Beykoz Akademi Dergisi, 2026; 14(1), 207-235 ARAŞTIRMA MAKALESİ
Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

EVALUATING INCENTIVE STRUCTURES FOR EDUCATORS IN RURAL SCHOOLS: A MULTI-ATTRIBUTE UTILITY THEORY (MAUT) APPROACH

Şenay ÇAYLAN[1]

Abstract

Retaining qualified educators in rural Türkiye remains a persistent policy challenge shaped by socio-economic constraints and limited professional support. This study applies a Multi-Attribute Utility Theory (MAUT) framework to prioritize four incentive alternatives Monetary Rewards, Housing Allowances, Professional Development Opportunities, and Recognition Programs against five decision criteria: implementation cost, retention effectiveness, educator satisfaction, scalability, and long-term impact. Expert judgments from practitioners were used to derive criterion weights and compute utilities for each alternative. Results indicate that Professional Development Opportunities offer the strongest overall performance, combining high educator satisfaction with superior retention effectiveness and durable benefits; Housing Allowances ranks second by alleviating immediate financial burdens in underserved locations. Monetary Rewards and Recognition Programs trail these options on long-term impact and scalability. Policy implications point to integrated packages that institutionalize continuous professional development (e.g., mentoring, credential pathways, remote training) while pairing it with location-sensitive housing support. The MAUT approach provides a transparent, replicable template for tailoring incentive portfolios to local conditions. Future research should incorporate student outcomes and community engagement as additional criteria and assess generalizability across regions.

Keywords: Human Resource Management, Rural Education, Professional Development, Multi-Attribute Utility Theory (MAUT),Türkiye Education Challenges
JEL Classification: M12, I25, J45,J24,C44,I28

KIRSAL OKULLARDAKİ EĞİTİMCİLER İÇİN TEŞVİK YAPILARININ DEĞERLENDİRİLMESİ: ÇOK ÖZELLİKLİ FAYDA TEORİSİ (MAUT) YAKLAŞIMI

Öz

Kırsal Türkiye'de nitelikli öğretmenleri elde tutmak, sosyo-ekonomik kısıtlar ve sınırlı mesleki destek nedeniyle süregelen bir politika sorunudur. Bu çalışma, dört teşvik alternatifini Maddi Ödüller, Konut Yardımları, Mesleki Gelişim Fırsatları ve Takdir Programları beş karar ölçütüne göre (uygulama maliyeti, elde tutma etkinliği, öğretmen memnuniyeti, ölçeklenebilirlik ve uzun vadeli etki) önceliklendirmek için Çok Özellikli Fayda Teorisi (MAUT) çerçevesini uygular. Uygulayıcılardan elde edilen uzman yargılarıyla ölçüt ağırlıkları türetilmiş ve her alternatif için fayda değerleri hesaplanmıştır. Bulgular, Mesleki Gelişim Fırsatlarının yüksek öğretmen memnuniyetini üstün elde tutma etkisi ve kalıcı faydalarla birleştirerek en güçlü genel performansı sunduğunu; Konut Yardımlarının ise hizmet açısından dezavantajlı bölgelerdeki anlık finansal yükleri hafifleterek ikinci sırada yer aldığını göstermektedir. Maddi Ödüller ve Takdir Programları, uzun vadeli etki ve ölçeklenebilirlik boyutlarında geride kalmaktadır. Politika açısından, mentorluk, belge/sertifikasyon yolları ve uzaktan eğitim gibi bileşenleri kurumsallaştıran sürekli mesleki gelişim paketlerinin, yer temelli konut desteğiyle birlikte tasarlanması önerilmektedir. MAUT yaklaşımı, teşvik portföylerini yerel koşullara uyarlamak için şeffaf ve yinelenebilir bir şablon sunar. Gelecek araştırmalar, ek ölçütler olarak öğrenci çıktıları ile toplum katılımını içermeli ve bölgesel genellenebilirliği değerlendirmelidir.

Anahtar kelimeler: İnsan Kaynakları Yönetimi, Kırsal Eğitim, Mesleki Gelişim, Çok Özellikli Fayda Teorisi (MAUT), Türkiye'de Eğitim Sorunları
JEL Sınıflaması: M12, I25, J45,J24,C44,I28

[1] Dr. İstanbul Medipol Üniversitesi, senay.caylan@medpol.edu.tr, ORCID: 0000-0003-1977-7859

Beykoz Akademi Dergisi, 2026; 14(1), 207-235 ARAŞTIRMA MAKALESİ
Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

1. Introduction

Retaining qualified educators in rural schools remains a persistent and multifaceted challenge across the globe, with the issue becoming particularly pronounced in Türkiye due to its distinct socio-economic and geographic disparities. In many rural regions, deficiencies in infrastructure such as inadequate transportation, healthcare, housing, and internet connectivity combine with limited access to teaching materials and professional support systems, making these areas significantly less appealing to educators (Gilligan et al., 2022; Russell et al., 2021). These structural limitations are further exacerbated by the socio-cultural isolation and limited professional development opportunities available in rural settings, contributing to lower job satisfaction and reduced motivation among teachers. As a result, rural schools often experience high turnover rates, understaffing, and a shortage of specialized subject teachers, all of which severely compromise the consistency and quality of education delivered to students. This educational gap reinforces cycles of poverty and social inequality, impeding long-term human capital development and regional socio-economic growth (Kocakurt, 2016; Gönder, 2023).

Despite numerous national and local policy interventions aimed at mitigating these disparities—such as compulsory service schemes and region-based wage supplements—the challenges of attracting and retaining qualified teachers in rural Türkiye remain largely unresolved. Conventional top-down strategies have often overlooked the nuanced realities faced by educators on the ground, leading to misaligned policies that fail to deliver sustainable results. In this context, the design and implementation of effective, context-specific incentive structures have emerged as a crucial priority. Incentives whether monetary or non-monetary play a pivotal role in influencing educators' decisions to work and stay in rural areas. Empirical studies suggest that strategies such as financial rewards, housing support, and continuous professional development can significantly improve teacher satisfaction, retention, and performance (Podolsky et al., 2019; Ryu & Jinnai, 2021). While financial incentives may offer immediate relief from economic constraints, non-financial incentives like training and recognition programs tend to have more enduring motivational effects by addressing intrinsic factors such as purpose, professional growth, and job fulfillment.

Importantly, the success of these incentive schemes is not universal but heavily contingent on how well they align with local needs, administrative capacities, and broader educational goals. For instance, providing housing allowances may be a game changer in remote regions where accommodation is scarce or unaffordable, while offering structured career advancement or skill-enhancement programs may be more effective in retaining young, ambitious teachers.

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Moreover, each incentive option varies in terms of cost-effectiveness, scalability across different regions, and potential for long-term impact. This variability underscores the need for a structured and evidence-based decision-making framework that can systematically evaluate and prioritize these alternatives. In response to this need, the present study adopts the Multi-Attribute Utility Theory (MAUT) approach a robust methodology designed to support decision-making in complex, multi-criteria environments (Sulistiani et al., 2023; Akpan & Morimoto, 2022). MAUT enables the quantification and comparison of multiple incentive alternatives based on their performance against clearly defined criteria, incorporating both expert judgment and stakeholder perspectives.

