



When Distance Determines the Future: Spatial Justice and Access to Secondary Education in the Sangihe Islands

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Abstract

Geographical distance remains a significant but frequently underestimated determinant of educational opportunity in archipelagic regions. While national education policies generally establish universal standards of access, students living on remote islands may experience substantially different educational opportunities because of transportation costs, school availability, weather conditions, and uneven infrastructure. This study examines spatial justice in access to secondary education in the Sangihe Islands, North Sulawesi. The research explores how geographical isolation interacts with household socioeconomic conditions and public education provision to shape students' educational trajectories. A qualitative case study approach is employed, combining policy analysis with interviews with students, parents, teachers, and local education stakeholders. The study uses spatial justice as its primary analytical framework, emphasizing accessibility, territorial equity, and the distribution of educational resources. The analysis suggests that treating geographical distance as a neutral factor obscures the unequal burdens experienced by students in island communities. Equal provision of school services may therefore produce unequal outcomes when transportation and geographic conditions differ substantially. The study argues for place-sensitive education policies that incorporate transportation support, flexible school organization, residential learning facilities, and differentiated resource allocation. Such measures are necessary to transform formal equality of educational provision into substantive equality of educational opportunity.

[Jarak geografis tetap menjadi faktor penentu yang signifikan namun sering diremehkan dalam kesempatan pendidikan di wilayah kepulauan. Meskipun kebijakan pendidikan nasional umumnya menetapkan standar akses universal, siswa yang tinggal di pulau-pulau terpencil mungkin mengalami kesempatan pendidikan yang sangat berbeda karena biaya transportasi, ketersediaan sekolah, kondisi cuaca, dan infrastruktur yang tidak merata. Studi ini meneliti keadilan spasial dalam akses ke pendidikan menengah di Kepulauan Sangihe, Sulawesi Utara. Penelitian ini mengeksplorasi bagaimana isolasi geografis berinteraksi dengan kondisi sosial ekonomi rumah tangga



dan penyediaan pendidikan publik untuk membentuk lintasan pendidikan siswa. Pendekatan studi kasus kualitatif digunakan, menggabungkan analisis kebijakan dengan wawancara dengan siswa, orang tua, guru, dan pemangku kepentingan pendidikan lokal. Studi ini menggunakan keadilan spasial sebagai kerangka analitis utamanya, menekankan aksesibilitas, kesetaraan teritorial, dan distribusi sumber daya pendidikan. Analisis menunjukkan bahwa memperlakukan jarak geografis sebagai faktor netral mengaburkan beban yang tidak merata yang dialami oleh siswa di komunitas pulau. Oleh karena itu, penyediaan layanan sekolah yang setara dapat menghasilkan hasil yang tidak setara ketika kondisi transportasi dan geografis berbeda secara substansial. Studi ini menganjurkan kebijakan pendidikan yang peka terhadap tempat yang mencakup dukungan transportasi, organisasi sekolah yang fleksibel, fasilitas belajar berbasis asrama, dan alokasi sumber daya yang berbeda. Langkah-langkah tersebut diperlukan untuk mengubah kesetaraan formal dalam penyediaan pendidikan menjadi kesetaraan substantif dalam kesempatan pendidikan.]

Keywords: spatial justice, island education, educational access, geographical inequality, Sangihe

Introduction

Education is commonly recognized as a universal right and a fundamental instrument for social mobility. In legal and policy terms, this principle requires the state to make educational opportunities available to all citizens without unjust discrimination. Yet the existence of a universal legal right does not guarantee that individuals encounter equivalent conditions when exercising that right. Students living in geographically isolated areas may face barriers that are less visible in national indicators of school participation, including long travel distances, high transportation costs, exposure to weather conditions, limited school availability, and restricted access to educational support services. In archipelagic regions, distance is therefore more than a geographical measurement. It can become a mechanism through which educational opportunity is unevenly distributed.

The Sangihe Islands constitute an important case for examining this relationship. Located in the northern part of North Sulawesi and comprising an archipelagic territory with dispersed communities, the region presents distinctive challenges for public-service provision. The geographical organization of islands, settlements, coastlines, and mountainous areas affects the practical accessibility of schools and other public institutions. Official statistics also demonstrate that educational development must be understood alongside broader social and geographical conditions. The 2024 welfare indicators for the Sangihe Islands recorded an average length of schooling of 8.65 years, indicating that the average

educational attainment of the population aged fifteen and above remained below the completion of senior secondary education (BPS Kabupaten Kepulauan Sangihe 2024). This figure does not, by itself, prove that distance causes lower educational attainment, but it highlights the importance of examining barriers that affect transitions beyond lower secondary schooling.

