Community health centers in Indonesia in the era of decentralization
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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2018

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):

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Summary and Conclusion

Introduction

What makes health care systems effective in catering to the needs of their populations? Posing a key challenge for most industrialized countries, this question ranks high on the agenda of policy makers, politicians, and scholars alike (Perleth, et al., 2001). Many countries have put their hopes on decentralization as a means to improve the effectiveness and efficiency of the sector (Saltman, et al., 2007). However, many attempts to assess the performance implications of decentralization remain inconclusive (e.g. Bossert & Beauvais, 2002). This is not surprising, since both decentralization and health care systems are complex and multifaceted phenomena and a large variety of factors affect their interplay (Regmi, 2013).

This dissertation aimed to shed more light on the largely neglected organizational side of decentralization in health care systems: the role of Community Health Centers (CHCs). Point of departure for this project is the assumption that variation in the structure, composition and management of these front-line organizations strongly affects health outcomes in their respective service coverage areas.

This book comprised four empirical studies on Community Health Centres (CHCs) in Indonesia and their capacity to generate high performance in health outcomes in the context of decentralization. Its key question is if and how CHC discretion and autonomy in Indonesia’s decentralized era is related to their performance. Are performance differences between CHCs negligible, now that they have the discretion to tailor their operations to local circumstances, or do CHCs differ considerably in performance? If so, how can this be explained?
The focus was on four organizational dimensions of CHC discretion that resulted from the multi-layered decision-space created by decentralization in Indonesia. We relate these dimensions to specific outcomes of CHC activities, leading to four empirical studies on the following combinations of organizational dimensions and health care outcomes. These studies investigated the interplay between 1) CHC decision-space use and innovation; 2) CHC organization design and efficiency; 3) variations in CHC skill mix of professionals and efficacy; and 4) CHC collaboration with community organizations and children weighed (efficacy). Overall, the central research problem in this book can be summarized as follows: How can variation in CHCs’ innovation, efficiency, and efficacy be explained by CHC organizational characteristics and social contexts?

This final chapter summarizes the findings of each empirical study and concludes with four more general propositions concerning the conditions favoring effective community health care services in Indonesia.

**Summary of findings**

**Study 1: Community Health Centers innovation and decision-space use**

There are various factors affecting organizational innovations in the health sector (Fleuren, et al., 2004). Our study, which focused on some of the institutional conditions that may facilitate or impede such innovations, allows for some general tentative observations.

First, the Decision-space Approach proved to be particularly useful to map the changes in these specific institutional contexts, because it allowed disentangling key decision and accountability domains. Our institutional analysis showed that arrangements during the first and the second wave of decentralization differ considerably, and that there is also quite some variation in decision-space and accountability across different domains during each phase. Whereas during the first phase decision-space was wide across most domains, autonomy of CHCs remained very low, creating a major stumbling block for capacity enhancing innovations. Since the second wave of decentralization, the institutional framework increased accountability pressures in combination with more decision autonomy with regard to CHC structure and function, but somewhat lower decision-space in the remaining domains. This combination seems to be favorable for capacity-enhancing innovations at CHC-level.

Second, our case analysis revealed that successful innovation initiatives were often built on the presence and cultivation of cooperative social networks, both with external and internal stakeholders. In the upper echelons, personal connections facilitated lobbying key decision makers in the system. Lower down in the hierarchy, social networks of CHC management, health staff and community members contributed to build the trust and commitment that was necessary for carrying out the sometimes major restructurings required to implement an innovation. Since these networking
capacities most likely differ considerably across CHCs, they may be one of the possible conditions explaining variation in their innovation potential.

Future research may benefit from our study in at least two ways. First, we found that increased organizational efficiency is one key ingredient of successful capacity-enhancing innovation. However, efficiency itself may be part of daily decision-space use in providing health service, particularly for health care service providers like CHCs. Hence, an in-depth study on decision-making processes at CHC level may be a fruitful endeavor. Second, our case studies showed the crucial role of mobilizing external stakeholders to contribute to health care provision. However, little is known about how management and employees of CHCs manage to activate sustainable collaborative networks that serve in improving organizational capacity.

To conclude, in 2015, Indonesia counted 548 local governments (Ministry of Home Affairs’ Decree, 39/2015), and approximately 9,815 community health centers. The degree to which they will be able to deliver effective health care in the future will strongly depend on their ability to successfully adapt to local circumstances. Finding innovative methods to improve their organizational capacity will remain a crucial element to achieve this objective.

Study 2: Community Health Centers efficiency, organization design and context

Systematic statistical analyses of CHC efficiency are rare, also for the Indonesian context. Using performance information from a sample of almost 600 Indonesian CHCs, the present study revealed large variations in efficiency, and a clear pattern of conditions causing this variation.

Both organizational design and context matter for efficiency. With regard to design, horizontal differentiation, but not spatial differentiation, has an impact: none of the indicators for spatial differentiation – the number of branches, Polindes, Puskesdes – shows a systematic association with efficiency. As background interviews with four CHC directors reveal, this may be due to the fact that CHC management will react to declining numbers of patients either by closing down some of their Pustu and Poskesdes or by relying on alternative means to reach out to remote areas, like using ambulances as mobile CHCs.

In contrast, both types of horizontal differentiation affect efficiency. CHCs with a less diverse staff mix (number of roles present in its staff) outperform those with a more diverse staff mix. This linear negative association holds for CHCs in both remote and non-remote areas, and the effect size is the second strongest in the study. The effect of staff mix holds irrespective of the three context conditions investigated here: remoteness, poverty, and service area size.

Remoteness matters for the impact of the second organizational design condition, the number of horizontal units. Efficiency rates are highest for CHCs with an intermediate number (range 1–2) of horizontal units, but this effect holds only for CHCs in non-remote areas. The regression coefficient represents the strongest effect size in our study. Furthermore, the impact of the number of horizontal units becomes weaker.
to the degree that the proportion of poor people increases in a CHC’s service coverage area in non-remote areas. This implies that poverty may cancel out the eventual efficiency benefits a CHC may realize through keeping an intermediate number of horizontal units.