The research is grounded in inputs from a diverse panel of ten experts, comprising educators with field experience, human resource specialists familiar with public-sector incentives, and policymakers involved in rural education strategies. Five primary criteria were established to evaluate the effectiveness of different incentives: cost of implementation, retention effectiveness, educator satisfaction, scalability, and long-term impact. The incentive options evaluated include Monetary Rewards, Housing Allowances, Professional Development Opportunities, and Recognition Programs, each assessed for their potential to address the systemic issues faced by rural schools. The expert-driven approach ensures the contextual relevance and practical applicability of the findings, making them suitable for immediate policy translation.

This study is significant not only for its methodological rigor but also for its contribution to evidence-based policymaking in the education sector. Designing sustainable incentive structures for rural educators is more than an administrative obligation it is a societal necessity that directly affects educational equity, rural development, and social mobility (Gilligan et al., 2022; Albayrak, 2022). The findings highlight the superiority of professional development as a long-term incentive, followed closely by housing support, both of which offer a balanced blend of motivational, practical, and systemic benefits. These insights can guide education ministries, local governments, and school administrators in devising more effective rural staffing policies. Furthermore, the MAUT framework presented here is adaptable and can be replicated across different sectors or geographies, providing a valuable tool for strategic planning and resource allocation.

In closing, this research aspires to bridge the persistent gap between policy design and practical implementation, offering a data-informed, human-centered perspective on how targeted incentives can reshape rural education systems. The implications extend beyond Türkiye,

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

contributing to global discussions on equitable education access and rural teacher retention. Future research can build upon this foundation by incorporating additional dimensions such as student academic outcomes, community participation, and teacher well-being, thereby offering a more holistic evaluation of incentive structures in rural educational settings (Shikalepo, 2020; Peng et al., 2020).

2. Literature Review

2.1 Rural Education in Türkiye

Rural education in Türkiye has long grappled with a complex web of socio-economic barriers that directly influence both the quality of education delivered and the ability to attract and retain qualified educators. These challenges are deeply entrenched in systemic inequalities, particularly those related to inadequate infrastructure, insufficient educational resources, limited access to professional development programs, and minimal financial incentives. Collectively, these conditions diminish the appeal of rural teaching positions and create substantial deterrents for new graduates and experienced teachers alike. Numerous studies have highlighted that the lack of basic amenities, support mechanisms, and equitable career pathways in rural regions discourages educators from accepting or maintaining positions in these areas. As a result, rural schools often suffer from high turnover rates, frequent vacancies, and a persistent shortage of skilled and specialized educators (Gilligan et al., 2022; Gönder, 2023). Furthermore, the stark disparities in resource allocation and funding between urban and rural schools serve to exacerbate these existing problems, reinforcing cycles of educational inequality that hinder long-term regional development and social mobility (Kocakurt, 2016; Albayrak, 2022).

Among the most pressing socio-economic barriers is the absence of adequate housing and reliable transportation options for teachers assigned to rural schools. For many educators, the financial and psychological burden of relocating to remote areas is amplified by the lack of basic services such as healthcare, internet connectivity, and quality housing. In addition, the isolation associated with rural placements can have detrimental effects on educators' personal well-being and professional satisfaction. The daily reality of working in under-resourced environments without access to peer collaboration or mentoring opportunities can erode motivation and hinder professional growth. Consequently, even when teachers initially accept rural postings, many seek transfers to urban schools as soon as possible, leading to a revolving-

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

door phenomenon that undermines educational stability and student outcomes in rural communities (Russell et al., 2021; Wang et al., 2021; Zhang et al., 2021).

Although the Turkish government has introduced various policies and incentive programs over the years to mitigate these challenges, their effectiveness has remained inconsistent and often superficial. Financial incentives such as hardship allowances, relocation bonuses, and performance-based pay have been deployed in attempts to attract educators to rural areas. While these measures offer some short-term relief and may improve initial recruitment rates, they often fail to address the deeper structural and psychological factors that contribute to poor retention. Moreover, initiatives such as award-based recognition programs or teacher-of-the-year schemes, though symbolically valuable, do not necessarily translate into long-term improvements in job satisfaction or professional development. In many cases, the absence of systemic support structures renders these efforts insufficient to inspire sustained engagement among rural educators (Podolsky et al., 2019; Ryu & Jinnai, 2021; White et al., 2008).

The historical experience of Türkiye's Village Institutes provides an instructive example of how a more integrated and community-oriented approach to rural education can yield sustainable results. These institutions were designed not only to train educators but also to cultivate teachers who were deeply embedded in and responsive to the unique social and economic conditions of rural communities. By equipping educators with the skills and cultural competencies necessary to engage with local populations, Village Institutes significantly improved educational outcomes in underserved regions. However, the dismantling of these programs has left a void in strategic efforts to develop a long-term vision for rural education. Their absence is particularly felt today, as policymakers and educators search for solutions that can address both the practical and existential challenges of rural teaching in a rapidly modernizing country (Gönder, 2023; Albayrak, 2022).

In conclusion, the challenges faced by rural education in Türkiye are multi-layered and cannot be resolved through one-dimensional policy interventions. While existing incentive programs have contributed positively in isolated cases, they generally lack the scope and contextual sensitivity required for long-term impact. Sustainable improvement in rural teacher retention demands a more holistic and evidence-based approach that goes beyond salary supplements and includes non-monetary strategies such as targeted professional development, housing support, and community integration. In this context, the Multi-Attribute Utility Theory (MAUT) presents itself as a valuable decision-making framework that can incorporate expert input and stakeholder perspectives to evaluate and prioritize diverse incentive strategies. By using

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

MAUT, policymakers can ensure that incentives are not only cost-effective and scalable but also aligned with the lived realities and aspirations of educators in rural Türkiye (Sulistiani et al., 2023; Akpan & Morimoto, 2022).

2.2 Incentive Structures in Education

Incentive structures serve as essential instruments in tackling the longstanding challenges of attracting and retaining qualified educators, especially in rural settings where socio-economic disadvantages and geographic isolation significantly hinder long-term teacher commitment. These incentive frameworks are designed to provide both extrinsic and intrinsic motivators, aiming to enhance job satisfaction, improve working conditions, and ultimately increase retention rates. Commonly adopted incentive categories include monetary rewards, housing allowances, professional development opportunities, and recognition programs, each offering distinct advantages and facing unique limitations depending on the local educational context and implementation capacity. When carefully structured, such incentives can counteract the disincentives associated with rural postings, such as professional stagnation, inadequate infrastructure, and social isolation. However, the effectiveness of these incentive strategies relies heavily on their alignment with the lived realities and expectations of educators, highlighting the need for a nuanced, evidence-based approach in policy formulation.

Monetary rewards are perhaps the most widespread form of incentive used globally to mitigate teacher shortages, particularly in hard-to-staff rural schools. These financial mechanisms typically take the form of salary bonuses, hardship allowances, relocation subsidies, and performance-based pay schemes. Empirical studies confirm that monetary incentives can serve as strong motivators, especially in the short term, by alleviating financial stress and making rural teaching positions more economically viable (Ryu & Jinnai, 2021; Gilligan et al., 2022). In Türkiye, these practices have been partially successful in addressing recruitment challenges in underserved regions. However, critics argue that the impact of financial incentives tends to diminish over time if they are not accompanied by systemic improvements in working and living conditions. Without addressing deeper issues such as substandard housing, lack of mentorship opportunities, and professional isolation, monetary rewards alone may not be sufficient to foster sustained educator commitment. Moreover, over-reliance on financial compensation can create expectations that are difficult to maintain within constrained public budgets, thereby limiting the scalability and long-term viability of such approaches (Podolsky et al., 2019).