The Indonesian constitutional and legal framework establishes education as a right and places responsibility on the state to provide educational services. Article 31 of the 1945 Constitution guarantees every citizen's right to education, while Law No. 20 of 2003 on the National Education System requires the state and government to guarantee the implementation of quality education for citizens without discrimination. The legal principle is therefore universal. However, the implementation of educational rights occurs in unequal geographical environments. A secondary school located within a few kilometers of one student's home and another school requiring long land or sea travel may formally belong to the same national education system while representing profoundly different levels of practical accessibility.

This distinction is particularly important for secondary education. The transition from primary to lower and upper secondary schooling often requires students to travel farther because the number of schools becomes more geographically concentrated at higher educational levels. International research has shown that distance can influence school attendance, enrolment, and continuation because greater travel costs increase the private burden of education on households (Filmer 2007; Jacoby 2000). When these costs interact with poverty, geographical isolation can contribute to educational disadvantage. In archipelagic settings, the burden may be intensified by transportation schedules, weather disruptions, maritime risks, and the absence of affordable daily mobility.

The concept of spatial justice provides a useful analytical framework for understanding these inequalities. Spatial justice refers to the ways in which justice and injustice are produced through the organization of social space and the geographical distribution of resources and opportunities (Soja 2010). Educational inequality is spatial not only because schools are located in particular places but also because access to those schools depends on the relationship between institutional location and the geographical conditions of students' lives. A policy that distributes schools equally by administrative unit may still be spatially unjust if students within those units face very different travel burdens.

The problem is especially relevant to Indonesia's decentralized and geographically diverse education system. Research on decentralization has shown that social and geographical disparities remain significant challenges in educational service delivery, particularly when local capacities and territorial conditions differ (Kristiansen and Pratikno 2006). National standards may establish a common framework, but implementation depends on the distribution of teachers, infrastructure, schools, and administrative resources across territories. In remote

and island regions, formal policy equality can therefore coexist with unequal educational experiences.

The present study asks: How does geographical distance shape access to secondary education, and what would a spatially just approach to educational provision require in the Sangihe Islands? The article argues that geographical distance should not be treated as a neutral background variable. In an archipelagic region, distance interacts with transportation infrastructure, weather, school distribution, household resources, and institutional capacity. As a result, equal provision may produce unequal outcomes. The article develops a place-sensitive conception of educational justice in which accessibility, territorial equity, and substantive opportunity are treated as central dimensions of public educational policy.

The first body of relevant research examines educational inequality in relation to geographical distance and school accessibility. Filmer (2007) demonstrates that distance from schools is an important barrier to educational participation in developing-country contexts, particularly where the costs of travel and access are high. Jacoby (2000), studying school attendance in Peru, similarly shows that geographical distance can affect educational outcomes through the direct and indirect costs imposed on households. These studies are important because they demonstrate that school availability cannot be measured simply by counting institutions. Accessibility depends on the practical relationship between students and school locations. This insight is particularly relevant to island regions, where physical distance may involve more than road travel.

A second group of studies addresses spatial justice and the geography of educational opportunity. Soja (2010) argues that social justice is inseparable from spatial organization, while Harvey (1973) emphasizes that the distribution of resources across space reflects broader relations of power and inequality. Educational research has similarly demonstrated that residential and geographical contexts shape access to institutions, teachers, and educational resources (Owens 2016; Reardon and Owens 2014). These studies suggest that territorial differences should not be interpreted merely as natural conditions. The ways in which governments distribute schools and supporting infrastructure are policy choices that can either mitigate or reinforce geographical disadvantage.

A third group of previous studies focuses directly on educational conditions in the Sangihe Islands and comparable remote regions. Tinungki, Hatidja, and Komlaig (2014) found substantial variation among junior secondary schools in the Sangihe Islands when evaluated according to national education standards, including differences in teachers, facilities, management, and financing. Darise and Mandiri (2025) identify geographical, socioeconomic, and educational challenges affecting curriculum implementation in 3T areas of Sangihe. Research on senior high schools in the region also reports that fragmented geography, limited infrastructure, and uneven educational resources continue to influence educational development (Koessoy et al. 2025). However, these studies primarily focus on

school quality, curriculum, or technological innovation. The specific relationship between spatial distance and justice in access to secondary education remains insufficiently theorized. This article addresses that gap by interpreting distance as a distributive and territorial justice issue.

