

Data for Social Good: Developing an Evidence-Based Approach to Locate the Potential Need for Strategic Planning

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Abstract

After nearly 15 years of establishment and development, the Legal Aid Foundation (LAF) in Taiwan has recently conducted a series of research (so called 'Data for Social Good' Project) through internal and external collaborations for better strategic planning and resource allocation. By employing government open data as proxies, the project analysed the LAF's operational and management data between 2015 and 2017 and obtained its service coverage for each geographical area and target disadvantaged communities. This helped to recognise the potential need for legal aid, local distinctiveness and service gaps. This project has presented the assessed needs and service gaps and located outreach points for advice, public legal education and promotion through cartographic visualisation. Relationships between the geographical environment and service coverage were also explored. In order to improve the assessment and to expand the impact of this evidence-based approach, the project also actively engaged with LAF's branch offices to collect their feedback and local knowledge. This paper will outline the newly adopted data-driven and community-based approach, present the preliminary research findings from the data analysis and local branch office feedback and summarise the implications for future policy and strategic planning.

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1. Introduction

1.1 The Taiwanese Legal Aid System and the Legal Aid Foundation

Legal Aid Foundation (hereinafter called 'LAF' or 'the Foundation') is the first, as well as only, statutory legal aid organisation in Taiwan. According to the Legal Aid Act promulgated in January 2004, LAF was established in July 2004 with the public funding provided by the highest judicial authority, Judicial Yuan. Before 2004, legal services for the indigent were fragmented and of limited scope.¹ It was not until the establishment of LAF that a comprehensive range of legal assistance including advice, minor assistance and representation, public legal education and law reform could be provided for the socially and financially disadvantaged with adequate state funding.² Since most other publicly-funded legal services more focused on the delivery of legal advice, LAF has channelled the bulk of its resources towards legal representation.

While the head office deals with organisation-wide affairs more at the policy level, the frontline service delivery at the operation level heavily relies on the branch offices. Clients have to visit the branch offices to file an application for legal aid grants for minor assistance or representation. An examining committee (usually consisting of 3 legal professionals) apply means and merits tests and decide on whether to approve a legal aid grant.³ The branch offices would then assign either an external private lawyer or a staff lawyer to undertake the casework. Aside from the administration of legal aid grants, branch offices also have to organise outreach events, public legal education sessions, and arrange the lawyers' rotas for advice clinics etc. Except for the three branches on offshore islands, each branch office is staffed with a full-time executive secretary (usually a qualified lawyer in a managerial role) and a number of paralegals. Currently there are 22 branch offices established across the country. The size of the branch offices varies from region to region, depending upon the density of the population.

It is worth noting that although the LAF branch offices serve local people, their development is highly subject to policy and the supervision by head office. Except for some region-specific programmes developed by branch offices with local funding resources, the top-down management has made most branch offices focus on

¹ Chen, M-F. et al. (2005). *Bringing Justice to You: A Record of the Development of Legal Aid in Taiwan*. Taipei: Legal Aid Foundation; Chen, W-S. (2009). *Chinese Taipei Report*. Conference paper prepared for International Legal Aid Group Conference, Wellington, New Zealand, 1-3 April 2009, pp.2-5.

² The legal aid matters handled by the LAF are formulated in Articles 4 and 10 of Legal Aid Act (Taiwan). The state funding donated to the LAF has been larger than any other funding provided to other legal services scheme. In addition, the level of the legal aid funding has been increasing for the past 15 years. See LAF (2019). *National Report: Taiwan*. Conference paper prepared for International Legal Aid Group Conference, Ottawa, Canada, 17-19 June 2019, p.8.

³ *ibid*, LAF (2019), pp.10-13.

compliance with the latest policies and the administration of legal aid grants rather than identifying and responding to local needs proactively.

1.2 Recent Development and an Urgent Need for Strategic Planning

The Legal Aid Act was recently amended in 2015 based on LAF's practices in the first decade. A major focus of the amendment included relaxing the eligibility criteria and expanding the scope of exemption from the means tests. This has led to an enormous increase in legal aid applications and grants, which has caused a tremendous workload and pressure for the employees.⁴ Such tension has forced the LAF's branch offices to organise outreach, advice clinics and public legal education events with less time and a smaller work force. A better strategy to target potential clients in need of legal aid was therefore required.

The above challenge also highlighted LAF's drawbacks in management, policy making and resource allocation. Although LAF has emphasised financially and socially disadvantaged communities such as people on low-income benefits, labourers, indigenous peoples, consumer debtors, people with disabilities and even formulated different programs for them with different funding sources⁵, to what extent these groups have been appropriately reached by LAF is still unknown. Geographical distinctiveness and the features of the populations including their legal needs and the clients' preferred dispute resolution models may not be well recognised by the head office and even by some of the branches. There is a great fear that the Foundation's policy making and resource allocation has been only based on the head office's 'capital city biased assumptions' and local practitioners' experiences, intuition and preferences. This may lead to inefficient resource allocation and uneven access to legal aid between different geographical areas.

Furthermore, an effective management tool to assess the extent and progress of branch offices' performance in response to the local needs is still lacking. As no baseline data has been collected and no reasonable framework has been set up, a sensible comparison is nearly impossible. Current performance reviews, which focus on comparing service numbers and administrative accuracy, seem to be superficial and require more robust ground for reasoning.

1.3 'Data for Social Good' Project: An opportunity for Improvement

⁴ *ibid*, pp.10-14.

⁵ LAF was commissioned by the Ministry of Labour, the Council of Indigenous Peoples and the Ministry of Health and Welfare to provide legal assistance to commonly targeted clients with their funding. Most of the eligibility criteria in these commissioned legal aid programmes are therefore less strict than general legal aid.

With the advances in digital development and data technology, an increasing number of data scientists have been involved in social innovations with their respective professional skills in Taiwan. There has been an initiative called ‘D4SG Fellowship’ dedicated to bridging data analysts and not-for-profit data owners (including government agencies and NGOs) to collaborate on a short-term project to resolve social problems in the real world.⁶ Since 2018, the Taiwanese government has also held the Presidential Hackathon to encourage collaborations between the government, not-for-profit organisations and even the private sector for better utilisation of open-source data and innovative solutions to address social needs.⁷

The above initiatives provided the LAF with an opportunity to improve. LAF has collected service data regarding legal aid applications since its establishment and it also has management data regarding its outreach activities for many years. However, this data has never been systematically visited to investigate the landscape of the LAF’s service provision in small geographic areas and to characterise the development and outreach strategies of the branch offices. Since 2018, through participating in the D4SG Fellowship and the Presidential Hackathon, LAF has been given the chance to work with data analysts from SAS Institute Taiwan and freelance analysts to clean and analyse its operational data as well as to propose better strategic planning. LAF therefore has generally named this whole series of studies as the ‘Data for Social Good’ Project (hereinafter called ‘the Project’).

1.4 Research Questions and Objectives

To address the knowledge gaps noted above, the Project attempts to answer the following main questions:

- (1) What kind of open data can be used as indicators to assess potential local needs for legal aid service?
- (2) What level of service coverage has been achieved by the target groups in local areas?
- (3) What level of compatibility has been obtained between potential local needs, service coverage and the LAF’s input resources?
- (4) What factors can be related to the level of service coverage?
- (5) What are the LAF branch offices’ perceptions of local legal needs and the proposed assessment framework and their development strategies in catchment areas?

⁶ D4SG is the abbreviation of ‘Data for Social Good’. The fellowship is run by a social enterprise called DSP, Inc. See the website (Chinese version): <https://d4sg.org/> (Accessed 1 May 2019)

⁷ See the website of the Presidential Hackathon:

<https://presidential-hackathon.taiwan.gov.tw/en/international-track/Default.aspx> (Accessed 1 May 2019)

(6) What factors facilitate or hinder LAF's implementation of strategic planning work?

It is expected that the following objectives can be achieved through answering the above questions:

- (1) To identify usable open data as proxies to assess the potential local need for legal aid
- (2) To depict the landscape of legal aid service provision in Taiwan
- (3) To recognise the under-represented and over-represented local areas, potential service gaps and local distinctiveness
- (4) To visualise LAF's service coverage and service points on maps to facilitate understanding and discussion
- (5) To analyse the factors that may correlate with the level of service coverage
- (6) To summarise the LAF branch offices' local practices in terms of identifying and filling service gaps and to discuss the factors that facilitate or hinder LAF's implementation of strategic planning
- (7) To collect the baseline data for future management and service improvement
- (8) To generate implications for policymakers and local managers to allow them to produce future development strategies

1.5 Structure of This Paper

Section 2 of this paper presents a brief literature review of recent studies on the assessment of local legal needs. Section 3 illustrates the research methodology of this study. Sections 4, 5 and 6 present the most important preliminary findings of the data analysis, including potential local needs, service coverage and gaps, cartographic visualisation and the LAF branch offices' reflections. Section 7 concludes with the policy implications and future plans in order to improve assessment and strategic planning.