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

In contrast, housing allowances have emerged as a particularly effective non-salary incentive, especially in rural regions where affordable and livable housing is often unavailable or severely limited. Providing subsidized housing or rent support not only reduces the financial burden on educators but also serves as a tangible indicator of institutional support and respect for their contributions. For many teachers, the availability of quality housing can be a decisive factor in accepting or staying in a rural assignment. This is particularly relevant in Türkiye, where rural areas frequently suffer from underdeveloped infrastructure and lack basic amenities. Housing support programs can mitigate these challenges by offering stability and improving quality of life, which in turn enhances teacher morale and retention (Russell et al., 2021). When integrated into broader educational development plans, housing incentives have the potential to anchor teachers within communities, enabling them to build stronger relationships with students and stakeholders and foster a greater sense of belonging and purpose (White et al., 2008).

Professional development opportunities represent another cornerstone of effective incentive design, targeting educators' intrinsic motivations and long-term career goals. Offering access to workshops, certification programs, leadership training, and academic advancement pathways empowers teachers to continually improve their pedagogical skills and adapt to evolving educational needs. Such initiatives are especially impactful in rural areas where professional isolation often limits access to growth opportunities. In contexts where financial resources are constrained, investments in professional development can yield high returns by boosting instructional quality and reinforcing a culture of continuous learning (Zhang et al., 2021; Dohaney et al., 2020). Moreover, when professional development is context-specific—tailored to the challenges of rural education it not only enhances individual teacher capacity but also contributes to school-wide improvements. In Türkiye, providing rural educators with ongoing, high-quality training opportunities could address the long-standing skill gaps and support teachers in coping with multi-grade classrooms, limited resources, and community engagement expectations (Wang et al., 2021).

Recognition programs such as award schemes, certificates of appreciation, public ceremonies, and professional acknowledgment are often undervalued yet play a significant role in reinforcing educators' sense of identity, purpose, and belonging. These non-financial incentives are generally low-cost and easy to implement, making them accessible to schools and education authorities even with limited budgets. Recognition can significantly boost morale, validate teachers' contributions, and enhance their sense of professional worth, particularly in rural areas

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

where isolation and underappreciation are common. However, while such programs have been shown to be effective in the short term, their motivational power is typically limited if not supported by more substantive incentives that address practical and developmental needs (Shuls & Flores, 2020; Thomas, 2008). Thus, recognition should be seen as a complementary component rather than a standalone solution, ideally integrated into a broader ecosystem of support that also includes financial and developmental measures.

Global evidence increasingly supports the notion that integrated, multi-faceted incentive strategies are far more effective than isolated interventions. For example, research indicates that when monetary incentives are combined with housing support and professional development, retention rates and job satisfaction levels increase significantly—particularly in remote or disadvantaged settings. In rural China, such holistic approaches have demonstrated notable success by aligning incentives with the unique socio-economic and cultural contexts of local communities (Peng et al., 2020). These findings underscore the importance of context-sensitive policy design and the need for flexible frameworks that accommodate regional disparities and evolving educator needs. However, the implementation of such comprehensive strategies is often impeded by systemic barriers including insufficient funding, administrative inefficiencies, and lack of data-driven planning. Without deliberate efforts to address these barriers, even the most well-conceived incentive plans may fail to deliver sustained improvements in rural teacher retention and performance (Gilligan et al., 2022).

In conclusion, the development and deployment of effective incentive structures in education require a multidimensional, contextually grounded approach. Policymakers must go beyond superficial solutions and adopt integrated strategies that consider the full range of educator needs—financial, professional, and emotional. Combining tangible supports such as housing and professional development with intrinsic motivators like recognition can create a more resilient and motivated teaching workforce in rural areas. Ultimately, a successful incentive strategy is one that balances scalability with personalization, efficiency with empathy, and policy with practice. Drawing on both global case studies and local realities, the present study advocates for a more structured and analytical framework—such as the Multi-Attribute Utility Theory (MAUT)—to assess and prioritize incentive options in a systematic, transparent manner. This will ensure that limited resources are directed toward initiatives with the highest potential impact, fostering not only teacher retention but also long-term improvements in educational equity and quality (Russell et al., 2021; Shikalepo, 2020).

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

2.3 Multi-Attribute Utility Theory (MAUT) in Decision-Making

Multi-Attribute Utility Theory (MAUT) is a comprehensive and well-established decision-making framework designed to facilitate the evaluation and prioritization of alternatives in scenarios involving multiple, often conflicting, criteria. Its structured methodology makes it particularly valuable in addressing complex challenges where trade-offs must be made between various objectives such as cost, effectiveness, scalability, and long-term sustainability. The core premise of MAUT involves quantifying preferences by assigning relative weights to selected criteria and calculating utility scores for each available alternative. This process transforms subjective judgments into objective, data-driven insights, thereby equipping decision-makers with a rational foundation to identify the most favorable options (Sulistiani et al., 2023; Kabassi & Virvou, 2006). Unlike more simplistic models that focus on a single dimension of performance, MAUT accommodates a holistic view of decision-making, ensuring that all relevant factors are considered in tandem. Its flexibility allows it to integrate both qualitative and quantitative data, making it well-suited for multidisciplinary applications across sectors such as education, public policy, infrastructure planning, and human resource management.

The strength of MAUT lies not only in its mathematical rigor but also in its ability to handle the inherent complexity of real-world decision-making, particularly in policy environments where competing goals and stakeholder perspectives must be reconciled. For example, when evaluating education policies aimed at teacher retention in rural areas, decision-makers are often forced to balance multiple priorities such as budget limitations, social equity, educator satisfaction, and long-term educational outcomes. MAUT facilitates this process by enabling stakeholders to articulate their preferences clearly and then systematically analyze how different alternatives perform against a weighted set of criteria. By translating subjective opinions into quantifiable utility values, MAUT contributes to greater transparency, reproducibility, and accountability in the decision-making process (Maravanyika & Dlodlo, 2018). This methodological robustness is especially valuable in democratic policy environments where legitimacy and stakeholder buy-in are critical to successful implementation.

In educational research and practice, MAUT has already demonstrated its capacity to address multi-dimensional challenges through its integrative and analytical approach. Sulistiani et al. (2023), for instance, utilized a MAUT framework combined with the PIPRECIA-S weighting technique to evaluate employee performance in a university setting. The study incorporated

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

diverse criteria such as professional development, job satisfaction, and the efficient use of institutional resources, showcasing how MAUT can be tailored to the complex performance metrics of educational institutions. Similarly, Kabassi and Virvou (2006) applied MAUT within adaptive web-based educational platforms to enhance learner engagement and satisfaction. By evaluating multiple user preferences simultaneously, the system could tailor educational content and recommendations to individual learning styles, thereby improving both outcomes and user experience. These examples affirm that MAUT is not only theoretically sound but also practically viable in educational contexts where decision complexity is high and stakeholder needs are diverse.

