in Table 1, to verify the "tangible resource" effect of industrial policy, Model M1 uses the OLS (Ordinary Least Squares) model to test the impact of the "THB" policy on tax burden. The analysis based on the full sample shows that the coefficient of Policy is not significant, indicating that the impact of obtaining the "THB" policy may vary across different subsamples. The analysis based on the subsamples of large and small firms shows that for the large enterprise group, the coefficient of Policy is -0.019 and is significant at the 5% level, indicating that acquiring the "THB" identification indeed reduced the tax burden of large enterprises. In the analysis of the small enterprise group, the coefficient of Policy is not significant, suggesting that the industrial policy has not affected the tax burden of small enterprises, thus supporting Hypothesis 1. The test of the coefficients between the large and small enterprise groups shows that the group difference experience p-value for the Policy coefficient is 0.002, significant at the 1% level, indicating that the "tangible resource" effect of the industrial policy varies between large and small enterprises.

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Table 1. Impact of THB Identification on Enterprise Tax Burden

	Tax Burden (M1)		
	Full sample	Large group	Small group
Policy	-0.007	-0.019**	0.003
	(-1.26)	(-2.03)	(0.48)
Market	-0.011***	-0.018***	-0.006**
	(-4.49)	(-4.23)	(-2.17)
Size	0.011***	0.015***	0.008*
	(5.41)	(2.77)	(1.95)
Age	0.005*	0.005	0.003
	(1.89)	(1.43)	(0.85)
Region	YES	YES	YES
Industry	YES	YES	YES
Constant	0.117***	0.150***	0.086***
	(5.67)	(3.27)	(3.28)
Observations	974	458	516
Adjusted R-squared	0.100	0.115	0.033
Intergroup Test p-value	0.002***		

Note. The figures in parentheses represent t-statistics, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; the "Intergroup Test p-value" is utilized to examine the variability in the Policy coefficients across groups, derived from 500 bootstrapped resamples. The same applies to subsequent analyses.

As shown in Table 2, to verify the "intangible resource" effect of brand endorsement, Model M2 employs a Tobit model to examine the impact of the "THB" policy on enterprise chain operation behavior. The analysis results indicate that the Policy coefficients for the full sample, large enterprise group, and small enterprise group are 0.618, 0.747, and 0.515, respectively, all of which are significant at the 1% level, demonstrating a positive influence of the "THB" policy on enterprise chain operation behavior, thus validating Hypotheses 2a and 2b. The intergroup test p-value for Policy is 0.042, significant at the 5% level, suggesting that this effect is more pronounced among large enterprises.

Table 2. Impact of "THB" Policy on Enterprise Chain Operation Behavior

	Chain Operation Behavior (M2)		
	Full sample	Large group	Small group
Policy	0.618***	0.747***	0.515***
	(4.44)	(3.45)	(2.73)
Market	0.016	-0.006	-0.005
	(0.23)	(-0.05)	(-0.05)
Size	-0.0720	0.040	-0.005
	(-1.28)	(0.31)	(-0.04)
Age	0.061	0.044	0.098
	(0.90)	(0.48)	(0.90)
Region	YES	YES	YES
Industry	YES	YES	YES
Constant	-0.355	-1.222	-0.295
	(-0.63)	(-1.10)	(-0.32)
Observations	974	454	516
Log likelihood	-632.150	-270.945	-344.794
Pseudo R^2	0.0529	0.1088	0.0339
Intergroup Test p-value		0.042**	

4.2 The Impact of "Time-Honored Brand" policy on Firm Performance

As illustrated in Table 3, Model M3 utilizes an OLS model to assess the influence of industrial policy on performance. The analysis of the full sample indicates that the Policy coefficient is -0.003, yet it is not statistically significant. This suggests that it is not straightforward to assume that industrial policy has a positive or negative impact on enterprise performance, as the effects of industrial policy are multifaceted and vary among different subjects.

We conducted subgroup tests for large and small enterprise samples. The results show that the "THB" policy has a positive impact on the profit margins of large enterprises, with a coefficient of 0.018, significant at the 5% level. Conversely, the analysis of the small enterprise subgroup indicates that industrial policy has a negative impact on the profit margins of small enterprises, with a coefficient of -0.019, significant at the 5% level, supporting Hypothesis 3. The intergroup empirical p-value for Policy is significant at the 1% level, confirming that the impact of industrial policy on enterprise performance exhibits opposite effects between large and small enterprises.

Table 3. Impact of "THB" Policy on Firm Performance

	Performance (M3)		
	Full sample	Large group	Small group
Policy	-0.003	0.018**	-0.019**
	(-0.51)	(2.18)	(-2.41)
Tax	0.240***	0.217***	0.298***
	(6.92)	(5.29)	(4.68)
ZY	0.008	0	0.012
	(1.10)	(-0.04)	(1.34)
JM	-0.009	-0.003	-0.014
	(-1.11)	(-0.21)	(-1.33)
Market	0	0.003	-0.002
	(0.12)	(0.66)	(-0.39)
Size	-0.005**	0.002	-0.019***
	(-2.39)	(0.51)	(-3.40)
Age	0.004	0.001	0.008*
	(1.62)	(0.33)	(1.80)
Region	YES	YES	YES
Industry	YES	YES	YES
Constant	0.084***	0.0180	0.158***
	(3.69)	(0.45)	(4.13)
Observations	974	458	516
Adjusted R-squared	0.062	0.075	0.071
Intergroup Test p-value		0.000***	

5. Conclusion and Discussion

This study, by manually organizing the application materials of the THB firms from 2006 and leveraging the unique circumstance of the re-identification of "THBs", has examined the impact of industrial policy on firm performance and its mechanisms. The study found that the identification of "THB" has a positive impact on the performance of large firms but a negative impact on small enterprises. This indicates that discussing the effectiveness of industrial policy in general terms is meaningless, as the execution and implementation targets of the same industrial policy may yield vastly different outcomes due to differences in policy enforcement and the targets themselves.

The findings of this paper may offer the following insights: First, each type of industrial policy has its objectives, which may not necessarily align with the goal of profit maximization. Local governments should maintain a consistent approach and uphold the implementation environment of industrial policies

during their promotion. Second, brand endorsement, as a unique industrial policy instrument, can enhance the brand value of enterprises but may not always lead to improved firm performance. For enterprises with weaker core capabilities, it could have adverse effects. Industrial policy instruments should be tailored according to the differences of the targets, emphasizing both resource support and the enhancement of core capabilities.

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