2. Literature Review

2.1 Legal Need and Legal Needs Surveys

Although 'legal need' generally refers to the occasion when a person requires support from legal services in order to resolve problems within a legal dimension, beyond this, a commonly agreed definition is still absent and the concept remains contested.⁸ Since the study of legal needs originated in the United States in the 1930s⁹, there have been

⁸ Pleasence, P. (2016). *'Legal Need' and Legal Needs Surveys: A Background Paper*. Technical materials to support Open Society Justice Initiative legal needs research. UK: Pascoe Pleasence Ltd, p.1; Curran, L. and Noone, M. A. (2007). The Challenge of Defining Unmet Legal Need. *Journal of Law and Social Policy*, 21, pp.63-89; Genn, H. and Paterson, A. (2001). *Paths to Justice Scotland*. Oxford: Hart Publishing, pp.11-15; Pleasence, P. et al. (2001). *Local Legal Need*. London: Legal Services Research Centre, pp.7-27.

⁹ Clarke, C. and Corstvet, E. (1938). The Lawyer and the Public. *Yale Law Journal*, 47, pp.1972-93.

numerous definitions given to 'legal need' and 'unmet legal need' according to various research backgrounds and foci, varying in both scope and complexity.¹⁰ Referencing Bradshaw's 'typology of social need', the various definitions of legal need in different studies may relate to one or several following aspects: 'normative need' (defined by experts), 'felt need' (equivalent to users' want), 'expressed need' (felt need that has been converted into action such as seeking assistance) and 'comparative need' (assessed by the comparison of service use by those with similar characteristics).¹¹

Since the mid-1990s, a growing number of large-scale national or regional legal needs surveys have been conducted internationally with considerable momentum, especially accelerated by the recent World Justice Project.¹² Most have followed the tradition of Genn's Paths to Justice survey in England and Wales¹³, investigating the public's experience of 'justiciable problems'¹⁴ in several aspects such as the prevalence and seriousness of the problems, problem resolution strategies and the responses and outcomes. With the increasing understanding of legal needs and the evolving policy priorities and research interests, the research emphasis also expanded to the impact of problems, problem clustering, legal capability and the drivers of problem experience and problem resolving behaviours.¹⁵ As of the end of 2018, legal needs studies have been conducted in more than 100 jurisdictions.¹⁶

2.2 Taiwanese Legal Needs Survey 2011 and Its Limitations

Taiwan is also on the list of the jurisdictions that have been conducted legal needs surveys. In 2011, a large-scale national legal needs survey was conducted by Academia Sinica. Through face-to-face interviews with 5,601 adult respondents, the study investigated the types of civil (including family and administrative) legal problems most prevalently encountered by Taiwanese people and the ways they were handled. The study then analysed the incidences of justiciable problems as well as the advice seeking

¹⁰ n.8.

¹¹ Bradshaw, J. (1972). A Taxonomy of Social Need. In G. McLachlan (ed.) *Problems and Progress in Medical Care*. London: Open University Press.

¹² Up until 2016, at least 40 large-scale national legal needs surveys of individual citizens have been conducted in at least 22 separate jurisdictions. Sub-national surveys and small surveys have also been undertaken in at least 10 more countries. See n.8 Pleasence (2016), p.4. Such a trend was fuelled with more resource input by various governments, philanthropic foundations and international organisations. For example, recently the World Justice Project has developed a global 'Paths to Justice' civil justice module and it collected data in 45 and 60 countries in 2017 and 2018 respectively. By the end of 2018, legal needs studies have been conducted in more than 100 countries. See World Justice Project (WJP) (2018). *Global Insights on Access to Justice*. U.S.A: WJP, pp.2-4.

¹³ Genn, H. (1999). *Paths to Justice: What People Do and Think and Do About Going to Law*. Oxford: Hart Publishing.

¹⁴ *ibid*, p.12. Genn defined justiciable events as the matters experienced by a respondent which raised legal issues, whether or not they are recognised as being 'legal' by those facing them, and whether or not they lead to the use of legal services or any part of the justice system.

¹⁵ n.8, Pleasence (2016), p.4.

¹⁶ n.12, World Justice Project (2018), pp.2-3.

and dispute resolution behaviours and if they aligned with particular respondent demographic characteristics such as age, marital status, educational level, income level and employment, disability and legal capability etc.¹⁷

The Taiwanese Legal Needs Survey provided a landscape of the Taiwanese people's experience of civil legal problems and their resolution behaviours. This can insightfully inform the formulation of national policy on judicial and legal services. For instance, it was discovered that urbanisation is a significant factor in the incidence of problems of a particular type. Respondents living downtown had a significantly higher chance of confronting at least one justiciable problem than the average person and they tended to have the highest probability of encountering almost all types of problems. On the contrary, the underdeveloped rural and remote rural areas have a significantly lower incidence rate of goods or services, accident and neighbour problems.¹⁸

However, not all of the findings can be easily translated and thus contribute to legal aid organisational practices. While the survey investigated the experience of the general public, LAF has the statutory purpose to prioritise resources for the most disadvantaged and vulnerable clients, such as those with a lower income, unemployed people, those with a disability, indigenous people and other ethnic minorities. The above groups were not identified to be those with a higher risk of experiencing or reporting legal problems most prevalently in the Taiwanese survey¹⁹ or they were even not examined.²⁰ Moreover, limited to the sampling method and sample size of the survey, generating estimates of the potential local need in smaller geographic areas from the national survey for comparative purposes seems unlikely to have been precise enough.

2.3 Assessing Local Legal Needs

In order to assess the local legal needs in smaller geographic areas, different methods have been proposed and applied. For example, about two decades ago with the launch of Community Legal Services (CLS) Partnerships policy in England and Wales,²¹ a small

¹⁷ Chen, K-P., Huang, K-C., Huang, Y-L., Lai, H-P. and Lin, C-C. (2012). *The Legal Problems of Everyday Life: The Nature, Extent and Consequences of Justiciable Problems Experienced by Taiwanese*. Conference paper presented at the 2012 Law and Society Annual Conference, Hawaii, U.S.A, 5-8 June 2012.

¹⁸ *ibid*, pp.9, 15.

¹⁹ For instance, the Taiwanese Legal Need Survey showed that citizens with a higher household income, who were employed and with a non-disability status had higher report rates for all or most types of legal problems. This is different from the findings of various surveys in England and Wales, Canada, North Ireland and Australia, where disability plays no role in the Taiwanese study except for family and relatives problems. See n.17, pp.10-16.

²⁰ For example, the Taiwanese Legal Need Survey did not classify the ethnic groups when studying the demography of justiciable problems, and therefore indigenous people and citizens with a culturally and linguistically diverse background could not be identified.

²¹ The CLS Partnerships policy was intended to promote the coordination of legal services funders and service providers through mapping local needs and supply and developing referral networks and more cooperative arrangements such as training and mutual support between different providers to best meet the legal needs of the local populations.

number of local partnerships undertook consumer surveys on local needs. However, no standard methodology or form of questionnaire was adopted. Although a few topics such as categories of problems experienced, sources of advice sought and experiences of the advice process were similarly explored in the local surveys, the research design and scope of the surveys varied a lot. Telephone surveys, postal surveys, face-to-face surveys and even newspaper surveys have all been used, thus the creditability and reliability of some studies has been challenged.²² The Legal Aid Board and its successor, the Legal Services Commission, also developed the CLS Small Area Predictive Need Models in order to provide a starting point for local legal needs analysis. These models (e.g. housing, employment, debt, welfare benefits, health and community care) first identify the constituent elements of the problems faced by people requiring particular categories of legal service and then they adopt the socio-economic administrative datasets produced at various geographical levels as proxies with given weights to calculate the predictive need for specific legal services.²³ However, according to the research conducted by the Legal Services Research Centre, while most of the CLS Partnerships accepted the CLS models and considered them to be reasonably accurate, serious reservations were still expressed in some areas for the perceived failure to reflect particular local conditions.²⁴

In Australia, the topic of local legal needs assessment has also been explored in the past decade, fuelled by an increasing policy focus on strategic planning and better resource allocation. The Judith Stubbs & Associates developed a National Legal Needs Strategic Planning toolkit for the National Association of Community Legal Centres. The toolkit was based on a need assessment framework which first identified the characteristics of those most likely to experience prioritised legal matters for CLCs and the legal assistance sector and then it derived the corresponding indicators from those characteristics to calculate the predictive legal needs. Areas most likely to experience both 'met' or 'expressed' legal need and 'unmet' or 'unexpressed' need were thereby recognised. The assessment framework mainly employed the 2006 census data and the weights of the key indicators was adapted from the English and Welsh Civil and Social Justice Survey (2006) to calculate the probability of local legal need.²⁵

Answering the call for collaborative service planning to target priority client groups in NPA 2015, the New South Wales Law and Justice Foundation developed the Need for Legal Assistance Services (NLAS) indicators to count the absolute number of residents as well

²² n.8, Pleasence *et al.* (2001), pp.27-32.

²³ *ibid*, pp.42-44.

²⁴ *ibid*, pp.44-46.