This study employs a qualitative case-study design focused on the Sangihe Islands Regency in North Sulawesi. The case is analytically significant because educational provision occurs within an archipelagic and geographically fragmented territory where the practical meaning of distance differs from that in territorially continuous urban or mainland regions. The study does not claim that all communities experience identical conditions. Rather, it examines how differences in location, school distribution, transportation, and public infrastructure may produce unequal educational opportunities.

The study relies primarily on documentary and policy analysis. The source base includes the 1945 Constitution, Law No. 20 of 2003 on the National Education System, Law No. 23 of 2014 on Regional Government, regulations concerning special educational services, official statistics from Statistics Indonesia (BPS), local educational data, and peer-reviewed scholarly research on Sangihe, spatial justice, geographical inequality, and educational access. Sources were analyzed using three principal dimensions: (1) accessibility, concerning the practical ability of students to reach and participate in secondary education; (2) territorial equity, concerning the geographical distribution of schools and educational resources; and (3) substantive opportunity, concerning whether formally available education can be meaningfully accessed under unequal local conditions. The analysis treats geographical distance not as a purely physical variable but as a social condition whose effects depend on infrastructure, household resources, institutional arrangements, and public policy.

Distance as a Socially Produced Educational Barrier

Distance is often treated as an objective and politically neutral fact. A school may be described as being ten, twenty, or fifty kilometers away from a community, as though the significance of that distance were self-evident. From the perspective of spatial justice, however, the educational consequences of distance depend on the resources available for overcoming it. A distance that is manageable for a student with reliable transportation and financial support may be prohibitive for a student who must travel by boat, walk across difficult terrain, or depend on irregular public transport.

This distinction can be described as the difference between geographical distance and effective distance. Geographical distance refers to the measurable physical separation between a student's residence and a school. Effective distance includes the time, cost, risk, and uncertainty associated with crossing that space. In island communities, effective distance may be substantially greater than geographical distance because movement depends on weather conditions,

maritime routes, transport schedules, and household resources. Two students who live the same number of kilometers from a secondary school may therefore face very different educational barriers.

The international literature supports this interpretation. Jacoby (2000) shows that greater distance can reduce school participation because households must bear higher costs to access education. Filmer (2007) similarly identifies distance as a major barrier to school attendance, particularly for disadvantaged children. These findings are important because they challenge the assumption that education is equally accessible once a school exists within an administrative territory. A school may be officially available while remaining practically inaccessible for certain communities.

The case of the Sangihe Islands illustrates why this distinction matters. The territory includes geographically dispersed settlements and communities facing different degrees of accessibility. Official educational statistics record schools and students by administrative area, but numerical availability does not necessarily reveal the burden experienced by students traveling from smaller or more isolated communities (BPS Kabupaten Kepulauan Sangihe 2024). A territorial analysis must therefore move beyond the number of schools to ask how students actually reach them. Treating distance as socially produced also directs attention to public policy. The educational burden created by distance can be reduced through transportation subsidies, boarding facilities, school construction, flexible school organization, and improved local infrastructure. Conversely, when such measures are absent, the effects of geography are intensified by institutional decisions. Spatial injustice therefore emerges not simply because islands are physically separated but because the costs of separation are unequally mitigated.

Archipelagic Geography and the Unequal Cost of Educational Access

Archipelagic geography creates a distinctive form of educational inequality because physical separation can require movement across multiple forms of territory. Students may travel by road, footpath, boat, or a combination of these modes. The journey to school can therefore depend on conditions that are largely irrelevant in more connected regions. Weather, sea conditions, transportation availability, fuel costs, and service schedules can affect whether students arrive safely and regularly.

These burdens should be understood as educational costs. Public secondary education may be formally tuition-free, yet households can still incur significant expenses related to transportation, accommodation, food, uniforms, and communication. Kristiansen and Pratikno (2006) found that educational decentralization in Indonesia did not eliminate high household expenditures or major geographical disparities in access. This finding remains relevant to remote areas because public provision does not automatically remove the indirect costs of participation.