Beyond its applications in education, MAUT has proven to be a powerful decision-support tool in broader public policy contexts, particularly in developing countries where resource constraints demand optimized solutions. Akpan and Morimoto (2022) applied MAUT to prioritize rural road infrastructure projects in Nigeria, considering criteria such as accessibility, cost-efficiency, and the projected impact on local communities. The study demonstrated how MAUT can navigate the complexities of infrastructure planning by providing a clear framework for comparing investment alternatives and ensuring that limited funds are allocated where they can achieve the greatest social benefit. In environments like these, where decision-makers face high-stakes trade-offs under constrained budgets, MAUT offers a strategic advantage by maximizing the effectiveness of public spending through evidence-based prioritization.

The utility of MAUT extends further into human resource management, particularly in evaluating strategies for performance improvement and workforce retention. In a university setting, Apriansyah and Rakhman (2024) employed the MAUT approach to assess lecturer and student performance by considering multiple dimensions such as skill enhancement, task efficiency, and the overall contribution to institutional goals. These findings underscore how MAUT enables institutions to adopt a data-informed, multi-criteria perspective in making strategic HR decisions. Such a framework is especially relevant in education systems where performance is influenced by a broad range of interrelated variables—ranging from professional development opportunities to working conditions and administrative support—each of which must be factored into decision-making for outcomes to be both fair and effective.

When applied to the specific context of rural education, MAUT offers significant potential to evaluate and prioritize incentive structures for educators based on a combination of interrelated criteria. In rural settings, decisions surrounding incentives must account for not only the

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

financial cost of implementation but also factors such as teacher retention rates, professional satisfaction, regional scalability, and long-term impact on educational quality. MAUT enables stakeholders to compare various incentive options—such as monetary rewards, housing allowances, professional development programs, and recognition schemes—using a structured and consistent approach. This ensures that policy interventions are both evidence-based and tailored to the specific needs and realities of rural educators (Sulistiani et al., 2023; Akpan & Morimoto, 2022). In doing so, MAUT supports more strategic allocation of public resources, minimizes the risk of policy failure, and enhances the overall coherence of education reform initiatives.

In conclusion, Multi-Attribute Utility Theory (MAUT) stands as a highly versatile and rigorous decision-making framework capable of addressing the multifaceted challenges that arise in educational planning and public policy. Its core advantage lies in its ability to integrate various types of data, accommodate diverse stakeholder perspectives, and produce transparent, replicable outcomes. As demonstrated through its application in fields ranging from university performance evaluation to rural infrastructure development, MAUT is especially well-suited to contexts where decisions must balance competing priorities within resource-constrained environments. By applying MAUT to the evaluation of incentive structures in rural education, policymakers can ensure that decisions are not only efficient and cost-effective but also equitable and aligned with long-term educational and societal goals. The adoption of such an approach is critical for advancing sustainable education policies that address systemic inequities and promote inclusive development.

3. Methodology

3.1 Research Design

This study utilizes a mixed-methods research design, integrating both quantitative and qualitative approaches to evaluate and prioritize incentive structures for educators in rural schools. By combining structured surveys and semi-structured interviews with experts, the methodology provides a comprehensive understanding of the challenges and potential solutions. Initially, a purposive sampling method was employed to select 10 experts from diverse professional backgrounds, including educators, HR professionals, and policymakers. Selection criteria required a minimum of five years of relevant experience and demonstrated expertise in rural education or workforce development.

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

A structured survey was then developed to quantify expert opinions on various criteria and alternative incentive structures. The survey included questions assessing the importance of factors such as cost of implementation, retention effectiveness, educator satisfaction, scalability, and long-term impact, measured using a Likert scale. To gain deeper qualitative insights, semi-structured interviews were conducted, focusing on the feasibility and contextual relevance of different incentive structures. The interview guide featured open-ended questions aimed at understanding experts' perspectives on the challenges of rural education and the potential impact of various incentives.Data from the surveys were analyzed to assign weights to the identified criteria based on expert judgments. A pairwise comparison method was employed to determine the relative importance of each criterion, ensuring consistency and accuracy in the weighting process. Subsequently, the incentive structures—monetary rewards, housing allowances, professional development opportunities, and recognition programs—were evaluated against the weighted criteria. Quantitative scores for each alternative were derived from the survey data, while qualitative insights from interviews provided additional context and depth.

The data collected from surveys and interviews were analyzed using the Multi-Attribute Utility Theory (MAUT) framework. Developed by Ralph Keeney and Howard Raiffa in 1976 (Keeney & Raiffa, 1976), MAUT is a decision-making methodology designed to evaluate and rank alternatives based on multiple criteria. In this study, utility scores for each incentive structure were calculated by aggregating the weighted criteria scores, resulting in a prioritized ranking of the alternatives.

3.2 Data Collection

The study involved the selection of 10 experts from Türkiye, including educators, HR professionals, and policymakers, to ensure a diverse and informed perspective on the evaluation of incentive structures. Experts were selected using purposive sampling based on the following criteria: a minimum of five years of relevant experience and demonstrated expertise in rural education or workforce development. Table 1 provides an overview of the experts' profiles.

Table 1. Expert Profiles

Expert ID	Experience (Years)	Background	Title
E1	15	Education Policy	Senior Policy Advisor
E2	10	Human Resources	HR Manager

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Expert ID	Experience (Years)	Background	Title
E3	12	Rural Education	School Principal
E4	8	Workforce Development	HR Consultant
E5	20	Educational Leadership	Retired Educator
E6	14	Teacher Training	University Professor
E7	9	Public Policy	Policy Analyst
E8	18	Educational Research	Researcher
E9	11	Government Administration	Regional Education Director
E10	13	Education Technology	Program Coordinator

Structured surveys and semi-structured interviews were conducted to gather data from these experts. The surveys aimed to quantify expert opinions on various criteria and alternatives, including monetary rewards, housing allowances, professional development opportunities, and recognition programs. Survey questions, based on existing scales and frameworks (e.g., Podolsky et al., 2019; Russell et al., 2021), focused on the relative importance of criteria such as cost of implementation, retention effectiveness, educator satisfaction, scalability, and long-term impact. A Likert scale was used to measure the importance of each criterion.

The interviews were designed to provide qualitative insights and included open-ended questions to explore the feasibility and contextual relevance of the proposed incentive structures. Questions addressed themes such as the socio-economic challenges faced by rural educators (Gilligan et al., 2022), the impact of professional development opportunities on retention (Zhang et al., 2021), and the scalability of housing allowances in resource-constrained environments (White et al., 2008). The combination of surveys and interviews ensured a comprehensive understanding of the factors influencing educator retention in rural schools.

3.3 Criteria and Alternatives

The evaluation of incentive structures in this study was guided by five criteria and four alternatives. These criteria and alternatives were identified through a review of the relevant literature to ensure their validity and applicability to rural education challenges. Table 2 provides a detailed overview, linking each criterion and alternative to supporting sources from the literature.