²⁵ Judith Stubbs & Associates (2012). *National Legal Needs & Strategic Planning Project*. Report prepared for National Association of Community Legal Centres Inc. NSW: Judith Stubbs & Associates.

as the proportion of people living in a particular geographical area that were likely to require legal assistance if they were to experience a problem. The 2011 and 2016 census data was used as proxy measures.²⁶ The updated 2018 NLAS indicators include:²⁷

- NLAS (Capability): people aged 15 to 64 with a low personal income (less than AUD \$500 per week or AUD \$26,000 per year) who also have a low level of education (currently not in education, having no post-school qualifications and their highest completed school year was Year 12 (15 to 39-year-olds), or Year 11 (40 to 49-year-olds), or Year 10 (50 to 64-year-olds)).
- NLAS (ATSI): people aged 15 and over with a low personal income and identified as Aboriginal, Torres Strait Islander or both Aboriginal and Torres Strait Islander.
- NLAS (CALD): people: aged 15 and over with a low personal income and from a culturally and linguistically diverse background other than indigenous (main language spoken at home is not English or Australian Indigenous).
- NLAS (65+): people aged 65 and older with a low personal income who also have a low level of education (currently not in education, having no post-school qualifications and their highest completed school year was Year 9 (for those aged 65 to 74) or Year 8 (for those aged 75 and over));
- NLAS (\$52K): people aged 15 to 64 with a moderate personal income of less than \$999 per week or \$52,000 per year who also have a low level of education (same education attainment criteria as NLAS (Capability)).

It is worth noting that NLAS counts were not intended to provide a precise prediction of the required services while the probability of experiencing a problem was not incorporated. Rather, it aimed to give a picture of the relative potential demand across geographic areas to allow them to be compared.²⁸

Victoria Legal Aid (VLA) also worked with the Statistical Consulting Centre to develop two statistical models to predict the level of legal assistance service expected to be provided in the given local government areas. The first was a linear regression model based on the legal assistance service data with the VLA, community legal centres and private lawyer legal assistance services and the NLAS capability indicators. The second applied the random forests model of machine learning, which is a computationally intensive approach. It involved 146 different types of data including the above datasets and various open datasets on a range of phenomena such as health, demographics, crime, abuse and

²⁶ Mirrlees-Black C. and Randell S. (2017). Need for legal assistance services: developing a measure for Australia. *Justice Issues Paper*, 26. NSW: Law and Justice Foundation; Mirrlees-Black C. and Randell S. (2018). Locating demand: updating the Need for Legal Assistance Services indicators--2016 Census data. *Justice Issues Paper*, 28. NSW: Law and Justice Foundation.

²⁷ *ibid*, Mirrlees-Black and Randell (2018), pp.4-10.

²⁸ n.26, Mirrlees-Black and Randell (2017), pp.3-5; Mirrlees-Black and Randell (2018), p.2.

electronic gambling.²⁹ In addition to the quantitative prediction, VLA also collected qualitative data in relation to legal needs through an online questionnaire and involved local legal assistance stakeholders to formulate place-based implementation plans to tackle local needs collaboratively.³⁰

3. Methodology

3.1 Research Design

After reviewing the above literature and considering the dearth of relevant research in Taiwan, the Foundation positioned the Project to be a starting point to explore this complicated topic. Similar to the functions of the NLAS indicators proposed by the NSW Law and Justice Foundation, the Project did not aim to propose a complete framework which can precisely assess the absolute numbers of the needs and service gaps. Instead, it attempted to develop an approach or a set of tools which can describe the relative potential needs against the actual service provision, thereby facilitating comparisons across the geographic areas for better strategic planning.

In order to answer the ‘what’ research questions, this Project had an exploratory nature and was designed as a descriptive study. Mixed methods combining quantitative and qualitative approaches were applied in three phases according to the different datasets collected. The main tasks, methodology and data collection in each phase have been detailed as follows.

Phase 1: Applying appropriate indicators to identify local needs and service gaps

A quantitative strategy was applied in this phase and the following datasets were collected:

- (1) The government’s open data on the population of each of the target groups that was categorised by geographic area between 2015 and 2017. The datasets were released by Directorate-General of Budget, Accounting and Statistics and other competent authorities such as Ministry of Interior, Ministry of Health and Welfare, Ministry of Labour etc. It is worth noting that much of the geographical information of the population datasets is based on the household registration instead of the residence collected by the census. The national population and housing census are not frequently used as proxy datasets because the most recent one was conducted in

²⁹ Cao-Lam K. and Bird J. (2018). *Sector planning: a framework for legal needs assessment and place-based planning*. Paper presented in the 2nd International Conference on Access to Justice and Legal Services, London, UK , 11-13 June 2018, pp.13-17.

³⁰ *ibid*, pp.8, 26-31.

2010, which is out of date. Neither did it include all of the demographic variables that can be LAF's focus. Furthermore, certain target groups such as people with a low income or who are on disability benefits are asked by law to live in their household registered address. Thus, the geographical information based on registration thereby can be a reliable reference to a certain extent.

- (2) LAF's operational data on legal aid applications between July 2015 and December 2017: The dataset covering this period was selected in order to keep the eligibility criteria identical throughout the studied period. This is because the amended Legal Aid Act came into force in July 2015. Due to a large amount of missing data related to the advice service, only the data from the legal aid grant applications (chiefly for minor assistance and legal representation) was used. We adopted the concept of subjective expressed needs rather than normative needs as defined by legal professionals. Therefore, we counted the applicants rather than the legal aid grant recipients. Each individual was only counted once no matter how many times he or she applied in order to match this with the population as a denominator. However, the geographical locations of the applicants recorded in LAF's operational database were their residence rather than their household registered address.

Phase 2: Cartographic visualisation and spatial analysis

Cartographic methods were applied in the second phase and the following data was collected for presentation and analysis.

- (1) Management data of the LAF's service points (including branch offices, advice clinics, outreach educational and promotional events) and their geographic information
- (2) Data of the distance and estimated weekday travel time from the centroid of each local postcode area to the LAF's branch offices, obtained through Google Maps.

Phase 3: Collecting the branch offices' feedback and engaging with the local knowledge

With the findings in the first two phases as grounds for discussion, we further explored the branch offices' feedback on local legal needs and the implicit local knowledge obtained from their daily practices.

Qualitative semi-structured interviews were conducted for this part of the data collection. We planned to visit and interview executive secretaries of all 22 branch offices. From January to March 2019, we visited 9 of them, most of which were based in southern and central Taiwan. Each interview lasted for approximately 60 - 90 minutes.

3.2 Research Limitations

In this Project, some of the concepts measured were based on certain conditions and assumptions, therefore the research was subject to the following limitations.

First, the accuracy and efficacy of the local needs assessment greatly relied on the availability of appropriate indicators. In addition, the granularity of the datasets also matters. However, not all of the open data indicators presented the demographic data to the same level.

Second, while using government datasets as proxies to assess the local need for legal aid, it measures the proxies and not the needs themselves. Although it counted the number of the people that are more likely to require legal aid as well as LAF's prioritised target groups, this methodology assumed that legal aid need is a relatively static state that is highly correlated with the studied proxies and that is therefore always proportionate to the population of the groups. The impact from the other socio-economic, geographic, psychological, capability or service users' behavioural factors collectively was not considered.

Third, the reliability of the datasets should be taken into account. Due to the stigma associated, some people who are eligible can be reluctant to be registered as part of a certain group. The population figures can be underestimated.

Fourth, social and economic changes can occur rapidly, rendering the government's open data out of date once released. This was also the reason why the Project tended to avoid using the 2010 Census data as indicators.

Fifth, the concept of 'service coverage' only counts the number of people that have applied to LAF's legal aid grants. The users of LAF's advice service and the other publicly funded legal services were not included.

Lastly, the incompatibility of the different datasets involved can lead to the underestimation or overestimation of service coverage in some areas. As described above, most of the governmental open datasets adopted were based on household registration address. However LAF's service data counts on the clients' residence. This incompatibility can underestimate the areas with more temporary emigrants where people still have a registered address but where they live somewhere else and vice versa.

4. The Assessment of Potential Local Needs for Legal Aid

This section sets out the most crucial findings in the first phase of the Project. It includes 4 steps as follows: generating the indicators for needs assessment, assessing the potential need for legal aid in local postcode areas (LPAs), calculating LAF's service coverage and identifying potential service gaps.

4.1 Generating Indicators for the Legal Aid Needs Assessment

As noted above, the availability and reliability of the datasets selected as indicators determined the success of this assessment. In order to identify the appropriate indicators, the research team listed the financially and socially disadvantaged communities that have been specifically targeted and prioritised since the establishment of LAF. They are people on low and mid-low-income benefits, labourers, indigenous peoples, consumer debtors, people with disabilities, people with a culturally and linguistically diverse background (such as marriage migrants and migrants workers), people who have been accused of serious crimes (and thus are eligible for mandatory defence), the financially disadvantaged, the elderly etc.

The literature of legal needs surveys also informed us of the socio-demographic groups with a greater likelihood of experiencing legal needs relevant to LAF's service such as lone parents, victims of crime, people with disabilities or chronic illness, indigenous peoples, people on a pension and/or benefits, social and private renters, ethnic minority groups, unemployed people etc. Some of them overlapped with the above LAF's target list and some are new and thereby extended the list.

Subsequently, we explored the relevant open source datasets released by government agencies corresponding to the above identified groups to check their availability, reliability and granularity. The findings of this process have been summarised in Table 1.

As illustrated in Table 1, amongst the 14 target groups, currently there are only three available datasets with higher granularity that can be analysed at the level of the local district areas. They are people on low-income and mid-low-income benefits, indigenous peoples and people with disabilities. The other indicators still require data with a higher level of granularity or that have been presented in multi-dimensions. Such a lack of available open datasets as indicators also revealed room for improvement in relation to the open government policy which can facilitate more evidence-based decision making.