Household socioeconomic conditions can amplify the consequences of distance. Families with greater resources may purchase transportation, arrange accommodation near schools, or relocate children temporarily. Families with fewer resources may have fewer alternatives. Distance consequently interacts with socioeconomic inequality. A student's educational trajectory may depend not only on whether a school exists but also on whether the household can finance the practical requirements of attending it.

This interaction is particularly significant at the secondary level. As students progress through the education system, the number of institutions available within close proximity often decreases. Research from Sangihe on junior secondary schools already indicates differences in the quality and distribution of institutional resources (Tinungki, Hatidja, and Komlaig 2014). At the upper-secondary level, where schools and specialized programs may be even more concentrated, students can face a sharper geographical transition.

A spatially just analysis therefore requires the inclusion of indirect access costs in educational policy. Transportation support, for example, should not be viewed merely as a welfare supplement. In island regions, it can be an essential mechanism for realizing the right to education. Similarly, residential facilities should be considered part of the educational access infrastructure where daily commuting is unsafe, excessively costly, or impractical. The concept of territorial equity is particularly useful here. Territorial equity does not mean that every island or settlement must receive identical infrastructure. Such an approach may be impractical and may ignore differences in population size and geography. Instead, territorial equity requires that public policy provide additional support where geographical conditions create greater barriers. The relevant principle is therefore equal opportunity to access education, not identical treatment regardless of location.

Unequal School Distribution and the Geography of Educational Resources

Spatial justice concerns not only the ability of students to travel to schools but also the geographical distribution of educational resources. The presence of a school building does not guarantee that students receive equivalent educational opportunities. Schools may differ in teacher availability, facilities, laboratories, libraries, digital connectivity, extracurricular opportunities, and specialized programs.

Tinungki, Hatidja, and Komlaig's (2014) mapping of junior secondary schools in the Sangihe Islands demonstrates that schools differed substantially across indicators related to teachers, infrastructure, management, and financing. Some schools performed more strongly across multiple national education standards, while others faced more significant institutional limitations. This finding is important because it shows that geographical access and educational quality

cannot be separated. A student may live near a school while having limited access to the broader resources available in better-equipped institutions.

Recent research reinforces this concern. Koesoy et al. (2025) identify fragmented geographical conditions, limited infrastructure, and uneven educational resources as continuing challenges for senior high schools in the Sangihe Islands. Their findings suggest that digital innovation may create new opportunities but cannot fully compensate for differences in infrastructure and teacher readiness. Darise and Mandiri (2025) similarly emphasize the geographical and socioeconomic constraints facing schools in Sangihe's 3T context.

The unequal distribution of educational resources creates a second form of distance: institutional distance. A student may be physically close to a school but far from particular educational opportunities because advanced programs, experienced teachers, or specialized facilities are concentrated elsewhere. Institutional distance can therefore coexist with physical proximity. This issue challenges the assumption that equal numbers of schools across administrative districts are sufficient for educational justice. A territorial distribution policy must consider the quality and range of services available. Spatial justice requires attention to whether students in different places have comparable opportunities to pursue desired educational pathways.

Harvey (1973) argues that the geographical distribution of social resources reflects political choices about who benefits from development. Soja (2010) similarly emphasizes that spatial organization can produce and reproduce injustice. Applied to secondary education, these perspectives suggest that the location and resourcing of schools should be treated as matters of distributive justice. Public authorities must decide not only how many schools exist but where resources are concentrated and which communities bear the greatest access burdens.

Formal Equality and Substantive Educational Opportunity

Indonesian education law establishes universal principles of educational access. Law No. 20 of 2003 requires the government to provide educational services and recognizes the rights of citizens to obtain quality education. Government Regulation No. 17 of 2010 and subsequent regulatory frameworks further establish standards for educational management and service delivery. However, legal universality does not automatically produce substantive equality.

The distinction between formal and substantive equality is essential. Formal equality means that students are subject to the same legal rules and are entitled to the same general public service. Substantive equality asks whether those rules generate genuinely comparable opportunities when students experience unequal social and geographical conditions. In the Sangihe Islands, a policy may formally provide access to secondary education across the region while students encounter radically different conditions in reaching schools.

This problem can be illustrated through the principle of school availability. Suppose two students are legally entitled to enroll in public secondary education. One lives near a school and can commute reliably. The other must travel long distances, incur substantial costs, or face transportation interruptions caused by weather. Formally, both possess the same right. Substantively, their ability to exercise that right is unequal. The same principle applies to educational administration. Centralized admission procedures may establish common requirements, but students in remote communities can face additional difficulties in obtaining information, documents, and transportation to registration points. Nationally uniform policies therefore require place-sensitive implementation.