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Table 2. Criteria and Alternatives with Supporting Literature

Criteria/Alternatives	Description	Supporting Sources
Criteria		
Cost of Implementation	The financial feasibility of implementing the incentive structure within the available budget.	Podolsky et al. (2019); Ryu & Jinnai (2021)
Retention Effectiveness	The ability of the incentive to retain educators in rural areas over the long term.	Gilligan et al. (2022); Russell et al. (2021)
Educator Satisfaction	The extent to which the incentive improves job satisfaction and motivation among educators.	Maheshwari (2022); Zhang et al. (2021)
Scalability	The potential for the incentive structure to be scaled across multiple schools or regions.	White et al. (2008); Arredondo et al. (2023)
Long-Term Impact	The enduring effects of the incentive on rural education quality and workforce stability.	Wang et al. (2021); Peng et al. (2020)
Alternatives		
Monetary Rewards	Financial incentives such as bonuses, salary increases, or relocation allowances.	Ryu & Jinnai (2021); Gilligan et al. (2022)
Housing Allowances	Support for housing costs to reduce financial burdens and improve living conditions for educators.	Russell et al. (2021); White et al. (2008)
Professional Development Opportunities	Opportunities for continuous learning, certifications, and skill development for educators.	Zhang et al. (2021); Dohaney et al. (2020)
Recognition Programs	Non-financial incentives such as awards and public acknowledgment to boost morale and motivation.	Shuls & Flores (2020); Thomas (2008)

The table forms the basis for assessing the effectiveness of each alternative against the outlined criteria, offering a structured and research-backed approach to decision-making.

3.4 Multi-Attribute Utility Theory (MAUT) Framework

The Multi-Attribute Utility Theory (MAUT), developed by Ralph Keeney and Howard Raiffa (1976), is employed as the primary decision-making framework in this study to evaluate and prioritize incentive structures for rural educators. MAUT is particularly effective for analyzing complex scenarios with multiple criteria, providing a systematic and quantitative method for determining the most suitable alternative. The following steps outline the application of MAUT in this study, accompanied by detailed explanations and equations.

Step 1: Criteria Weighting Based on Expert Judgments

The relative importance of each criterion is determined using expert inputs collected through structured surveys. A pairwise comparison method, such as the Analytic Hierarchy Process

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

(AHP), is applied to derive weights for each criterion. These weights represent the significance of each criterion in the decision-making process.

- Let w_i denote the weight of criterion i, where $i = 1,2, \dots, n$ and $\sum_{i=1}^{n} w_i = 1$.
- For example, if the criteria are C_1 (Cost of Implementation), C_2 (Retention Effectiveness), and C_3 (Educator Satisfaction), the weights w_1, w_2, w_3 are derived as:

$$w_i = \frac{\text{Expert Score for } C_i}{\sum_{j=1}^{n} \text{ Expert Scores for All Criteria}} \quad (1)$$

The normalized weights ensure that the sum of all weights equals 1 , maintaining consistency in the analysis.

This normalization ensures that utility scores are comparable across different criteria and alternatives.

Step 3: Aggregation of Utility Scores

The overall utility score for each alternative is calculated by aggregating the weighted utility scores across all criteria. This is expressed as:

$$U_j = \sum_{i=1}^{n} w_i \cdot U_{ij} \quad (2)$$

Where:

- U_j is the total utility score for alternative A_j.
- w_i is the weight of criterion C_i.
- U_{ij} is the utility score of A_j for C_i.

The alternative with the highest total utility score is prioritized as the most effective option for addressing the issue of educator retention in rural schools.

Beykoz Akademi Dergisi, 2026; 14(1), 207-235 ARAŞTIRMA MAKALESİ
Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Sensitivity Analysis

To ensure robustness, a sensitivity analysis is conducted by varying the weights of the criteria and observing the impact on the rankings of the alternatives. This step tests the stability of the results and provides insights into the influence of each criterion.

4. Results

4.1 Criteria Weights

The criteria weights were derived from expert judgments collected through structured surveys. Each expert rated the importance of the five criteria: Cost of Implementation, Retention Effectiveness, Educator Satisfaction, Scalability, and Long-Term Impact. These ratings were aggregated and normalized to determine the relative importance of each criterion. Table 3 gives experts ratings for criteria.

Table 3. Expert Ratings for Criteria

Criterion	E1	E2	E 3	E 4	E5	E6	E7	E8	E9	E10	Total
Cost of Implementation	4	5	3	4	3	3	5	4	4	4	39
Retention Effectiveness	5	4	5	5	5	5	4	5	5	5	48
Educator Satisfaction	5	4	5	4	5	4	4	5	5	5	46
Scalability	4	5	4	5	4	4	5	4	4	4	43
Long-Term Impact	5	4	5	4	5	5	4	5	5	5	47

The total ratings for all criteria were summed, and the weight of each criterion was calculated by dividing its total by the sum of all ratings:

$$w_i = \frac{\text{Total Score for Criterion } C_i}{\text{Total Score for All Criteria}} \tag{3}$$

Table 4 illustrates criteria weights.

Table 4. Criteria Weights

Criterion	Total Score	Normalized Weight
Cost of Implementation	39	0.175
Retention Effectiveness	48	0.215
Educator Satisfaction	46	0.206
Scalability	43	0.193
Long-Term Impact	47	0.211

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Retention Effectiveness emerged as the most critical criterion, receiving the highest weight of 0.215. This highlights its pivotal role in addressing the challenge of educator retention in rural areas. Experts emphasized that strategies aimed at ensuring educators remain in their positions over time are fundamental to the sustainability of rural education systems. By prioritizing retention, long-term stability and continuity in teaching quality can be achieved, fostering a more robust educational framework in underserved regions.

Close behind, Long-Term Impact was assigned a weight of 0.211, underscoring the importance of sustainable solutions that provide ongoing benefits to educators and the communities they serve. This criterion reflects the need for incentive structures that do not merely offer short-term fixes but instead create lasting improvements in the rural education landscape. The experts stressed that programs designed with sustainability in mind are essential for building resilient systems capable of adapting to future challenges.

Educator Satisfaction, with a weight of 0.206, was also highly prioritized, highlighting the crucial role of job satisfaction in reducing turnover and enhancing teaching quality. Experts noted that satisfied educators are more likely to remain committed to their roles and contribute positively to the learning environment. This criterion underscores the importance of addressing intrinsic motivators, such as professional growth and workplace well-being, as part of a holistic approach to incentive design.

Scalability received a weight of 0.193, reflecting the necessity of developing policies and programs that can be effectively implemented across various regions and schools. Experts pointed out that scalability ensures the widespread applicability of solutions, allowing them to reach a larger population of educators and maximize their impact. While not the highest priority, this criterion is essential for ensuring that successful programs can be replicated and adapted to meet diverse local needs.

Cost of Implementation, while still considered important, was assigned the lowest weight of 0.175. This indicates that while financial feasibility is crucial, it should not take precedence over the effectiveness and sustainability of incentive structures. Experts agreed that cost considerations must be balanced with the need for impactful and meaningful solutions that address the core challenges faced by rural educators.

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Overall, the normalized weights provide a robust foundation for subsequent analyses, ensuring that the prioritization of incentive structures is firmly rooted in expert-informed priorities. This weighting system enables a comprehensive evaluation of alternatives, aligning the analysis with the critical needs and challenges of rural education.

4.2 Utility Scores for Incentive Structures

The utility scores for each incentive structure were calculated by evaluating their performance against the criteria: Cost of Implementation, Retention Effectiveness, Educator Satisfaction, Scalability, and Long-Term Impact. These scores were normalized using the utility calculation formula and then aggregated with the weights derived in Section 4.1 to prioritize the alternatives.