The following analysis therefore will more focused on the identified three indicators as examples. Adapted from the LAF's operational database, this Project employed the 365 three-digit local postcodes areas (LPAs), which are nearly equal to the 368 local district areas, as the units for analysis.³¹

³¹ There are 22 local governments/authorities, including 6 municipalities (Taipei, New Taipei, Taoyuan, Taichung, Tainan, Kaohsiung), 13 counties (Hsinchu, Miaoli, Changhua, Nantou, Yunlin, Chiayi, Pingtung, Yilan, Hualien, Taitung, Penghu, Kinmen, Lienchiang) and 3 provincial cities (Keelung, Hsinchu and Chiayi), governing 368 towns/districts in total. However, there are only 365 three-digit postcodes for the towns/districts, while the 5 districts under the two provincial cities, Hsinchu and Chiayi, are only provided with 2 three-digit postcodes. The 365 postcodes were applied as the analysis unit of this study.

Table 1: Exploring the Appropriate Indicators for Legal Aid Needs Assessment

	Key Variables	Indicators	Data Source	Granularity (by geographic areas)	Special Notes
1	Low and mid-low income	Population of people on low-income and mid-low-income benefits	Ministry of Health and Welfare; Directorate-General of Budget, Accounting and Statistics	Local District Area (LDA) Level	
2	Indigenous	Population of indigenous peoples	Department of Household Registration, Ministry of Interior	Local District Area (LDA) Level	
3	Ethnic minorities, culturally and linguistically diverse background				
	(A) marriage migrants	Population of marriage migrants	Department of Household Affairs and National Immigration Agency, Ministry of Interior	Local Government (LGA) Level	Area
	(B) migrants workers	Population of migrants workers	Ministry of Labour	Local Government (LGA) Level	Area
4	People with disabilities or chronic illness	Population of people with disabilities	Ministry of Health and Welfare; Directorate-General of Budget, Accounting and Statistics	Local District Area (LDA) Level	34,35
5	The financially disadvantaged elderly	Population of people on low-income and mid-low-income benefits categorised by age	Ministry of Health and Welfare	Local Government (LGA) Level	Area
6	Lone parents	Lone parent households	Directorate-General of Budget, Accounting and Statistics	LGA Level	36
7	Victims of crimes	Population of victims of crimes	National Police Agency, Ministry of Interior	National Level	

³⁴ The adopted dataset did not differentiate between different categories of disabilities. However, the granularity of the dataset with different categories of disabilities was at LGA level.

³⁵ The data of people with chronic illness was categorised according to the different illnesses and by region (urban, Hakka areas, mountainous areas, offshore islands etc).

³⁶ The most recent data concerning lone parents was collected in the 2010 Census and therefore there is great concern for its timeliness.

	Key Variables	Indicators	Data Source	Granularity (by geographic areas)	Special Notes
8	Labourers	Labour force overview	Ministry of Labour	LGA Level	
9	Unemployed people	Labour force overview	Ministry of Labour	LGA Level	
10	Social renters	N/A	N/A	N/A	37
11	Private renters	N/A	N/A	N/A	38
12	People accused of serious crimes (eligible for mandatory defence)	N/A	N/A	N/A	39
13	Consumer debtors	N/A	N/A	N/A	40
14	People meeting the financial criteria of legal aid and less educated	N/A Only indicators with single dimension exist, such as: 1. Household Income 2. Education Level	The single dimensional dataset are from the following sources: 1. National Bureau of Tax, Ministry of Finance 2. Department of Household Affairs and National Immigration Agency, Ministry of Interior	1. Local Village Area (LVA) Level 2. Local Village Area (LVA) Level	41

³⁷ The 2010 Census did not survey different types of housing (e.g. social housing, private renting). Due to the traditional culture and concepts, the average rate of self-owned housing in Taiwan was more than 85%. This has led to a lack of statistics in regard to social housing.

³⁸ The 2010 Census did not survey types of housing (e.g. social housing, private renting). The most recent data regarding private renting was collected in 2005. Only the numbers of households were noted, rather than the population of private renters.

³⁹ The Judicial Yuan did not release the numbers of criminal cases and defendants that were subject to mandatory defence due to serious crimes.

⁴⁰ The open data regarding debt cases released by Judicial Yuan was classified by year, by the route selected for debt clearance, by the reasons for the alteration of debt clearance routes, and by case outcomes etc. However, the data was not categorised by geographical area or district court. In addition, it counted the number of cases rather than the number of applicants. The Financial Supervisory Commission also lacked data concerning the number of consumer debtors.


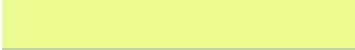



⁴¹ Although the household income dataset can be detailed down to the local village level, the number of people in the household was not detected and therefore it cannot really fit the LAF's financial criteria.

4.2 Assessing the Potential Need for Legal Aid

Adopting the indicators selected above, the data used in the assessment can be illustrated in two ways: 1) as an absolute number, which refers to the population meeting the indicator criteria and 2) as a percentage, which refers to the proportion of people living in a particular three-digit postcode area that meet the indicator criteria. Both of them have their functions in the context of strategic planning. While the absolute numbers are more useful to determine the amount of potential need for legal aid, the percentage presentation can help policymakers and branch offices prioritise specific groups with a higher concentration when planning services or when allocating resources for a certain local area. The latter way is especially important for the rural or remote areas where the population size is not large.

Inspired by the Judith Stubbs & Associates' (2012) research on local legal needs, we marked the two assessment lists counted in absolute numbers and in terms of the rates of certain target groups (Tables 3 and 4) with its national decile ranking and in five colours for easier recognition (Table 2).

Table 2: Colour coding for national deciles in this Project

	National Deciles 1 & 2
	National Deciles 3 & 4
	National Deciles 5 & 6
	National Deciles 7 & 8
	National Deciles 9 & 10

It is worth mentioning that the areas with a high number of needs may have low rates and vice versa. Taking the indicator of the low and mid-low income group for example, the top 10% areas for the indicator of low and mid-low income groups ranked by people count and by percentage have both been presented in Tables 3 and 4. According to Table 3, 83.33% (30/36) of the top 10% areas by population number belong to the first two deciles of population density and 16.67% (6/36) of them ranked in the third and fourth deciles. However, 75% (27/36) of these areas have middle and low population rates of the target group, ranked from 5th to 10th in the national deciles. On the contrary, the top 10% areas with the highest rates of the low and mid-low income population were the rural and remote areas with fewer people, as shown in Table 4.

Throughout this presentation, the districts that ranked high in both number and in terms of the rate of population can be instantly identified for more strategic planning. For example, the Linyuan, Qijin and Qieding Districts of Kaohsiung Municipality as in Tables 3 and 4 (No.35 of Table 3 and No.17 and 27 of Table 4).

Table 3: Top 10% Postcode Areas of Low and Mid-low Income by Population

No.	Local Authorities	Postcode Areas	Population of This Target Group	Population Number Decile Ranking	Rate of Low+Mid-Low Income	Rate Decile Ranking	Population Density Decile Ranking	Rural Area?	Indigenous Area?
1	Kaohsiung City (Municipality)	Fengshan District	15,006	1	4.19%	5	1	-	-
2	Kaohsiung City (Municipality)	Sanming District	11,284	1	3.27%	6	1	-	-
3	Taipei City (Municipality)	Wanghwa District	9,846	1	5.10%	4	1	-	-
4	New Taipei City (Municipality)	Sanchung District	9,769	1	2.52%	7	1	-	-
5	Taipei City (Municipality)	Wenshan District	9,018	1	3.28%	6	1	-	-
6	Kaohsiung City (Municipality)	Chienchen District	8,795	1	4.60%	4	1	-	-
7	New Taipei City (Municipality)	Hsinchuang District	8,281	1	2.00%	8	1	-	-
8	Pingtung County	Pingtung City	8,076	1	4.01%	5	2	-	-
9	Taichung City (Municipality)	Taiping District	7,865	1	4.22%	4	4	-	-
10	Kaohsiung City (Municipality)	Nantsu District	7,837	1	4.31%	4	2	-	-
11	Kaohsiung City (Municipality)	Hsiaogang District	7,613	1	4.85%	4	2	-	-
12	Taipei City (Municipality)	Shihling District	7,557	1	2.61%	7	2	-	-
13	Taichung City (Municipality)	Beitun District	7,333	1	2.71%	7	2	-	-
14	New Taipei City (Municipality)	Banchiao District	7,226	1	1.31%	10	1	-	-
15	New Taipei City (Municipality)	Chungho District	7,198	1	1.74%	9	1	-	-
16	Changhwa County	Changhwa City	7,046	1	3.01%	6	2	-	-
17	Kaohsiung City (Municipality)	Zuoying District	6,985	1	3.55%	5	1	-	-
18	Taipei City (Municipality)	Baitou District	6,970	1	2.71%	7	2	-	-
19	Chiayi City (Provincial City)	Chiayi City	6,932	1	2.57%	7	2	-	-
20	Taichung City (Municipality)	Dali District	6,698	1	3.19%	6	2	-	-
21	Tainan City (Municipality)	Annan District	6,522	1	3.41%	5	3	-	-
22	Hsinchu City (Provincial City)	Hsinchu City	6,499	1	1.49%	9	2	-	-
23	Taitung County	Taitung City	6,143	1	5.78%	3	4	-	-
24	Kaohsiung City (Municipality)	Daliao District	5,975	1	5.33%	3	3	-	-
25	New Taipei City (Municipality)	Tucheng District	5,894	1	2.47%	7	1	-	-
26	Taichung City (Municipality)	North District	5,256	1	3.56%	5	1	-	-
27	Kaohsiung City (Municipality)	Kushan District	5,239	1	3.80%	5	1	-	-
28	Changhwa County	Yuanlin Township	5,181	1	4.15%	5	2	-	-
29	Taoyuan City (Municipality)	Taoyuan City	5,177	1	1.19%	10	1	-	-
30	Changhwa County	Lugang Township	5,126	1	5.92%	3	3	-	-
31	Taichung City (Municipality)	Fengyuan District	5,114	1	3.07%	6	2	-	-
32	Kaohsiung City (Municipality)	Lingya District	5,046	1	2.92%	6	1	-	-
33	Taipei City (Municipality)	Neihu District	4,917	1	1.71%	9	1	-	-
34	New Taipei City (Municipality)	Luzhuo	4,880	1	2.43%	7	1	-	-
35	Kaohsiung City (Municipality)	Linyuan District	4,758	1	6.78%	2	3	-	-
36	Tainan City (Municipality)	Yongkang District	4,568	1	1.97%	8	2	-	-