In sum, although the context conditions poverty and remoteness affect CHC efficiency, this effect is not direct. This conclusion is particularly relevant from a policy perspective. Being the first study to disentangle the joint impact of two closely related context conditions, a CHC’s remoteness and the proportion of poor inhabitants in its service coverage area, our findings show that the socio-economic status of the population in its area does not directly influence CHC efficiency. Furthermore, in non-remote areas, the indirect effect of poverty – in the sense of tempering the efficiency gains from an intermediate number of horizontal units – is weak. CHCs with larger service coverage areas do slightly better, but this effect is weak. A third context condition has a direct effect: CHCs with larger service coverage areas do slightly better, but this effect is weak, too.

Some limitations to this study have to be taken into account when interpreting its results. First, one of the reasons why some relationships do not show up as strongly as expected on the basis of the theory relates to the fact that efficiency levels are not observed, but estimated in the first stage. Consequently, the efficiency levels that we use as observations of the dependent variable contain some measurement error. Second, this study is based on cross-sectional data. Therefore, we could not analyze the relationship between CHC efficiency and its determinants over time (e.g. as a consequence of changes in organizational design). Third, by splitting the sample into non-remote and remote areas, and given that the sample of remote CHCs is substantially smaller than the sample of non-remote CHCs, this might partly explain the lack of statistical significance in the analysis. Finally, we measured CHC input in terms of the number of staff available, not in terms of the actual hours they work. For example, a good nurse in a well-organized CHC in a poor and therefore unhealthier environment would have to be helping people almost continuously (because demand is higher), whereas her colleague working in a similar CHC located in a rich area might have less work to do because of a lower demand for care. These fluctuations in working hours could also explain differences in CHC efficiency but are not included in the analysis.

Nevertheless, the findings of this study suggest that the CDP framework is a useful theoretical point of departure for modeling variations in CHC efficiency. Future studies may also benefit from a comparative assessment of high-quality data on the quality of care provided by CHCs – a key dimension that the current study could not address.

Study 3: Community Health Centers efficacy and skill-mix of professionals

Systematic configurational analyses on skill-mix in primary health care institutions are rare also for the Indonesian context. Using configurational analysis from a sample of almost 600 Indonesian CHCs, the present study revealed large variations in skill-mix combination despite the standard of skill-mix stipulated by the Ministry of Health.
study also revealed clear patterns of skill-mix configurations that lead to nominated CHCs efficacies.

In the CHCs in our sample, the ‘standard’ skill mix required by the government does not lead to higher efficacy in any of the functional domains. This suggests that a standard skill mix increases coordination costs (Barr, 1995). It could contribute to high quality services, something we did not analyze in this study. The analysis also suggests that as a mechanism, complementarity is important, given that most pathways require five or six professions in the configuration, and in most configurations professions from multiple functional groups are core or contributing factors. In terms of substitution, we did observe within group substitution especially, and not so much between group substitution, whereas we expected the latter to be more dominant, based on the job profile analysis. We expected nurses and midwives to be key in substituting for other staff, but our analyses show that these professions matter ‘only’ as contributing and not as core conditions. This means that the presence of GPs, midwives and nurses only contributes to high efficacy in combination with other core professions present, such as pharmacists, dentists or particular promotional staff. Even though the analysis did not result in one pathway to overall efficacy, the various pathways generated share similarities to some extent: GPs, nurses and midwives are contributing conditions; dentists, pharmacists and promotional staff are important – albeit in different compositions. Inductive analyses revealed that the presence of additional health facilities, and especially the presence of an ambulance service, might be an important additional characteristic of the high efficacy CHCs identified by our analysis.

In sum, the various professions in a skill-mix configuration complement each other. The presence of a specialist – such as a pharmacist or dentist – may reduce the workload of the generalist staff (e.g. nurses and GPs). This task differentiation in terms of specialists and generalists seems to be key to achieving high efficacy in certain domains, as shown in our sample. In terms of substitution, we conclude that substituting for staff requires an overlap in tasks and expertise for it to contribute to high efficacy, given that substitution within a functional group is more prominent than substitution between functional groups.

Various limitations to this study need to be taken into account. First, skill mix is one of many factors that may contribute to CHC efficacy, alongside organization design and context characteristics or management style (Antunes & Moreira, 2013) and the quality of health facilities (Andayasary, 2014). This is apparent in the relatively low unique coverage rates in the analysis. Second, our definition of professions in the skill mix did not include differentiation within a profession, for example, between professional midwives and ‘ordinary’ midwives, with the professionals having obtained additional certification and thus representing additional knowledge and skills compared to the other midwives (Antunes & Moreira, 2013; Global Health Workforce Alliance and World Health Organization, 2014). Third, we focused on efficacy and not quality of care or patient satisfaction. Finally, this empirical study is limited to one case: Indonesian CHCs in the context of health sector decentralization, in one year (2011) and based on one kind of information (documents and archival material).
Despite the above limitations, this study has advanced our understanding of the relation between CHC skill mix and performance by systematically comparing a sample of CHCs in one country, using fuzzy set Qualitative Comparative Analysis (fsQCA). The results lead to a refinement of the general ideas of complementarity and substitution that are currently used in the literature and debate on skill mix in the health sector: there are various skill-mix pathways to high efficacy in CHCs, related to context and facilities, in which complementarity and substitution mechanisms play different roles. Future studies can build upon this work by applying similar systematic approaches for national or cross-country comparisons, or by comparing private and public health institutions.

**Study 4: The co-production between Community Health Centers and community organizations**

The fourth empirical paper asks if and how specific CHC characteristics and the type and number of *Posyandu* relate to the number of children weighed in a community, as an example of one particular health care output (i.e. efficacy). The study categorizes the *Posyandu* in three types, based on the strength of their human resource base, their scope of activities and member base, and their degree of autonomy: strong, intermediate and weak *Posyandu*.