The utility score for an alternative A_j under criterion C_i is calculated as:

$$U_{ij} = \frac{X_{ij} - \min(X_i)}{\max(X_i) - \min(X_i)} \tag{4}$$

Where:

- U_{ij} : Normalized utility score of alternative A_j for criterion C_i,
- X_{ij} : Raw score for alternative A_j for criterion C_i,
- $\min(X_i)$ and $\max(X_i)$: Minimum and maximum scores for criterion C_i across all alternatives.

The average raw scores provided by experts were used to calculate normalized utility scores. The results are shown in Table 5.

Table 5. Raw Scores for Incentive Structures

Criteria/Alternatives	Monetary Rewards	Housing Allowances	Professional Development Opportunities	Recognition Programs
Cost of Implementation	4.2	3.3	2.8	4.8
Retention Effectiveness	4.4	4.8	5.0	3.6
Educator Satisfaction	4.2	4.8	5.0	4.2
Scalability	4.3	3.3	4.2	4.5
Long-Term Impact	3.8	4.6	5.0	3.6

Table 6 illustraetes normalized utility scores for criteria.

Beykoz Akademi Dergisi, 2026; 14(1), 207-235 ARAŞTIRMA MAKALESİ
Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Table 6. Normalized Utility Scores

Criteria/Alternatives	Monetary Rewards	Housing Allowances	Professional Development Opportunities	Recognition Programs
Cost of Implementation	0.7	0.25	0.0	1.0
Retention Effectiveness	0.57	0.86	1.0	0.0
Educator Satisfaction	0.0	0.75	1.0	0.0
Scalability	0.83	0.0	0.75	1.0
Long-Term Impact	0.14	0.71	1.0	0.0

The overall utility score for each incentive structure was calculated by multiplying the normalized utility scores by the weights of the corresponding criteria and summing the results:

$$U_j = \sum_{i=1}^{n} w_i \cdot U_{ij} \tag{5}$$

Where:

- U_j : Total utility score for alternative A_j,
- w_i : Weight of criterion C_i (from Section 4.1),
- U_{ij} : Normalized utility score of alternative A_j for criterion C_i.

Table 7 gives aggregated utility scores for inentive structures.

Table 7. Aggregated Utility Scores for Incentive Structures

Criteria/Alternatives	Monetary Rewards	Housing Allowances	Professional Development Opportunities	Recognition Programs
Cost of Implementation	0.1225	0.0438	0.0	0.175
Retention Effectiveness	0.1226	0.1849	0.215	0.0
Educator Satisfaction	0.0	0.1545	0.206	0.0
Scalability	0.1602	0.0	0.1448	0.193
Long-Term Impact	0.0295	0.1498	0.211	0.0
Aggregated Scores	0.4348	0.5330	0.7768	0.368

The prioritization of incentive structures was based on the aggregated utility scores calculated using the Multi-Attribute Utility Theory (MAUT) framework. Among the

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

alternatives, Professional Development Opportunities emerged as the highest-ranking option with an overall utility score of 0.7768. This result highlights the significant impact of professional development in addressing the needs of educators by enhancing their skills, satisfaction, and long-term retention. The emphasis on professional growth ensures alignment with both individual aspirations and broader educational goals.

Housing Allowances ranked second, with a utility score of 0.5330. This alternative addresses immediate financial concerns and provides essential support for educators in rural areas. While not as impactful as professional development in fostering intrinsic motivators, housing allowances offer practical solutions to enhance retention and satisfaction. Monetary Rewards, with a utility score of 0.4348, ranked third. Although financial incentives provide immediate benefits, they lack the sustainability and scalability needed for long-term impact. This finding underscores the importance of combining monetary incentives with other, more enduring strategies. Recognition Programs received the lowest utility score of 0.368, reflecting their limited ability to address systemic challenges in rural education. While recognition is valuable for boosting morale, it does not provide the comprehensive support necessary for long-term retention and performance improvement.

4.3 Sensitivity Analysis Results

The sensitivity analysis demonstrated the stability of the rankings across various weighting scenarios, confirming the robustness of the prioritization process. Four scenarios were analyzed: the original weights, an increase in the weight of Retention Effectiveness by 10%, a decrease in the weight of Cost of Implementation by 10%, and a scenario where all criteria were assigned equal weights. The rankings of the incentive structures remained consistent across all scenarios, as shown in Table 8.

Table 8. Comparison of Rankings Across Sensitivity Analysis Scenarios

Scenario	Professional Development	Housing Allowances	Monetary Rewards	Recognition Programs
Original Weights	1	2	3	4
Increase Retention Effectiveness	1	2	3	4
Decrease Cost of Implementation	1	2	3	4
Equal Weights	1	2	3	4

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Professional Development Opportunities consistently ranked first, affirming its position as the most effective incentive structure. This stability underscores its strong alignment with the criteria, particularly Retention Effectiveness, Educator Satisfaction, and Long-Term Impact. Even when the relative importance of these criteria was adjusted, Professional Development Opportunities maintained its superiority due to its comprehensive benefits for rural educators.

Housing Allowances consistently ranked second, further validating its effectiveness as a financial support mechanism for educators in rural areas. Its resilience in the rankings suggests that housing allowances address critical needs related to cost and satisfaction, making them a valuable component of any incentive strategy. Monetary Rewards and Recognition Programs retained their third and fourth positions, respectively, across all scenarios. This outcome highlights their comparatively lower impact when weighed against the prioritized criteria. Monetary Rewards, while addressing short-term financial needs, lack the long-term benefits of other alternatives, and Recognition Programs, though useful for morale, do not substantially affect retention or satisfaction.

The consistency in rankings across all sensitivity analysis scenarios reflects the robustness of the Multi-Attribute Utility Theory (MAUT) framework applied in this study. This stability provides confidence in the findings and reinforces the reliability of the prioritized incentive structures for addressing educator retention and satisfaction in rural Türkiye. These results further suggest that even with changes in policy priorities or contextual adjustments, the recommended strategies would remain effective and actionable.

4.4 Key Findings

The analysis revealed that Professional Development Opportunities emerged as the top-ranked incentive structure, with the highest aggregated utility score. This finding underscores the significant value of professional development in addressing both intrinsic and extrinsic motivators for educators. By enhancing skills, fostering career growth, and improving job satisfaction, professional development opportunities align with the long-term goals of rural education systems. These incentives not only empower educators but also contribute to the overall quality and sustainability of educational outcomes in rural areas.

Following professional development opportunities, Housing Allowances ranked as the second most effective incentive. Housing allowances directly address the financial burdens faced by

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

educators, particularly in rural settings where additional costs related to relocation and livingtablexpenses can be substantial. While they do not provide the professional growth associated with the top-ranked alternative, housing allowances play a critical role in improving retention by alleviating immediate financial pressures. This complementary relationship between the two top-ranked incentives highlights the importance of combining professional and financial support to create a comprehensive incentive strategy.

The analysis also shed light on the trade-offs among the alternatives. Monetary Rewards**,** despite their immediate appeal, ranked third due to their limited scalability and long-term impact. While financial rewards can attract and retain educators in the short term, they lack the capacity to address deeper challenges such as professional isolation or the need for career advancement. Similarly, Recognition Programs**,** which ranked fourth, primarily boost morale and create a sense of community among educators but fail to provide the structural or financial support necessary for long-term retention. These findings emphasize the need to balance short-term relief with sustainable, impactful strategies when designing incentive structures.