Table 4: Top 10% Postcode Areas of Low and Mid-low Income by Rate

No.	Local Authorities	Post Code Areas	Rate of Low+Mid-Low Income	Rate Decile Ranking	Population	Population Number Decile Ranking	Population Density Decile Ranking	Rural Area?	Indigenous Area?
1	Kaohsiung City (Municipality)	Maolin District	20.65%	1	393	9	10	Yes	Yes
2	Taitung County	Lanyu Township	18.61%	1	943	6	9	Yes	Yes
3	Pingtung County	Chunrih Township	18.44%	1	893	7	10	Yes	Yes
4	Taitung County	Yanping Township	18.23%	1	647	8	10	Yes	Yes
5	Taitung County	Haiduan Township	15.29%	1	654	8	10	Yes	Yes
6	Kaohsiung City (Municipality)	Liouguei District	14.98%	1	1,982	3	9	Yes	-
7	Taitung County	Jinfeng Township	13.74%	1	497	8	10	Yes	Yes
8	Taitung County	Dawu Township	12.95%	1	806	7	9	Yes	Yes
9	Kaohsiung City (Municipality)	Jiasian District	12.78%	1	793	7	10	Yes	-
10	Pingtung County	Fangshan Township	12.68%	1	704	7	7	-	-
11	Kaohsiung City (Municipality)	Shanlin District	12.65%	1	1,544	4	9	Yes	-
12	Taoyuan City (Municipality)	Fuxing District	12.60%	1	1,412	5	10	Yes	Yes
13	Yilan County	Nan' ao Township	12.34%	1	736	7	10	Yes	Yes
14	Hsinchu County	Jianshih Township	12.02%	1	1,137	6	10	Yes	Yes
15	Hsinchu County	Wufeng Township	11.95%	1	547	8	10	Yes	Yes
16	Hwalien County	Wanrong Township	11.58%	1	743	7	10	Yes	Yes
17	Kaohsiung City (Municipality)	Qijin District	11.39%	1	3,292	2	1	-	-
18	Kaohsiung City (Municipality)	Namasia District	11.13%	1	349	9	10	Yes	Yes
19	Kaohsiung City (Municipality)	Neimen District	11.08%	1	1,635	4	9	Yes	-
20	Pingtung County	Wutai Township	11.04%	1	363	9	10	Yes	Yes
21	Pingtung County	Mudan Township	10.77%	1	522	8	10	Yes	Yes
22	Pingtung County	Checheng Township	10.67%	1	933	6	8	Yes	-
23	Nantou County	Xinyi Township	10.33%	1	1,692	4	10	Yes	Yes
24	Pingtung County	Laiyi Township	10.21%	1	767	7	10	Yes	Yes
25	Pingtung County	Xinpi Township	9.87%	1	984	6	8	Yes	-
26	Pingtung County	Majia Township	9.85%	1	666	8	9	Yes	Yes
27	Kaohsiung City (Municipality)	Qieding District	9.83%	1	2,989	2	3	-	-
28	Pingtung County	Manzhou Township	9.64%	1	761	7	9	Yes	Yes
29	Pingtung County	Shihzh Township	9.58%	1	461	9	10	Yes	Yes
30	Pingtung County	Gaoshu Township	9.50%	1	2,365	3	8	-	-
31	Taitung County	Luye Township	9.43%	1	757	7	9	Yes	Yes
32	Pingtung County	Sandimen Township	9.43%	1	723	7	10	Yes	Yes
33	Pingtung County	Jiadong Township	9.25%	1	1,819	4	6	-	-
34	Pingtung County	Fangliao Township	9.25%	1	2,297	3	7	-	-
35	Pingtung County	Liuqiu Township	9.23%	1	1,147	5	3	-	-
36	Hwalien County	Xiulin Township	8.98%	1	1,417	5	10	Yes	Yes

4.3 Calculating LAF's Service Coverage

We adopted the number of LAF applicant individuals during the studied period in order to calculate the service coverage in each postcode area, presenting them as both an absolute number and as a percentage. The latter used the number of the local population in the selected indicators as the denominator to obtain the service coverage rate. In order to avoid any counting errors derived from inconsistency in recording the detainees and prisoners' addresses by the different branch offices, we excluded all of the applicants who had been detained and imprisoned. Due to the different financial eligibility criteria adopted by the general legal aid and commissioned programmes, we prepared two sets of service coverage data to show the difference. We also ranked the service coverage data in deciles for each indicator, thus facilitating the comparison between needs, coverage and the recognition of service gaps as in the next step.

The descriptive statistics of the service coverage rates of the studied 30 months in the 365 postcode areas for the three selected groups as well as the general population have been summarised in Table 5, which can be used as the baseline data for the future.

Table 5: Statistics of the LAF's Service Coverage Rates
Study Period: July 2015 ~ December 2017 (30 months)

(A) General Legal Aid and Commissioned Legal Aid Programmes

	National	365 Postcode Areas						
	Average	Mean	SD	Max.	Q3	Median	Q1	Min.
Low and Mid-Low Income	2.16%	1.75%	0.91%	5.41%	2.34%	1.63%	1.12%	0.00%
Indigenous Peoples	2.17%	1.96%	1.26%	6.56%	2.63%	1.97%	1.29%	0.00%
Disability	0.98%	0.85%	0.53%	3.49%	1.15%	0.71%	0.47%	0.00%
General population	0.41%	0.50%	0.47%	2.87%	0.50%	0.35%	0.26%	0.00%

(B) General Legal Aid Only

	National	365 Postcode Areas						
	Average	Mean	SD	Max.	Q3	Median	Q1	Min.
Low and Mid-Low Income	2.15%	1.74%	0.90%	5.41%	2.33%	1.63%	1.12%	0.00%
Indigenous Peoples	1.45%	1.27%	0.99%	6.56%	1.69%	1.30%	0.65%	0.00%
Disability	0.94%	0.77%	0.44%	2.21%	1.06%	0.68%	0.45%	0.00%
General population	0.37%	0.41%	0.32%	2.29%	0.46%	0.32%	0.23%	0.00%

Through the comparison of Figures (A) and (B), it is apparent that the commissioned legal aid programmes for labourers and indigenous peoples have greatly contributed to the service coverage of indigenous peoples, people with disabilities and the general population due to the favourable eligibility criteria. Most of the applicants that are on low and mid-low income benefits will stay on the general legal aid programme while it

provides more benefits such as a LAF guarantee letter as required in the proceedings of provisional enforcement.⁴²

While the service coverage rates implies the ratio of the certain target groups in the local areas that have applied for LAF's service, the dispersion of the service coverage rates in the 365 postcode areas evidently demonstrates the local distinctiveness in terms of access to legal aid, which requires more future studies on the relationships between service coverage and socio-economic, geographic, psychological, cultural, service users' behavioural and capacity factors and so forth. The basic correlational analysis between service coverage and geographic environment will be detailed in Section 5.

4.4 Identifying Potential Service Gaps

Due to the lack of baseline and reference data for the service coverage from competent authorities and the huge knowledge gap in empirical studies on judicial and legal services in Taiwan, currently it is still too early for LAF to set any absolute performance standard for the service coverage requirements for each area. LAF therefore has adopted the following comparative measures to identify potential service gaps nationally and locally.

(1) Comparing the national decile ranks of potential needs and service coverage

We combined the data of the potential legal aid need (counted in number of population) and service coverage in the same table and compared the decile ranks of both. The greater the difference that exists between them, the larger the service gap can be. As shown in Table 6, for the top 10% (36) postcode areas with the highest potential needs regarding the low and mid-low income indicator (as the same areas listed in Table 3), not all of their serviced numbers and service coverage ranked in the top 10% places. Around 16.67% of them (6/36) had comparatively lower ranks of service coverage figure in terms of both the number of applicants and the service coverage rates, as marked by the red squares. This means that more effort should be made to access the previously unreached people in these areas.

For the indicator of low and mid-low income, amongst the 365 local post areas, 99 (27.1%) of them have comparatively lower service coverage ranks in terms of both the applicant numbers and the service coverage rates, dispersed in the catchment areas of 14 local authorities and 15 LAF's branch offices. Following this, 70 (19.18%) of them have lower ranks in either their serviced number of applicants or service coverage rates, dispersed in the catchment areas of 16 local authorities and 17 LAF's branch offices. Finally, 196 (53.70%) of them ranked higher than their ranks of potential legal needs.