We expected that CHCs who operate in areas with strong community based service organizations (*Posyandu*) will be more effective in reaching the population to have their children weighed, compared to CHCs that do not work in areas with such strong *Posyandu*. However, we assume that the performance in this domain also depends on how well CHCs internally organize themselves to reach out to local communities, in particular the number of midwives, branches and promotional activities. Moreover, we expect a positive interaction effect of CHC characteristics and the presence of strong *Posyandu*.

We compiled an archival data set from 37 local government reports on health CHC profiles that were published in 2011 and applied *negative binomial regression analyses* to test our hypotheses. The analyses of the complete sample showed that the three CHC characteristics are not significantly related to the number of weighed children under 5 years old (i.e. the number of midwives, CHC branches, and promotional activities), whereas the analyses of the split sample showed an unexpected negative significant effect of the number of CHC branches on the number of children being weighed in the non-remote areas. These results hint at the relative unimportance - or even potential counterproductive effect - of these CHC characteristics with regard to the number of children that are weighed, at least in this sample.

With regard to the importance of *Posyandu* in weighing children, we found a small but surprising negative effect of the number of strong *Posyandu* on the number of children that are weighed for the complete sample but not for the split sample. Moreover, we found that other types of *Posyandu* – i.e. the weak and intermediate ones - unexpectedly are positively and significantly related to the number of weighed children, both in the complete and the non-remote sample. Hence, it is not so much the
Posyandu that are organizationally strong that facilitate that more children are being weighed, on the contrary.

Only one hypothesis was partly confirmed, given that the analysis of both the complete and the non-remote sample showed a (small) significant interaction effect between the number of CHC promotional activities and the number of strong Posyandu. This resonates with the idea that this type of Posyandu can help strengthen the effect of CHC promotional activities on the number of children being weighed.

The above mentioned unexpected findings can be explained in multiple ways. First, all Posyandu, whatever type they are, have at least one CHC staff member that works with the Posyandu. This may not necessarily be a midwife, but another CHC staff member, which might explain the absence of an effect of the number of midwives. Furthermore, regarding the significant negative effect of CHC branches on the number of children that are weighed in the non-remote sample, it was suggested that CHC branches are mainly focused on addressing health problems (i.e. cure) and not so much on weighing children as a preventive measure.

With regard to the significant negative effect of strong Posyandu and the positive significant effect of weak and intermediate Posyandu, multiple mechanisms may have been at work. First, strong Posyandu are allowed to collect funds from its members, including the mothers that visit the Posyandu. This might result in mothers' reluctance visiting this kind of Posyandu and might make them choose other types of Posyandu (i.e. weak or intermediate ones) that provide a free weighing service. This hints at the importance of the cost dimension in the decision to let a child be weighed.

Second, there might be an issue of reverse causality at work in relation to the strong Posyandu and the institutional context. In 2011, the Ministry of Home Affairs announced a regulation stating that it would work to reinforce the Posyandu. This regulation might have triggered the Ministry of Health and the Ministry of Home Affairs, as our experts suggested, to encourage Posyandu to increase their HR base, scope and autonomy as a way to increase the number of weighed children, particularly in areas where this number was lower. Hence, it may well be that the number of strong Posyandu has increased in areas because less children were being weighed.

Third, the unexpected findings could be understood in relation to differences in the degree of autonomy between the three types of Posyandu we distinguish. The weak and intermediate Posyandu are less autonomous than the strong Posyandu since they are more under the control of the government and still receive training from CHCs. This might imply that there is closer monitoring and scrutiny of the implementation of tasks in the weak and intermediate Posyandu, potentially resulting in positive effects of their weighing activities, despite the fact that they are less stable, implement less activities and have less coverage. Hence, there might be a control mechanism at work here, leading to more effective outcomes with regard to weighing children in those Posyandu that are more monitored.

Some limitations to this study have to be taken into account when interpreting its results. First, this study is based on cross-sectional data. We, therefore, could not
analyze the relationship between the number of weighed children and its determinants over time, for example, as a consequence of changes in CHC units or in policies. Second, we focused on the number of children as the dependent variable, which is not the same as the malnutrition rate, since the latter is an outcome indicator and the former an output indicator. Future research could, therefore, more focus on outcome or intervention indicators relating to malnutrition. Finally, the current study did not take into account indicators related to the quality of care, something, which in future studies could be included.

This study’s unexpected findings show the importance of studying co-production of health services by public service organizations and community organizations and the necessity to continue with attempts to more precisely define the boundary conditions under which co-production can contribute to desired health outcomes.

**Conclusion**

Before concluding, several obvious limitations of our research design should be mentioned. The studies in this book cover a relatively small sample (589 or 6% of all 9000 CHCs), rely mostly on archival material, are restricted to cross-sectional information on a single year (2011), and focus exclusively on quantitative indicators of health care effectiveness rather than the perceived quality of care. Future research may benefit from a more comprehensive research design involving a larger sample, and complement longitudinal data on effectiveness with information on perceived quality of care. For such research designs to become feasible, much can be gained by a more comprehensive effort of the Indonesian government to ensure the consistent documentation of key performance indicators of CHCs.

These limitations notwithstanding, the current study is among the first to provide a more systematic assessment of performance differences between CHCs after Indonesia’s far reaching decentralization. It shows that these differences are quite pronounced, implying that there is still room for improvement with regard to the national policies to safeguard CHC capacity and performance.

We would like to conclude with four more general tentative propositions concerning the conditions favoring effective community health care services in Indonesia.

**Proposition 1. Personal trust relations between Community Health Center staff and external stakeholders facilitate the development of innovative practices in primary health care.**

We found that successful innovation initiatives often built on the presence of cooperative social networks, in which CHC staff had frequent contact with a variety of external stakeholders. In the upper echelons, personal connections and the
interpersonal trust these contacts nourished facilitated lobbying key decision makers in the system. Lower down in the hierarchy, social networks of CHC management, health staff and community members contributed to build the trust and commitment that was necessary for carrying out the - sometimes major - restructurings required to implement an innovation. Since these networking capacities most likely differ considerably across CHCs, they may be one of the possible conditions explaining variation in their innovation potential.