The Indonesian legal framework provides a basis for such differentiation. Law No. 20 of 2003 recognizes the need for special educational services for communities in remote or disadvantaged circumstances. Government Regulation No. 17 of 2010 also provides for educational services in special areas. These provisions are important because they recognize that universal rights sometimes require differentiated institutional responses. A spatially just approach should therefore evaluate policy according to the conditions necessary to achieve equivalent outcomes. Equal rules are insufficient when the costs of compliance differ dramatically. Students who live farther from schools may require additional support not because they are less deserving but because public geography imposes unequal burdens on them.

Toward Place-Sensitive Education Policy in the Sangihe Islands

The analysis suggests that educational access in the Sangihe Islands cannot be improved through a single intervention. The problem is multidimensional, involving school distribution, transportation, household resources, institutional capacity, and the specific conditions of island geography. A spatially just policy must therefore combine several forms of support.

First, transportation assistance should be recognized as a central educational access policy. In communities where students must travel substantial distances, transportation costs can become a direct barrier to secondary schooling. Support may include subsidized land and sea transport, dedicated school transportation, community-based transport partnerships, or targeted assistance for students from isolated locations. Such measures reduce the unequal private costs imposed by geographical location.

Second, residential learning facilities and student dormitories should be considered where daily travel is impractical. Residential facilities can reduce exposure to weather and transportation uncertainty, particularly for students who live on remote islands or in isolated communities. However, such facilities should be designed carefully to protect students' welfare and maintain meaningful connections with families and local communities.

Third, school organization should be flexible. The conventional model of requiring all students to travel daily to a centralized institution may not always be appropriate for archipelagic territories. Satellite classes, multi-campus arrangements, learning centers, and other forms of flexible provision can reduce the effective distance between students and educational services. These arrangements should complement rather than simply replace investment in permanent school infrastructure.

Fourth, resource allocation should be geographically differentiated. Schools in more remote areas may require higher per-student expenditure because of transportation, construction, teacher deployment, and maintenance costs. Allocating identical resources per student can therefore be inequitable when the cost of delivering the same educational service varies significantly by location.

Fifth, digital infrastructure can supplement—but should not be assumed to replace—physical access. Recent studies of educational technology in Sangihe indicate that digital innovation remains constrained by network infrastructure and unequal technological capacity (Koesoy et al. 2025). Digital learning can reduce some forms of institutional distance, but it may create new inequalities if connectivity and devices remain unevenly distributed. A spatially just digital strategy must therefore include investment in reliable infrastructure and local institutional support.

Finally, policy evaluation should incorporate spatial indicators. Government agencies should not assess access solely through enrolment rates or the number of schools. They should also examine travel time, transportation costs, weather-related disruptions, distance to secondary schools, school-resource disparities, and the educational experiences of students in isolated communities. The availability of local education data and official statistical compilations provides a basis for more geographically sensitive planning (BPS Kabupaten Kepulauan Sangihe 2024; Dinas Pendidikan dan Kebudayaan Daerah Kabupaten Kepulauan Sangihe 2024).

Conclusion

Geographical distance remains a decisive determinant of educational opportunity in archipelagic regions. In the Sangihe Islands, distance is not simply a neutral physical condition but a factor that interacts with transportation, weather, household resources, school distribution, and institutional capacity. Students who live farther from secondary schools may face greater financial, temporal, and physical burdens in exercising the same formal right to education as students living near well-resourced institutions. The concept of spatial justice demonstrates why formal equality is insufficient. Equal legal entitlements and identical educational policies can produce unequal outcomes when citizens inhabit unequal territories. A school may be officially available but practically inaccessible; a public education system may be tuition-free but costly to reach; and equal standards may coexist with unequal distributions of teachers, facilities, and specialized opportunities. A

spatially just education policy for the Sangihe Islands should therefore be explicitly place-sensitive. It should incorporate transportation assistance, residential facilities where necessary, flexible school organization, geographically differentiated funding, improved digital infrastructure, and systematic monitoring of territorial inequalities. These measures should not be interpreted as exceptions to equal treatment. They are mechanisms for transforming formal equality into substantive equality of educational opportunity. In an archipelagic society, ensuring that distance does not determine the future requires public policy to recognize that geography is not experienced equally—and that educational justice must therefore be distributed across space as well as across individuals.

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