⁴² Article 67 of the Legal Aid Act (Taiwan).

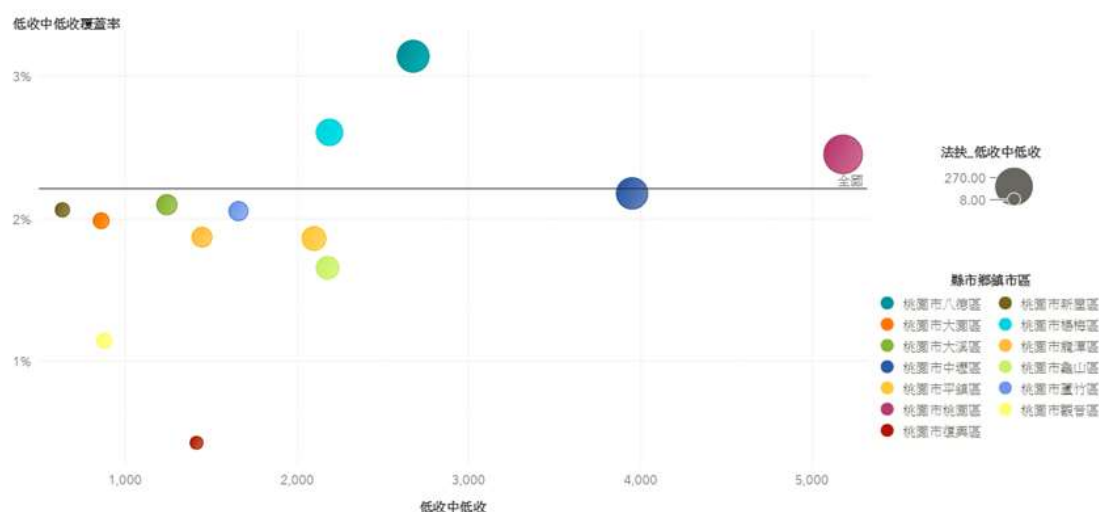
A list of these gap areas was then produced for both policymakers and the local branch offices.

Table 6: Identifying Service Gap Areas (Low and Mid-low Income Groups)

No.	Local Authorities	Postcode Areas	Population of This Target Group	Population Number Decile Ranking	Number of LAF's Applicants of This Group	Number of LAF's Applicants Decile Ranking	Service Coverage Rate of This Target Group	Service Coverage Rate Decile ranking
1	Kaohsiung City (Municipality)	Fengshan District	15,006	1	309	1	2.06%	4
2	Kaohsiung City (Municipality)	Sanming District	11,284	1	283	1	2.51%	3
3	Taipei City (Municipality)	Wanghwa District	9,846	1	367	1	3.73%	1
4	New Taipei City (Municipality)	Sanchung District	9,769	1	263	1	2.69%	2
5	Taipei City (Municipality)	Wenshan District	9,018	1	351	1	3.89%	1
6	Kaohsiung City (Municipality)	Chienchen District	8,795	1	196	1	2.23%	3
7	New Taipei City (Municipality)	Hsinchuang District	8,281	1	230	1	2.78%	2
8	Pingtung County	Pingtung City	8,076	1	220	1	2.72%	2
9	Taichung City (Municipality)	Taiping District	7,865	1	185	1	2.35%	3
10	Kaohsiung City (Municipality)	Nantsu District	7,837	1	155	1	1.98%	4
11	Kaohsiung City (Municipality)	Hsiaogang District	7,613	1	117	2	1.54%	6
12	Taipei City (Municipality)	Shihling District	7,557	1	253	1	3.35%	1
13	Taichung City (Municipality)	Beitun District	7,333	1	216	1	2.95%	2
14	New Taipei City (Municipality)	Banchiao District	7,226	1	209	1	2.89%	2
15	New Taipei City (Municipality)	Chungho District	7,198	1	202	1	2.81%	2
16	Changhwa County	Changhwa City	7,046	1	133	1	1.89%	4
17	Kaohsiung City (Municipality)	Zuoying District	6,985	1	163	1	2.33%	3
18	Taipei City (Municipality)	Baitou District	6,970	1	196	1	2.81%	2
19	Chiayi City (Provincial City)	Chiayi City (Provincial City)	6,932	1	220	1	3.17%	1
20	Taichung City (Municipality)	Dali District	6,698	1	133	1	1.99%	4
21	Tainan City (Municipality)	Annan District	6,522	1	136	1	2.09%	4
22	Hsinchu City (Provincial City)	Hsinchu City (Provincial City)	6,499	1	170	1	2.62%	2
23	Taitung County	Taitung City	6,143	1	148	1	2.41%	3
24	Kaohsiung City (Municipality)	Daliao District	5,975	1	135	1	2.26%	3
25	New Taipei City (Municipality)	Tucheng District	5,894	1	158	1	2.68%	2
26	Taichung City (Municipality)	North District	5,256	1	174	1	3.31%	1
27	Kaohsiung City (Municipality)	Kushan District	5,239	1	82	2	1.57%	6
28	Changhwa County	Yuanlin Township	5,181	1	110	2	2.12%	4
29	Taoyuan City (Municipality)	Taoyuan City	5,177	1	129	1	2.49%	3
30	Changhwa County	Lugang Township	5,126	1	76	2	1.48%	6
31	Taichung City (Municipality)	Fengyuan District	5,114	1	82	2	1.60%	6
32	Kaohsiung City (Municipality)	Lingya District	5,046	1	152	1	3.01%	1
33	Taipei City (Municipality)	Neihu District	4,917	1	172	1	3.50%	1
34	New Taipei City (Municipality)	Luzhuo	4,880	1	131	1	2.68%	2
35	Kaohsiung City (Municipality)	Linyuan District	4,758	1	76	2	1.60%	6
36	Tainan City (Municipality)	Yongkang District	4,568	1	144	1	3.15%	1

(2) Comparing the service coverage rates with the figures of the national average and branch offices of a similar size

In addition to comparing the national decile rankings, we also used the national average figures of the selected indicators and the average figures of the branch offices of a similar size as references for comparison. Due to the different sizes of the branch offices and the level of local resources, we divided the branch offices into three groups: municipality offices, regional offices (in provincial counties and cities) and offshore island offices. These figures, when put into bubble charts which include multi-dimensional information such as the size of the population, service coverage rate and national average figures in the postcode areas, can help the LAF branch offices to easily understand the comparative levels of service coverage in their catchment areas and to identify the areas requiring further investigation and improvement (Figure 1 as an example).



**Figure 1: Bubble Chart Illustration of the Service Coverage Data
(Indicator of Low and Mid-Low Income, Taoyuan Municipality)**

5. Cartographic Visualisation and Spatial Analysis

In order to facilitate understanding and discussion, this section demonstrates the figures of the assessed needs and service coverage as well as the LAF's service points on the maps, followed by the spatial analysis conducted on the service coverage and geographic factors.

5.1 Visualisation of the Assessed Needs and Service Coverage

For each indicator, the data of the assessed needs and service coverage in both absolute numbers and rates can be visualised on the maps in a series of figures, both nationally or locally. For example, Figure 2 shows the general population and the assessed population of the various groups across Taiwan, revealing the differences of the various disadvantaged groups and local diversity.

5.2 Visualisation of the LAF's Service Points

In order to examine the LAF branch offices' geographical resource allocation and their awareness of the areas with more needs and service gaps for better strategic allocation, this Project also visualised the LAF's service points on the maps, including the branch offices, outreach advice clinics, public legal education and promotional events. Figure 3 illustrates the LAF branch offices and advice clinics in northern Taiwan.

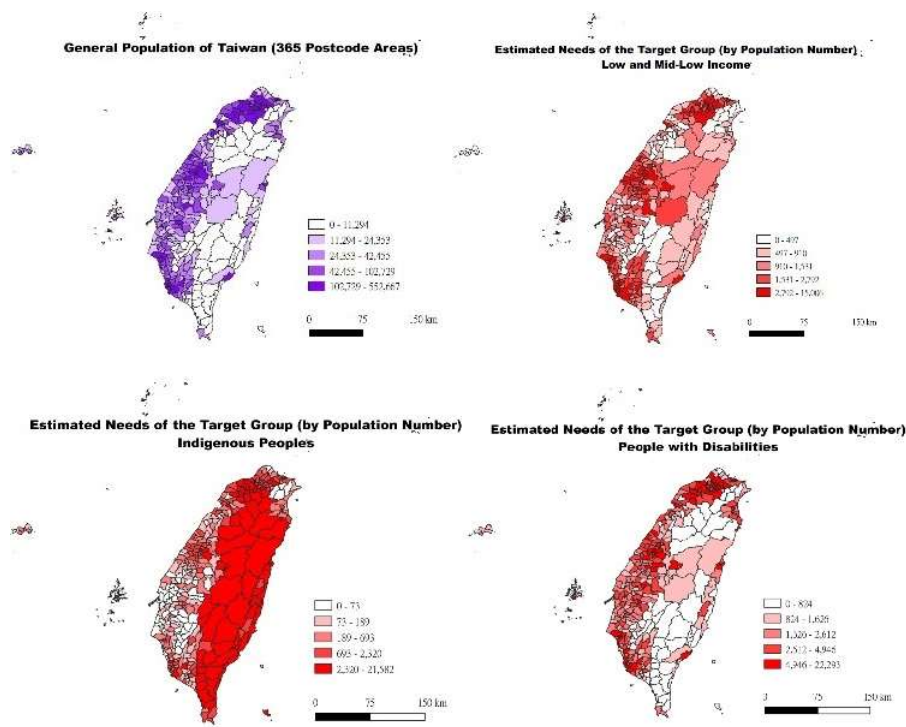


Figure 2: Maps of General Population and the Assessed Needs of the Various Groups