**Proposition 2. Horizontal differentiation affects the efficiency of Community Health Centers.**

Our study shows that the organizational structure of CHCs matters for health care efficiency. More specifically, a key characteristic of the most efficient CHCs in our study was that their staff mix was less diverse, compared to the seven types of occupations that the government has set as a requirement for CHCs. In addition, efficient CHCs in non-remote areas had an intermediate level of horizontal differentiation (one or two units). However, it must be noted that efficient health care provision is not necessarily the same as high quality health care provision.

**Proposition 3. Skill mix affects Community Health Center efficacy mainly through complementarity rather than through substitution.**

The skill mix configuration in a Community Health Center matters for health care efficacy. The main mechanism through which this is achieved is complementarity, i.e. the presence of different specialist professions within one functional group seem to reduce the workload of generalists. Substitution between functional groups might not necessarily relate to more effective health care, even though it is often assumed that, for example, nurses can take over tasks of doctors. Hence, our study suggests to be careful before opting for the substitution of specialists by generalist health staff across functional groups.

**Proposition 4. Co-production between Community Health Centers and Posyandus may improve health care output, but in unexpected ways.**

The co-production of health services by both CHCs and community based organizations such as Posyandu can be beneficial for health outputs, as the fourth empirical study showed. However, we detected unexpected patterns in the data, warning us for simplified reasoning regarding the characteristics of and conditions under which Posyandu might contribute to delivering health outcomes. Additional research is needed in order more precisely define the boundary conditions under which co-production can contribute to desired health outcomes.
Taken together, the evidence presented in the four studies in this book suggests that the organizational dimension of a Community Health Center matters, and that scholars and policy makers may benefit from devoting more attention to this neglected dimension in their future attempts to improve the efficiency of the Indonesian health care sector.
**Samenvatting**

**Decentralisatie en prestaties van lokale gezondheidscentra in Indonesië**

Hoe kunnen zorgstelsels effectief in de behoeften van hun bevolking voorzien? Deze vraag staat hoog op de agenda van zowel beleidsmakers als politici en academici. Veel landen hebben hun hoop gevestigd op decentralisatie als middel om de effectiviteit en efficiëntie van de gezondheidszorg te verbeteren. De precieze gevolgen van decentralisatie zijn echter nog niet duidelijk. Dit is niet verrassend, want zowel decentralisatie als zorgstelsels zijn complexe en veelzijdige fenomenen, en de interactie daartussen wordt door een grote verscheidenheid aan factoren beïnvloed.

Dit proefschrift wil meer inzicht geven in de grotendeels onderbelichte organisatorische kant van decentralisatie in zorgstelsels: de rol van lokale gezondheidscentra. Verondersteld wordt dat variatie in de organisatiestructuur, de samenstelling en het management van deze eerstelijns zorginstellingen invloed heeft op hun resultaten en de gezondheidsuitkomsten in hun servicegebied.

Dit proefschrift omvat vier empirische studies naar lokale gezondheidscentra in Indonesië en hun resultaten, in de context van decentralisatie. De nadruk ligt op vier organisatorische kenmerken van lokale gezondheidscentra, gebaseerd op de gelaagde beslisruimte die ontstond door decentralisatie in Indonesië. We hebben deze factoren gekoppeld aan specifieke uitkomsten van het werk van lokale gezondheidscentra. Dit heeft geleid tot vier empirische studies naar de volgende combinaties van organisatorische factoren en uitkomsten van het werk van lokale gezondheidscentra: 1) beslisruimte van gezondheidscentra en innovatie; 2) structuur van gezondheidscentra en efficiëntie; 3) variaties in skill mix van gezondheidscentrumprofessionals en effectiviteit, en 4) samenwerking van gezondheidscentra met lokale zorgorganisaties en het aantal gewogen kinderen. De centrale onderzoeksvraag in dit proefschrift luidt: Hoe kunnen variaties in de innovatie, efficiëntie en effectiviteit van lokal gezondheidscentra worden verklaard door hun organisatorische kenmerken en sociale context?
Datasets en informatiebronnen

De informatie over de kenmerken en prestaties van gezondheidscentra is afkomstig uit diverse bronnen. We hebben verscheidene documenten geanalyseerd. Zo analyseerden we overheidsvoorschriften om de mate van beslisruimte en controle te vergelijken, maar ook om de voorwaarden voor bepaalde organisatorische kenmerken van een gezondheidscentrum te bepalen, bijvoorbeeld of er een 24-uurs eerstehulppost aanwezig is en hoeveel professionals een gezondheidscentrum zou moeten tellen. Daarnaast bestudeerden we sociaalmediabronnen met informatie over activiteiten van gezondheidscentra, zoals socialemediaberichten over innovaties. Ook analyseerden we online functiebeschrijvingen van verschillende beroepen binnen gezondheidscentra.

Interviews met deskundigen zijn gebruikt om aanvullende informatie te verzamelen. De deskundigen in dit proefschrift zijn directeuren van gezondheidscentra, die ons met hun specifieke en exclusieve kennis hebben geholpen te begrijpen hoe en in welke context gezondheidscentra in de praktijk functioneren. De interviews werden tweemaal afgenomen: aan het begin van het onderzoek en nadat de resultaten bekend waren.

Voor de tweede, derde en vierde studie gebruikten we een dataset bestaande uit een steekproef van 589 gezondheidscentra in Indonesië uit 2011. Dit bedraagt 6,4% van het totale aantal gezondheidscentra. Er is weinig informatie beschikbaar over prestaties van gezondheidscentra in Indonesië, vanwege hun geografische spreiding en de onderontwikkelde infrastructuur van informatiebeheersystemen in de Indonezische gezondheidszorg. Er is voor het jaar 2011 gekozen omdat dit het meest recente jaar was waarover de meeste informatie beschikbaar was. Voor de steekproef hebben we twee informatiebronnen gecombineerd: we verzamelden gegevens over gezondheidscentra uit 2011 van de officiële website van het Ministerie van Volksgezondheid en combineerden deze informatie met gegevens van 37 districtsrapporten over de volkgezondheid uit 2011, zoals gepubliceerd door de gezondheidsdienst van de betreffende districten. Deze rapporten geven actuele informatie per gezondheidscentrum.