Overall, the prioritization highlights the importance of focusing on incentives that provide both professional growth and financial stability. A strategic approach that combines professional development opportunities with housing allowances can create a robust framework for addressing the unique challenges of rural education, ensuring that educators are motivated, satisfied, and committed to their roles over the long term.

5. Discussion

The findings of this study offer critical insights into the persistent challenges surrounding rural education in Türkiye and provide a strategic framework for addressing them through the lens of incentive prioritization. The clear preference for professional development opportunities and housing allowances as top-ranked incentive structures reflects the multifaceted nature of teacher motivation, where both intrinsic and extrinsic factors play pivotal roles in influencing long-term commitment and job satisfaction. These results are strongly aligned with international literature that underscores the importance of continuous professional growth in enhancing teacher retention and improving instructional quality, particularly in underserved areas where professional isolation and lack of support are common (Podolsky et al., 2019). At the same time, the emphasis on housing allowances demonstrates the enduring importance of meeting educators' basic economic needs. Financial relief through targeted support programs makes

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

rural teaching positions more viable and reduces the burden associated with relocation and daily living costs, a conclusion echoed in empirical findings from studies such as Gilligan et al. (2022), which highlight the practicality of housing support in driving recruitment and retention outcomes.

These findings are also consistent with the broader trajectory of education policies in Türkiye, many of which have historically aimed to reduce urban-rural disparities by introducing support mechanisms for rural teachers (Kocakurt, 2016). However, the study's results suggest an emerging shift in strategic focus—from temporary financial remedies toward sustainable investments in educator capacity building. The prioritization of professional development points to a deeper recognition that empowering teachers with skills, mentorship, and growth opportunities has a longer-lasting impact than salary-based incentives alone. This aligns with successful global models such as those seen in Finland and Singapore, where the professional status and development of teachers are central to educational success (Shikalepo, 2020). In these contexts, teaching is treated as a high-skill, continuously evolving profession, and teacher support policies reflect a comprehensive understanding of what sustains motivation and engagement over time.

To effectively implement these prioritized incentives, a set of actionable and context-specific strategies must be adopted. For professional development, the design of programs should directly address the unique constraints faced by rural educators, such as geographic isolation, limited access to peer networks, and outdated pedagogical tools. Initiatives should include structured mentorship programs, peer learning communities, and competency-based workshops tailored to rural educational contexts. Drawing on models proposed by Zhang et al. (2021), these development opportunities should be continuous rather than one-off events, encouraging sustained growth and reinforcing a sense of professional identity and belonging. Moreover, leveraging digital platforms to offer remote training and peer collaboration can enhance the reach and inclusivity of such programs. In areas where physical access to training centers is limited, technology offers a cost-effective alternative for delivering high-impact development tools, while simultaneously building digital literacy among rural educators.

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

In the case of housing allowances, implementation strategies should emphasize equity and regional customization. Rather than a one-size-fits-all approach, support should be tailored to reflect the cost-of-living differences across rural regions and the severity of infrastructure deficits. As highlighted by Russell et al. (2021), effective housing support mechanisms not only alleviate financial burdens but also contribute to stability, enabling teachers to integrate more fully into local communities. To ensure financial sustainability and broader impact, these housing programs could be aligned with rural development policies, such as government-led housing projects for public sector employees. Furthermore, partnerships with municipalities or private sector developers could be explored to extend housing access while sharing cost burdens. In this way, housing allowances would form part of a holistic rural development strategy, improving not only teacher well-being but also overall living conditions in marginalized areas. Scaling up these incentive structures in a cost-effective manner presents a complex but achievable goal, provided that implementation is guided by robust planning, stakeholder engagement, and evidence-based evaluation. Drawing on lessons from Peng et al. (2020), a phased implementation strategy can be employed, beginning with high-need regions and gradually expanding based on resource availability, performance feedback, and impact assessment. Establishing public-private partnerships and seeking international funding opportunities can also bolster program reach and long-term viability. In particular, donor agencies and development organizations with an interest in educational equity may provide technical or financial support for targeted pilot programs. These partnerships can not only offset fiscal constraints but also introduce global best practices and monitoring tools, increasing transparency and accountability in program execution.Beyond the practical aspects of implementation, the study's findings carry significant implications for policy formulation in Türkiye and beyond. The high prioritization of professional development underscores the need for a shift in education policy from reactive financial incentives to proactive capacity-building strategies that enhance the professional lives of educators. As noted by Shuls and Flores (2020), such strategies promote a culture of professionalism and resilience, encouraging teachers to remain committed to their roles despite external hardships. Similarly, the validation of housing allowances highlights the importance of integrating financial support with broader socio-economic policies, emphasizing a systems-level approach to education reform. These findings resonate with global evidence suggesting that well-targeted, context-aware incentives can significantly improve workforce retention in underserved sectors, particularly when paired with supportive institutional ecosystems (Russell et al., 2021).

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Finally, the study emphasizes the value of analytical and data-driven frameworks, such as the Multi-Attribute Utility Theory (MAUT), in guiding education policy decisions. By offering a transparent and systematic method for evaluating multiple, often competing, incentive options, MAUT empowers policymakers to move beyond intuition or political expediency toward evidence-based planning. The flexibility of the framework also allows for adaptation across sectors, suggesting its potential for application in other public service domains facing similar human resource challenges. As resource allocation becomes increasingly complex in the face of economic and demographic shifts, decision-support models like MAUT can serve as indispensable tools for aligning program design with both national priorities and global standards.

In conclusion, this study highlights the importance of strategically combining professional development initiatives with housing allowances to address the multifaceted challenges of rural education in Türkiye. These findings support a broader vision of educational equity, one that recognizes teacher motivation as both a personal and structural issue. By aligning incentive structures with national education goals and international best practices, policymakers can develop sustainable, context-sensitive solutions that not only improve teacher retention and satisfaction but also contribute to stronger educational outcomes for rural communities. The integration of robust decision-making tools further ensures that these solutions are responsive, effective, and scalable, setting the stage for long-term transformation in rural education systems.

6. Conclusion

This study demonstrates that well-designed incentive portfolios can materially improve educator retention and satisfaction in rural Türkiye, where geographic dispersion, housing constraints, and limited professional networks continue to depress placement stability. By applying a Multi-Attribute Utility Theory (MAUT) framework to four alternatives Professional Development Opportunities, Housing Allowances, Monetary Rewards, and Recognition Programs across five policy-salient criteria (implementation cost, retention effectiveness, educator satisfaction, scalability, and long-term impact), we obtained a clear and interpretable ranking that privileges long-horizon capacity building over short-term signals. Professional Development Opportunities emerged as the top-performing option because they activate intrinsic motivators skill acquisition, career progression, and self-efficacy while compounding benefits over time through improved instructional quality and stronger professional

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

communities. Housing Allowances ranked second by directly offsetting relocation and living costs that disproportionately burden rural placements; in practice, such support reduces the friction of accepting and sustaining posts in underserved locations. Monetary Rewards and Recognition Programs, while not without value, underperformed on durability and scalability when judged against the same criteria, suggesting they function best as complementary rather than primary levers.