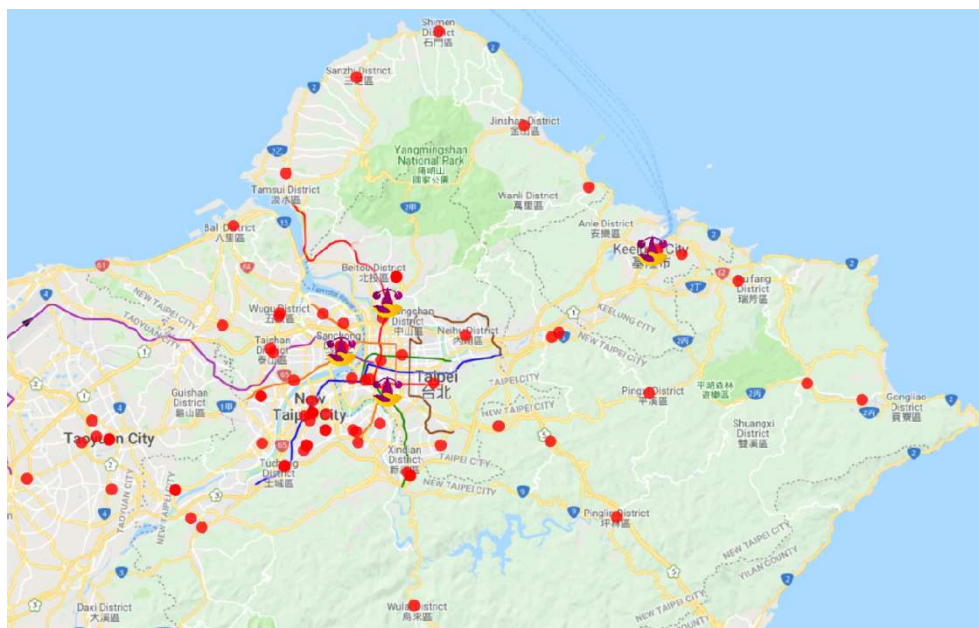


Figure 3: The Map of the LAF Branch Offices and Advice Clinics in Northern Taiwan

The cartographic visualisation revealed the great diversity of the branch offices' strategies in terms of setting up advice clinics. While some branch offices have been extremely active in terms of setting up clinics in different postcode areas covering their catchment area, others have established only a few clinics in local courts or government agencies. Although most of the branch offices and advice clinics were set up in places with a higher population density, good transportation or adjacency to the courts or government agencies, they were not necessarily located in or covered the areas with a

higher population of the target groups.

Such heterogeneity also existed in the branch offices' strategies for outreach educational and promotional events, varying in terms of the target participants and types of events⁴³, partner organisations⁴⁴, size and numbers of the events⁴⁵ and geographical areas targeted. This variety has made the impact of outreach activities on the service coverage hard to be compared only in a quantitative manner. Thus, it requires more in-depth qualitative research.

It is worth mentioning that even for the branch offices with a higher momentum and ambition in terms of outreach, the types and basis areas of the events did not perfectly match with the assessed local needs or with the identified service gaps, implying that there is still room for improvement.

5.3 Spatial Analysis of the Service Coverage Rates

While the service coverage rate stands for the ratio of the people that have applied for legal aid in the local studied population, it presents an equal basis to discuss the service coverage and geographical environment. By recognising the complexity of legal service seeking behaviour and geography, as well as the dearth of data, we analysed the service coverage rates⁴⁶ in different types of geographical areas and discussed its relationship with distance and travel time to the branch offices as a starting point.

We classified the 365 postcode areas into 7 categories according to population density and the specified 'rural areas' and 'indigenous areas' that were defined by competent authorities.⁴⁷ As illustrated in Figure 4 and Table 7, for the target groups of low and

⁴³ Such as legal aid promotional events, public legal education lectures, pupil civic education on campus, training for partner non-legal professionals, etc.

⁴⁴ E.g. judicial service related agencies, social service related agencies, government or non-government agencies

⁴⁵ The scope of the events can vary from tens to hundreds of participants.

⁴⁶ We used the service coverage rates of general legal aid only in this section to avoid the impact of different eligibility criteria by the commissioned legal aid programmes.

⁴⁷ Taiwan still lacks a common deprivation index like those in England and Wales and Australia to reveal relative socio-economic disadvantage. More than eight government agencies have their own standards for 'rural areas.' Some of them only base it on population density and others consider the development level regarding certain aspects. For example, all of the offshore islands were considered to be rural areas according to the definitions given by the Ministries of Interior, Economics and Transportation, regardless of their population density. Most of the identified rural areas, according to various standards, have overlapped and this Project counted the area to be rural area if it met any of the standards.

The Council of Indigenous Peoples appointed 55 areas to be 'indigenous areas'. Amongst them, only 4 of them belong to areas of high, medium-high or medium population density, and the rest (51) are amongst the identified rural areas.

This Project therefore classified the rural areas into 'non-indigenous rural areas' (48 areas), 'indigenous rural areas' (51) and 'offshore islands' (18). The indigenous rural areas combine with the four indigenous urban or regional areas to become 'indigenous areas' (55). The rest of the areas were classified into 4 groups according to their population density: top 20% high (72), mid-high (ranked at 20%~40%) (67), medium (ranked at 40%~60%) (64) and

mid-low income and disability (Figure 4 (A) and (C)), higher coverage rates were more likely to occur in the areas with the highest population density. Moderate correlations existed in the two groups, which demonstrated the urbanisation of legal aid seeking behaviours. However, this phenomenon was not so obvious for the service coverage rates of indigenous peoples.

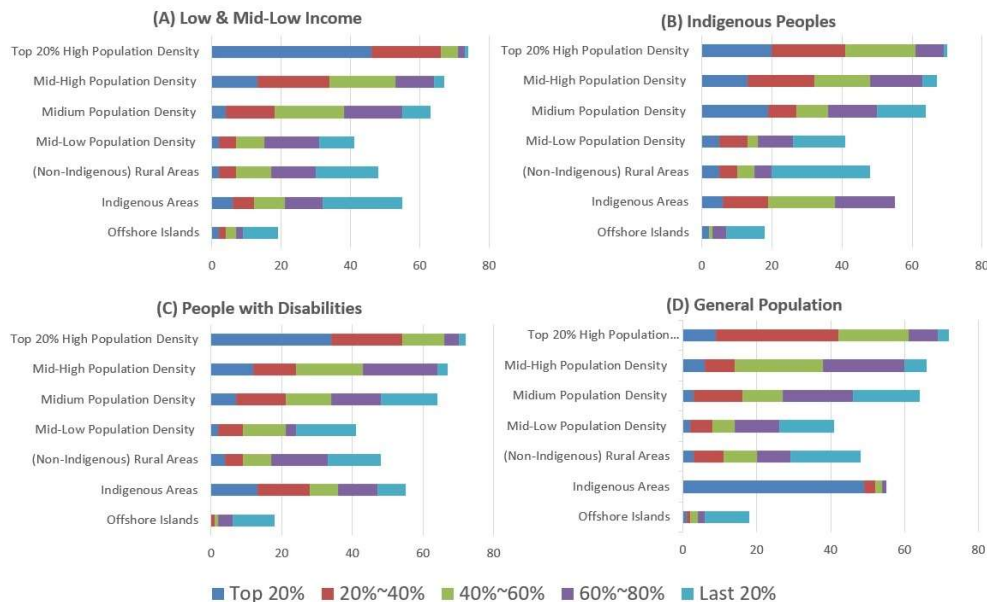


Figure 4: Rank of the Service Coverage Rates in Different Types of Area

Upon reviewing the service coverage in the general population (Figure 4 (D)), most (49/55) of the 55 indigenous areas ranked in the top 20% for the service coverage rates and 3 of them were in the 3rd and 4th deciles. This finding demonstrated that the LAF branch offices did not ignore the indigenous rural areas, echoing the management data and finding in the interviews that the branch offices often considered the indigenous rural areas to be their outreach focus. However, it also reflected that non-indigenous rural areas and the areas of medium and mid-low population density were actually those with lower service coverage rates.

Interestingly, the indigenous areas did not excel in the service coverage rates of indigenous peoples (Figure 4 (C)). Instead, only 6 of them (6/55) ranked amongst the top 20% areas and about 65% of them (36/55) ranked between the 5th and 8th deciles. This seemed to be very different from the service coverage rates of the general population in the indigenous areas. We found out that this counter-intuitive phenomenon can be attributed the considerable number of indigenous peoples leaving their home towns for work. However their household addresses are still registered in the original indigenous areas. This has greatly worsened the underestimating or overestimating problems

mid-low (ranked at 60% ~80%) (41).

originating from the incompatibility of the data (see 3.3 Research Limitations). The areas with high coverage rates of indigenous peoples can either be the areas where the registered indigenous population is small or where there are lots of indigenous immigrants. For example, certain urban areas where housing costs are more affordable.