Vier studies naar Indonesische gezondheidscentra

De vier studies in dit proefschrift gaan ervan uit dat we de prestaties van gezondheidscentra alleen kunnen beoordelen als we rekening houden met zowel de organisatorische kenmerken van gezondheidscentra als de kenmerken van het zorgstelsel. Hieronder volgt een samenvatting van de studies.

Studie 1: Innovatie van gezondheidscentra en beslisruimte

Het Ministerie van Volksgezondheid bepaalt nationale gezondheidsdoelstellingen (zoals terugdringing van moedersterfte in 2005). Op organisatorisch niveau hebben
lokale gezondheidscentra de ruimte om te bepalen hoe zij deze nationale doelstellingen vertalen naar strategieën en programma's. Verwacht wordt dat gezondheidscentra, als zij gebruikmaken van deze organisatorische beslissruimte, op innovatieve wijze kunnen reageren op gezondheidsproblemen en -behoeften in de gemeenschap en hun diensten kunnen afstemmen op de specifieke omstandigheden. Het feit dat gezondheidscentra deze beslissruimte hebben, biedt echter geen garantie voor innovaties. Dus de hoofdvraag van de eerste empirische studie luidt: onder welke voorwaarden bevordert decentralisatie van de Indonesische gezondheidszorg innovaties op regionaal en organisatorisch niveau (het niveau van lokale gezondheidscentra)?

Wij hanteren een 'decision-space approach' en stellen dat beslissruimte in combinatie met passende controlemechanismen zal leiden tot innovaties ter verbetering van de gezondheidsresultaten. Beslissruimte wordt omschreven als een intrinsiek kenmerk van gezondheidscentra, en de controlemechanismen verwijzen naar de relaties tussen de verschillende actoren in het zorgstelsel, zoals organisaties uit andere sectoren en domeinen (d.w.z. wetgevend).

De twee decentralisatiegolven die Indonesië heeft gekend, bieden gelegenheid tot een gedetailleerd vergelijkend onderzoek naar het effect van verschillende beleidsmaatregelen op innovaties in de gezondheidszorg binnen dezelfde sociaal-culturele context. Met behulp van een vergelijkende beleidsanalyse brengen we in kaart hoe de belangrijkste beleidsaspecten in de gezondheidszorg tussen de eerste en de tweede golf van decentralisatie zijn veranderd. Beleidsdocumenten en verordeningen zijn onze belangrijkste bronnen voor deze analyse op de Indonesische situatie. Gezien het gebrek aan innovaties binnen het zorgstelsel van Indonesië, doen we nader onderzoek naar de Weinige gevallen waarin wel sprake is van innovatie. Het doel van deze casestudyanalyse is om mogelijke overeenkomsten vast te stellen in de voorwaarden en methoden voor innovatie tijdens beide decentralisatiegolven. Onze belangrijkste informatiebronnen voor deze stap zijn beschrijvingen van eerdere casestudy's en berichten in de media.

Deze studie leidt tot twee belangrijke bevindingen. Ten eerste bleek de decision-space approach nuttig om veranderingen in de specifieke beleidssituaties in kaart te brengen; we konden ze belangrijke domeinen van besluitvorming en controle. Onze beleidsanalyse toont aan dat de beleidsmaatregelen aanzienlijk verschillen tussen de eerste en de tweede decentralisatiegolf, en dat er ook behoorlijk wat variatie is in beslissruimte en controle binnen verschillende domeinen. In de eerste fase was de beslissruimte binnen de meeste domeinen vrij groot, maar de autonomie van gezondheidscentra bleef zeer laag, wat een groot struikelblok vormde voor innovaties ter verbetering van de effectiviteit. Tijdens de tweede decentralisatiegolf werd de controle vanuit het beleidskader vergroot, in combinatie met meer autonomie qua organisatiesstructuur en functie van gezondheidscentra, maar er was een enigszins lagere beslissruimte binnen andere domeinen. Deze combinatie lijkt gunstig te zijn voor innovaties ter verbetering van de effectiviteit op het niveau van gezondheidscentra.

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Ten tweede bleek uit onze casestudyanalyse dat succesvolle initiatieven tot innovatie vaak berustten op de aanwezigheid en ontwikkeling van sociale netwerken met zowel externe als interne stakeholders. Op het hoogste niveau maakten persoonlijke contacten het makkelijker om druk uit te oefenen op beleidsmakers binnen het stelsel. Op lager niveau leidden sociale netwerken tussen het management van gezondheidscentra, zorgmedewerkers en gemeenschapsleden tot meer toewijding en vertrouwen, wat nodig is voor de soms grote herstructureringen die bij innovaties komen kijken. Aangezien deze netwerkcapaciteiten waarschijnlijk aanzienlijk verschillen tussen gezondheidscentra, kan dit een van de mogelijke oorzaken zijn voor variaties in hun innovatiepotentieel.

**Studie 2: Efficiëntie van gezondheidscentra, organisatie en context**

Het Ministerie van Volksgezondheid bepaalt onder welke voorwaarden een lokaal gezondheidscentrum geopend mag worden. In elke regio met 30.000 tot 60.000 inwoners zou een gezondheidscentrum aanwezig moeten zijn. De centrale overheid bepaalt ook de organisatiestructuur van een gezondheidscentrum, bijvoorbeeld dat ze vestigingen op dorpsniveau mogen hebben, of een klinische afdeling als er geen ziekenhuis in de buurt is.