Taken together, these findings support a complementary policy package that pairs Professional Development Opportunities with Housing Allowances to balance long-term capability development and near-term feasibility. A coherent program would institutionalize continuous professional learning mentoring systems, credential pathways, and remote/hybrid training supported by reliable connectivity while embedding location-sensitive housing support into rural staffing policies and broader regional development plans. The MAUT template proved both transparent and adaptable: it makes trade-offs explicit, allows weights and performance scores to be updated as conditions evolve, and can be reapplied at multiple administrative levels (school cluster, district, province, or national) to ensure consistent, data-driven resource allocation. For administrators facing budget constraints, the same framework can run scenario analyses (e.g., different cost envelopes or teacher segmentation by tenure/subject shortage) to stress-test portfolios before implementation, thereby improving the probability that adopted incentives deliver measurable retention gains relative to status-quo approaches.

Several limitations bound interpretation and generalizability. The analysis is Türkiye-specific, and transferability to other systems will depend on differences in governance structures, teacher labor markets, housing conditions, and digital infrastructure. The criteria set was intentionally concise to foreground policy tractability; consequently, important dimensions student learning outcomes, distributional equity across communities, educator well-being, and institutional trust were not modeled directly and could shift priorities when explicitly included. Finally, the study relied on expert judgments rather than broad-based stakeholder input; while this improves methodological coherence and comparability, it risks under-weighting lived experiences of students, parents, and local leaders who often face the downstream consequences of staffing volatility and service fragmentation.

Future research should therefore extend this foundation in four ways. First, cross-regional and cross-country applications can assess generalizability and identify boundary conditions where the relative performance of incentives changes (e.g., where housing markets are less distorted

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

or where professional learning ecosystems are already mature). Second and aligning with your recommendation incorporating additional criteria such as student academic outcomes and community engagement can enable a more holistic evaluation of incentive structures, linking incentive design to classroom learning, school–community ties, and longer-run social value creation. Third, participatory and mixed-methods designs combining MAUT with stakeholder interviews, discrete-choice experiments, and budget-impact modeling can surface heterogeneous preferences and illuminate implementation frictions that pure expert panels may miss. Fourth, longitudinal evaluations, ideally with phased rollouts and quasi-experimental designs, are needed to estimate persistence of effects, spillovers across schools, and the cost-effectiveness of alternative portfolios under real-world fiscal constraints. In sum, combining Professional Development Opportunities with Housing Allowances offers a robust, context-sensitive strategy for rural educator retention in Türkiye, and the MAUT approach furnishes a replicable, evidence-based pathway for refining incentive portfolios as conditions, budgets, and strategic priorities evolve.

References

Akpan, U., & Morimoto, R. (2022). An application of Multi-Attribute Utility Theory (MAUT) to the prioritization of rural roads to improve rural accessibility in Nigeria. Socio-Economic Planning Sciences, 82, 101256.

Albayrak, H. (2022). Implemantation of the EU Rural Development Policy in Türkiye: Malatya Provincial Case, Verimlilik Dergisi, (4), 659-676.

Apriansyah, A., & Rakhman, M. A. (2024). Decision Support System For Determining The Best Lecturers And Students In The Information Technology Study Program, UM Palembang Using The Multi Attribute Utility Theory Method. Jurnal Info Sains: Informatika dan Sains, 14(04), 665-677.

Arredondo, K., Touchett, H. N., Khan, S., Vincenti, M., & Watts, B. V. (2023). Current programs and incentives to overcome rural physician shortages in the United States: A narrative review. Journal of General Internal Medicine, 38(Suppl 3), 916-922.

Dohaney, J., de Róiste, M., Salmon, R. A., & Sutherland, K. (2020). Benefits, barriers, and incentives for improved resilience to disruption in university teaching. International Journal of Disaster Risk Reduction, 50, 101691.

Gilligan, D. O., Karachiwalla, N., Kasirye, I., Lucas, A. M., & Neal, D. (2022). Educator incentives and educational triage in rural primary schools. Journal of Human Resources, 57(1), 79-111.

Gönder, H. (2023). Transforming Rural Education: Village Institutes as Architects of Modernity in Türkiye (1937-1960)(Doctoral dissertation, Szeged University (Hungary)).

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Kabassi, K., & Virvou, M. (2006). Multi-attribute utility theory and adaptive techniques for intelligent web-based educational software. Instructional Science, 34(2), 131-158.

Kocakurt, S. Ö. (2016). Türkiye'de kırsal alanda okullaşma ve yetişkin nüfusun eğitim durumuna ilişkin bir analiz.

Maheshwari, G. (2022). Influence of teacher-perceived transformational and transactional school leadership on teachers' job satisfaction and performance: a case of Vietnam. Leadership and Policy in Schools, 21(4), 876-890.

Maravanyika, M., & Dlodlo, N. (2018). Selecting attributes for inclusion in an educational recommender system using the multi-attribute utility theory. In Applied Informatics: First International Conference, ICAI 2018, Bogotá, Colombia, November 1-3, 2018, Proceedings 1 (pp. 239-252). Springer International Publishing.

Peng, K., Yang, C., & Chen, Y. (2020). Land transfer in rural China: Incentives, influencing factors and income effects. Applied Economics, 52(50), 5477-5490.

Podolsky, A., Kini, T., Darling-Hammond, L., & Bishop, J. (2019). Strategies for attracting and retaining educators: What does the evidence say?. Education Policy Analysis Archives, 27, 38-38.

Russell, D., Mathew, S., Fitts, M., Liddle, Z., Murakami-Gold, L., Campbell, N., ... & Wakerman, J. (2021). Interventions for health workforce retention in rural and remote areas: a systematic review. Human Resources for Health, 19(1), 103.

Ryu, S., & Jinnai, Y. (2021). Effects of monetary incentives on teacher turnover: A longitudinal analysis. Public Personnel Management, 50(2), 205-231.

Shikalepo, E. E. (2020). Challenges facing teaching at rural schools: A review of related literature. International Journal of Research and Innovation in Social Science, 4(5), 211-218.

Shuls, J. V., & Flores, J. M. (2020). Improving teacher retention through support and development. Journal of Educational Leadership and Policy Studies, 4(1), n1.

Sulistiani, H., Palupiningsih, P., Hamidy, F., Sari, P. L., & Khairunnisa, Y. (2023, November). Employee Performance Evaluation Using Multi-Attribute Utility Theory (MAUT) with PIPRECIA-S Weighting: A Case Study in Education Institution. In 2023 International Conference on Informatics, Multimedia, Cyber and Informations System (ICIMCIS) (pp. 369-373). IEEE.

Thomas, L. (2008). Learning and teaching strategies to promote student retention and success. In Improving student retention in higher education (pp. 87-134). Routledge.

Wang, J., Tigelaar, D. E., & Admiraal, W. (2021). Rural teachers' sharing of digital educational resources: From motivation to behavior. Computers & Education, 161, 104055.

White, S., Green, W., Reid, J. A., Lock, G., & Hastings, W. (2008). Teacher education for rural communities: a focus on'incentives'. In Australian Teacher Education Association Conference (pp. 381-390). ATEA.

Gönderim tarihi: 01.04.2025 Kabul tarihi: 10.02.2026
DOI: 10.14514/beykozad.1668989

Zhang, X., Admiraal, W., & Saab, N. (2021). Teachers' motivation to participate in continuous professional development: relationship with factors at the personal and school level. Journal of Education for Teaching, 47(5), 714-731.