Table 7: Correlation between the Service Coverage Rates of Different Indicators and Geographical Factors (All Areas)

Indicators Geographical Factors	Low and Mid-Low Income	Indigenous Peoples	People with Disabilities	General Population
Population Density	0.5255	0.2316	0.3880	-0.0362
Distance	-0.4199	-0.1785	-0.1865	0.3119
Travel Time by Driving	-0.4089	-0.1604	-0.1664	0.3243
Travel Time by Public Transportation	-0.5066	-0.2006	-0.2605	0.1878

We further examined the relationship between the service coverage rates and proximity, including distance and travel time. Travel time does not always increase with distance when more speedy options exist such as railways or highways. As reflected in Table 7, the national service coverage rates of the three studied target groups negatively correlated with the distance and transportation time (both by driving and by public transportation) between the centroid of each postcode area and the nearest LAF branch office. However, only the figures of the low and mid-low income groups achieved a moderate correlation. Moreover, compared to distance and driving time, the figures concerning public transportation time have a stronger negative correlation to the service coverage rates.

Nevertheless, the correlation coefficients concerning the general population were modestly positive rather than negative, which is counter-intuitive. After further investigation, we discovered that the positive correlations may be greatly contributed to by the high service coverage rates of indigenous rural areas, where usually are the most distant areas from the branch offices and they thus require a long transportation time. When we took the indigenous areas out of the calculation, the correlation coefficient then became very weak with nearly no correlation, and so were the cases for the three target groups (see Table 8). This not only highlighted the comparatively higher service coverage rates in indigenous areas but it also implied that the correlations did not evidently exist between the service coverage rates and proximity amongst the non-indigenous areas. The impact from the other socio-economic, psychological, capability or behavioural factors is worth studying in future to complete the picture.

Table 8: Correlation between the Service Coverage Rates of Different Indicators and Geographical Factors (Non-Indigenous Areas)

Indicators Geographical Factors	Low and Mid-Low Income	Indigenous Peoples	People with Disabilities	General Population
Population Density	0.5412	0.2464	0.4404	0.2858
Distance	-0.0378	-0.0736	-0.0338	0.0378
Travel Time by Driving	-0.0059	-0.0639	-0.0108	0.0592
Travel Time by Public Transportation	-0.0946	-0.0112	-0.0207	0.0533

It is also worth noting that the above figures were examined at the national level with 365 postcode (or 310 non-indigenous) areas. Since each local area has its own travel and service seeking behaviour, it would be more accurate to see them individually according to each local government area. Some of the local figures even suggested strong correlations.

6. Engaging with Local Knowledge: Feedback from Branch Offices

As stated above, in addition to the factors on the clients' side, the branch offices' awareness and perceptions of the local needs, service experiences, promotional and development strategies and implicit local knowledge may also influence service coverage. Additionally, the branch offices' feedback on the needs assessment can sophisticate its formulation, accuracy and application. Therefore, we adopted a softer and bottom-up approach to share the above quantitative findings with the branch offices, listened to their feedback and then encouraged them to fill the gaps with some initiatives as an experiment. We also discussed the facilitators and barriers to their local strategic planning. The opinions from the branch offices collected so far have been summarised as follows.

Accuracy and Sophistication of the Needs Assessment Framework

Some executive secretaries of the branch offices positively recognised that the service coverage data was comparable to their frontline experience. However, due to a lack of ideas about the local demographic figures in their catchment areas and the presence of no sophisticated calculations, it was observed that the respondents were rarely able to discover the service gap areas actively before reading the figures. Sometimes the identified gap areas matched with the management data and the respondents' experiences but sometimes the findings contradicted their experiences and intuition. For example:

“(Interviewer: The service coverage figures in [Area D1] and [Area D2] were below the average for all of the indicators... We suggest that you can put more effort into them.) I think that these figures are quite right... I have to confess that we didn’t do a lot of promotion in these areas before...I think I’ll put some resources in these areas this year.”

(Respondent B, southern Taiwan)

“The figure of [Area M1] really astonished me. It’s one of the biggest townships in the local authority and it’s not too far from our branch office. I didn’t know there was quite a big gap in service coverage there... I think I’ll target the chiefs of the villages in [Area M1] and stress the promotional activities there in the next year.”

(Respondent D, central Taiwan)

Although sometimes the assessed needs and service gaps can become an evident push as quoted above, there were also circumstances where the respondents questioned reliability of the data based on their local knowledge. This especially happened in relation to the research limitations of this project. For instance:

“I have no exact idea about why the service coverage in [Area I1] was comparatively low. A possible guess is that there are lots of emigrants whose household is still registered at [Area I1] but they have rented houses in more city areas like [Area I2, I3] and commute over the weekend... According to your method, the service coverage in [Area J1] can be underestimated.”

(Respondent I, eastern Taiwan)

Additionally, a respondent (Respondent B) reminded us that great diversity can exist in big postcode areas with a large population where the relatively needy and privileged may live in close proximity to each other. In order to increase the precision of the assessment for further strategic planning, the respondent suggested that the general household income data at the village level (Indicator 14, Table 1) should be given to the branch offices.

Great Diversity between Branch Offices and Key Factors Influencing Strategic Planning and Development

As noted in Section 5.2, a great diversity of promotional and development strategies was discovered between the various interviewed branch offices due to the various political,

social, economic, geographical, judicial and legal services environments. For instance, where the local government funding and legal or other social service provision are more sufficient, the branch offices can more easily find external funding and an additional workforce (e.g. private legal aid lawyers and other non-legal services) to work together, which would facilitate the outreach to target clients and rural areas. However, this privilege was not the case for all branches.

Several key factors that may influence service coverage were mentioned. For some respondents, the highs and lows of the service coverage rates more or less proved the existence of facilitators and barriers in the local areas. For example, the political attitude of local governments and/or chief officers when it came to working with LAF and the enthusiasm of the other services' frontline officers to help promote and make referrals were key factors. Although the latter is the point that decides success, very often it was highly influenced by the former. Therefore, a president of the branch office that has a good relationship with the local government can be a crucial facilitator. However, the positive attitude of the chiefs does not guarantee cooperation. Three respondents expressed that regular re-deployment within the partner organisations and an incomplete job handover could ruin the originally established work and frustrate their enthusiasm in terms of making connections. In addition, in central and southern Taiwan where the local people still preferred oral face-to-face communication, building up new links for strategic planning is never easy and it always requires time investment in the initial stages.

Moreover, a large number of respondents (7/9) from central and southern Taiwan mentioned that the large territory of the catchment areas and underdeveloped public transportation were the biggest challenges for service promotion and development. On the one hand, this argument strengthened the importance of evidence-based strategic planning to avoid equally blind efforts in every area. On the other hand, it highlighted the current LAF's limitation in terms of resources allocation when it comes to affording this commitment. For example, at least three respondents expressed their inability or fear of driving alone, especially when there is a long way to the rural areas. There might be no suitable person to undertake the role in the branch office. Additionally, sometimes the effective promotional events needed to be held at night time or on weekends which required intensive human resources. However, this is not affordable. The respondents thereby questioned whether the outreach events were worth the cost and proposed that more efficient approaches should be nationally planned and undertaken by the head office to facilitate promotions and service delivery in rural areas.

Furthermore, three senior respondents mentioned that currently branch offices were still overloaded in terms of undertaking enhanced applications derived from the 2015 Legal Aid Act Amendments with very limited increase in workforce. Unless this pressure can be

relieved, branch offices will not have additional capacity and motivation to consider and implement strategic planning.

7. Conclusion

This paper has provided an overview of the Data for Social Good Project recently undertaken by Legal Aid Foundation in Taiwan. It has also illustrated how the Project has developed an evidence-based approach to locate the potential need for better strategic planning. In addition to the quantitative assessment employing the government's open data and LAF's service data to estimate potential needs and identify service gaps, the Foundation has also actively engaged with local knowledge through qualitative interviews with branch offices, including identification of the facilitators and barriers to strategic planning and better resource allocation in local practice.

As stated earlier, the Foundation regards the Project as the first step to understanding the potential local need for legal aid and to improve the effectiveness and efficiency of targeting disadvantaged groups who are more likely to require legal aid services. While recognising that the need assessment is a complicated process and that it involves theoretical and operational complications, it is hoped that through this data-driven and comprehensible approach that branch offices can be stimulated to proactively develop their local services based on evidence rather than only relying on their intuition and experiences or following the political focus. Additionally, the reasons behind the current uneven service coverage of legal aid services can be investigated and the potential service gaps can be filled with new attempts. Moreover, based on this mindset, more understanding of the local diversity in terms of dispute resolution, legal service seeking behaviours and the key influential factors can be accumulated and contribute to the knowledge of this field.

Lastly, the Project has already recognised the unavailability of certain government open data and LAF's service data and the incongruity between some of the datasets, which are the limitations of this research. This can greatly influence the precision of the estimation. In order to improve the accuracy of the assessment, LAF is eager to connect with various competent authorities for better access to data of finer granularity. It is also expected that the next national population census, which is going to be conducted in 2020, can provide useful references and that more statistical approaches will be applied to the more complete and precise datasets.

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