Op organisatienevel hebben gezondheidscentra de beslisruimte om een eigen structuur en begroting vast te stellen, binnen bepaalde grenzen. Zo kunnen gezondheidscentra uitbreiden op basis van demografische overwegingen, zoals de bevolkingsgrootte in hun servicegebied. Het Ministerie van Volksgezondheid legt gezondheidscentra ook geen beperkingen op wat betreft het aantal ruimtelijke eenheden. Dit stelt gezondheidscentra in staat vestigingen op dorpsniveau te hebben, waardoor de gezondheidszorg nog dichter bij de gemeenschap komt te staan. Datzelfde geldt voor horizontale eenheden, zoals een 24-uursafdeling of een eerstehulppost, al is daar wel toestemming nodig van de instellingen hoger in de hiërarchie.

We verwachten dat gezondheidscentra hun organisatiestructuur zullen aanpassen aan de specifieke omstandigheden van hun servicegebied, leidend tot efficiëntere gezondheidscentra, wat betekent dat sommige gezondheidscentra betere resultaten bereiken met dezelfde middelen. De tweede empirische studie richt zich dus op de vraag: *Is er variatie in de efficiëntie van gezondheidscentra in Indonesië, en zo ja, kan dit worden verklaard door hun context en organisatorische kenmerken?*

Op basis van de *contingency theory* passen we een *context-design performance-*kader toe. Hierin wordt verondersteld dat de efficiëntie van gezondheidscentra wordt bepaald door de mate waarin hun organisatiestructuur aansluit op hun sociale context (Marathe, et al., 2007) De organisatiestructuur verwijst naar de interne organisatorische kenmerken van gezondheidscentra, in het bijzonder de mate van horizontale en ruimtelijke differentiatie. De sociale context verwijst naar de kenmerken van het servicegebied, zoals armoede en afgelegenheid.

Met behulp van *Data Envelopment Analysis* (DEA) hebben we voor 589 gezondheidscentra een technische efficiëntiescore berekend. We bestudeerden de
relatie tussen de efficiëntie van gezondheidscentra, hun horizontale en ruimtelijke differentiatie en contextkenmerken (armoede, afgelegenheid) met behulp van een Tobit-regressieanalyse.

Uit de resultaten blijkt dat zowel de organisatiestructuur als de sociale context van belang zijn voor de efficiëntie van gezondheidscentra. De organisatiestructuur wordt in twee opzichten beïnvloed door horizontale differentiatie (maar niet door ruimtelijke differentiatie). Gezondheidscentra met een minder diverse skill mix (aantal verschillende beroepen van het personeel) presteren beter dan gezondheidscentra met een diverser personeelsbestand. Daarnaast heeft de afgelegenheid van het gebied invloed op de tweede factor van de organisatiestructuur, het *aantal horizontale eenheden*. De efficiëntiescores zijn het hoogst voor gezondheidscentra met een matig aantal (1-2) horizontale eenheden, maar dit effect geldt slechts voor gezondheidscentra in niet-afgelegen gebieden. Bovendien wordt het effect van het aantal horizontale eenheden in deze niet-afgelegen gebieden kleiner naarmate het aandeel arme mensen in het servicegebied van een gezondheidscentrum toeneemt. Dit impliceert dat de eventuele efficiëntievoordelen van een gezondheidscentrum met een matig aantal horizontale eenheden teniet kunnen worden gedaan door armoede.

De contextuele factoren *armoede* en *afgelegenheid* hebben wel invloed op de efficiëntie van gezondheidscentra, maar niet direct. Deze conclusie is in het bijzonder relevant vanuit beleidsdoel. Uit deze eerste studie waarin is gekeken naar het individuele effect van twee nauw verwante contextfactoren – de afgelegenheid van een gezondheidscentrum en het aandeel arme inwoners in het servicegebied – blijkt dat de sociaaleconomische status van de bevolking in het servicegebied geen directe invloed heeft op de efficiëntie of van een gezondheidscentrum. In niet-afgelegen gebieden is ook het indirecte effect van armoede – namelijk het tenietdoen van de efficiëntievoordelen bij een matig aantal horizontale eenheden – klein. Een derde contextfactor heeft wel een direct effect: gezondheidscentra met een groter servicegebied doen het iets beter, maar ook dit effect is klein.

**Studie 3: Effectiviteit van gezondheidscentrumprofessionals en skill mix**

Verordening 128/2004 van het Ministerie van Volksgezondheid noemt acht verschillende zorgberoepen (de skill mix) die in elk gezondheidscentrum beschikbaar moeten zijn: huisarts, tandarts, verloskundige, verpleegkundige, voedingsdeskundige, apotheker, deskundige op het gebied van volksgezondheid, en hygiënist. Formeel moeten deze specialismen vertegenwoordigd zijn; verondersteld wordt dat een gezondheidscentrum deze professionals nodig heeft om zijn vier kerntaken te kunnen vervullen.

Lokale gezondheidscentra en regionale gezondheidsdiensten hebben de beslissruimte om aanvullende gezondheidsprofessionals voor een gezondheidscentrum te selecteren. Uit de verzamelde gegevens (2011) blijkt dat het aantal beroepen van het medisch personeel in gezondheidscentra varieert van twee tot tien, waarbij meer dan 50% van de steekproef niet de vereiste acht beroepen in huis heeft. Deze variatie in skill mix suggereert dat sommige gezondheidscentra onvoldoende capaciteit hebben om
hun vier kerntaken uit te voeren. Daarom luidt de onderzoeksvraag van de derde empirische studie: welke combinatie(s) van vaardigheden (gedefinieerd als beroepen) leidt tot een hogere effectiviteit van Indonesische gezondheidscentra?

We baseren ons op eerder onderzoek waarin wordt gesteld dat de variatie in prestaties van gezondheidsinstellingen wordt veroorzaakt door variaties in hun skill mix-samenstelling. Deze relatie kan volgens de literatuur door twee mechanismen worden verklaard: vervanging en complementariteit (Buchan & Poz, 2002; Misangyi & Acharya, 2014). Wij stellen dat gezondheidscentra met een geringere skill mix dan de norm nog steeds optimaal kunnen presteren dankzij het mechanisme van vervanging.

Met behulp van fuzzy set Qualitative Comparative Analysis (QCA) onderzoeken we welke combinatie(s) van vaardigheden (gedefinieerd als beroepen) tot hogere effectiviteit van Indonesische gezondheidscentra leidt. We definiëren vier effectiviteitsindicatoren op basis van de vier kerntaken van gezondheidscentra: eerstelijns gezondheidszorg, moeder- en zuigelingszorg, preventie van infectieziekten en gezondheidsbevordering. We bepalen de effectiviteitsvariabelen aan de hand van de dataset gebaseerd op de profieltussen van 598 gezondheidscentra.

We delen de verschillende beroepen in naar de vier kerntaken, gebaseerd op wie hoofdverantwoordelijk is voor de uitvoering (aan de hand van een analyse van functiebeschrijvingen). Verder wordt onderzocht welke mechanismen de relatie tussen skill mix en prestaties van een gezondheidscentrum (ofwel de effectiviteit) verklaren. We analyseren functiebeschrijvingen om te kunnen afleiden welke personeelsleden elkaar zouden kunnen vervangen.

Bij de gezondheidscentra in onze steekproef leidt de skill mix die door de overheid wordt vereist bij geen van de kerntaken tot hogere effectiviteit. Dit lijkt erop te wijzen dat een standaard skill mix de coördinatiekosten verhoogt (Barr, 1995). Het zou wel kunnen bijdragen aan een hogere kwaliteit van diensten, maar dat is niet in deze studie onderzocht.

De analyse suggereert ook dat complementariteit een belangrijk mechanisme vormt, aangezien in de meeste configuraties meestal vijf of zes beroepen vertegenwoordigd zijn, en in de meeste configuraties beroepen uit meerdere functiegroepen een kern- of aanvullende voorwaarde zijn. Vervanging zagen we vooral binnen groepen en niet zozeer tussen groepen, hoewel we op basis van de analyse van functieprofielen hadden verwacht dat laatstgenoemde vaker zou voorkomen. We hadden verwacht dat vooral verpleegkundigen en verloskundigen andere medewerkers zouden vervangen, maar onze analyse toont aan dat deze beroepen ‘alleen’ een bijdrage leveren, maar geen kernvoorwaarde vormen.

Hoewel de analyse niet leidde tot één enkele aanpak ter verbetering van de effectiviteit, zijn er wel enige overeenkomsten tussen de verschillende configuraties vast te stellen: huisartsen, verpleegkundigen en verloskundigen leveren een aanvullende bijdrage; tandartsen, apothekers en promotiemedewerkers zijn belangrijk, zij het in verschillende combinaties. Uit een inductieve analyse bleek dat de aanwezigheid van extra gezondheidsvoorzieningen, en dan in het bijzonder van een
ambulancedienst, een belangrijk aanvullend kenmerk zou kunnen zijn van gezondheidscentra met een hoge effectiviteit.

Samenvattend blijkt dat de diverse beroepen in een skill mix elkaar aanvullen. De aanwezigheid van een specialist – zoals een apotheker of een tandarts – kan de werkelasting van het generalistische personeel (oftewel de verpleegkundigen en huisartsen) verminderen. Deze differentiatie in taken tussen specialisten en generalisten lijkt van groot belang om de effectiviteit te vergroten, zoals aangetoond in onze steekproef. Wat betreft vervanging komen we tot de conclusie dat dit alleen bijdraagt aan een hogere effectiviteit als er overlap bestaat tussen de taken en kennis van medewerkers, aangezien vervanging vaker voorkomt binnen functiegroepen dan tussen functiegroepen.

**Studie 4: Coproductie tussen lokale gezondheidscentra en lokale zorgorganisaties**

Toezicht houden op het gewicht van kinderen is essentieel om ondervoeding vroegtijdig te ontdekken. Het wegen van kinderen in de uitdagende demografische en geografische omstandigheden van Indonesië vereist samenwerking tussen lokale gezondheidscentra en lokale zorgorganisaties. Deze studie analyseert deze samenwerking en het effect hiervan op het aantal kinderen dat wordt gewogen.


Op basis van hun personele middelen, de omvang van hun activiteiten en ledenbestand, en hun mate van autonomie, worden de *Posyandu* in drie typen verdeeld: sterke, middelmatige en zwakke *Posyandu*. De vierde empirische studie richt zich op de vraag *of en hoe de specifieke kenmerken van lokale gezondheidscentra en het type en aantal sterke Posyandu verband houden met het aantal gewogen kinderen in een gemeenschap*, als voorbeeld van één specifiek gezondheidsresultaat (oftewel de effectiviteit).

Deze studie richt zich op de *relatie tussen organisatie en gemeenschap* en *coproductie van gezondheidszorg*. We verwachten dat gezondheidscentra in gebieden met sterke lokale zorgorganisaties (*Posyandu Mandiri*) er beter in slagen de bevolking aan te zetten hun kinderen te laten wegen dan gezondheidscentra die niet opereren in gebieden met dergelijke sterke *Posyandu*. We nemen echter aan dat de prestaties op dit gebied ook afhangen van een goede interne organisatie van gezondheidscentra, vooral wat betreft het aantal verloskundigen, lokale vestigingen en promotieactiviteiten.

Bijgevolg stellen we dat er een positieve relatie bestaat tussen het aantal kinderen dat wordt gewogen, bepaalde specifieke kenmerken van de lokale
gezondheidscentra (d.w.z. het aantal verloskundigen, lokale vestigingen en promotieactiviteiten) en het aantal sterke Posyandu die helpen bij de zorgverlening. Verder verwachten wij een positieve interactie effect tussen kenmerken van gezondheidscentra en de aanwezigheid van sterke Posyandu. We hebben een dataset samengesteld uit 37 profielrapporten van gezondheidscentra die in 2011 door regionale gezondheidsdiensten werden gepubliceerd en we hebben een negatieve binomiale analyse toegepast om onze hypothesen te testen.

Uit de analyse van de volledige steekproef bleek dat de drie kenmerken van gezondheidscentra (d.w.z. het aantal verloskundigen, lokale vestigingen en promotieactiviteiten) geen duidelijk verband houden met het aantal gewogen kinderen onder de 5 jaar, terwijl in de subgroep niet-afgelegen gebieden een onverwacht negatief effect naar voren kwam tussen het aantal lokale vestigingen van een gezondheidscentrum en het aantal gewogen kinderen. Deze resultaten lijken erop te wijzen dat de drie kenmerken van gezondheidscentra relatief weinig – of mogelijk zelfs een averechts – effect hebben op het aantal gewogen kinderen, in elk geval in deze steekproef.

Wat betreft de invloed van Posyandu op het wegen van kinderen ontdekten we een klein maar onverwacht negatief effect van het aantal sterke Posyandu op het aantal gewogen kinderen bij de volledige steekproef, maar niet bij de subgroepanalyse. Verder ontdekten we dat andere typen Posyandu – d.w.z. de zwakke en middelmatige – onverwacht een significant positief effect hebben op het aantal gewogen kinderen, zowel in de volledige steekproef als in de subgroep niet-afgelegen gebieden. Dit suggereert dat het niet zozeer de sterk georganiseerde Posyandu zijn die ervoor zorgen dat er meer kinderen worden gewogen. Integendeel, zelfs.

Slechts één hypothese werd gedeeltelijk bevestigd, aangezien er uit de analyse van zowel de volledige steekproef als de subgroep niet-afgelegen gebieden een (klein) significant interactie effect naar voren kwam tussen het aantal promotieactiviteiten van een gezondheidscentrum en het aantal sterke Posyandu. Dit strookt met het idee dat dit type Posyandu het effect van promotieactiviteiten van een gezondheidscentrum op het aantal gewogen kinderen kan helpen versterken.

Er zijn verschillende verklaringen voor bovenvermelde onverwachte resultaten. Ten eerste werken alle Posyandu, ongeacht het type, samen met minstens één personeelslid van een gezondheidscentrum. Dit is niet per se een verloskundige, maar kan ook een ander personeelslid zijn, wat zou kunnen verklaren waarom het aantal verloskundigen niet van invloed is. Het significante negatieve effect van het aantal lokale vestigingen van een gezondheidscentrum op het aantal gewogen kinderen in de subgroep niet-afgelegen gebieden, kan mogelijk worden verklaard door het feit dat lokale vestigingen van gezondheidscentra zich hoofdzakelijk richten op het aanpakken van gezondheidsproblemen (oftewel op behandeling) en niet zozeer op het wegen van kinderen als preventieve maatregel.

Wat betreft het significante negatieve effect van sterke Posyandu en het significante positieve effect van zwakke en middelmatige Posyandu kunnen meerdere
mechanismen hebben meegespeeld. Ten eerste mogen sterke Posyandu fondsen of goederen inzamelen onder leden van de gemeenschap, waaronder ook de families met kinderen die deze Posyandu bezoeken. Hoewel dit in nauw overleg met de gemeenschap gebeurt en er naar draagkracht wordt bijgedragen, kan dit de moeders ervan weerhouden een bezoek aan dit soort Posyandu te brengen en kiezen ze wellicht eerder voor andere soorten Posyandu (d.w.z. zwakke of middelmatige) die hun kind gratis wegen. Dit lijkt te wijzen op het belang van de kosten in het besluit om een kind te laten wegen.

Ten tweede is hier wellicht sprake van omgekeerde causaliteit tussen de sterke Posyandu en de beleidscontext. In 2011 kondigde het Ministerie van Binnenlandse Zaken in een verordening aan dat ze zouden helpen bij het versterken van de Posyandu. Onze deskundigen stellen dat deze verordening de Posyandu wellicht heeft aangemoedigd hun personeelsbestand, servicegebied en autonomie uit te breiden om zo het aantal gewogen kinderen te vergroten, vooral in gebieden waar dit aantal lager was. Het is dus goed mogelijk dat het aantal sterke Posyandu in bepaalde gebieden is gestegen omdat daar minder kinderen werden gewogen.

Ten derde zouden de onverwachte resultaten in verband kunnen worden gebracht met verschillen in de mate van autonomie van de drie typen Posyandu die we onderscheiden. De zwakke en middelmatige Posyandu zijn minder autonoom dan de sterke Posyandu, aangezien de overheid meer controle over hen heeft en ze nog door gezondheidscentra worden begeleid. Dit impliceert dat er meer controle is op de uitvoering van taken bij zwakke en middelmatige Posyandu, wat positieve gevolgen kan hebben op hun weegactiviteiten, ondanks het feit dat ze minder stabil zijn, minder activiteiten uitvoeren en een kleiner bereik hebben. Er kan hier dus sprake zijn van een controlemechanisme waarbij Posyandu die meer onder controle staan effectiever zijn in het wegen van kinderen.

De onverwachte bevindingen van deze studie tonen aan hoe belangrijk het is om de coproductie van gezondheidszorg door overheidsinstanties en lokale organisaties te bestuderen en om verder onderzoek te doen naar de precieze grensvoorwaarden waaronder coproductie kan bijdragen aan de gewenste gezondheidsresultaten.
Dissertation summary

Decentralization and community health center performance in Indonesia

What makes health care systems effective in catering to the needs of their populations? This question ranks high on the agenda of policymakers, politicians, and scholars alike. Many countries have put their hopes on decentralization as a means to improve the effectiveness and efficiency of the sector. However, many attempts to assess the performance implications of decentralization remain inconclusive. This is not surprising, since both decentralization and health care systems are complex and multifaceted phenomena and a large variety of factors affect their interplay.

This dissertation aims to shed light on the largely neglected organizational side of decentralization in health care systems: the role of community health centers (CHCs). The assumption is that variation in the structure, composition and management of these front-line organizations strongly affects health outcomes in their respective service coverage areas.

This book contains four empirical studies on Indonesian CHCs and their capacity to generate high performance in health outcomes in the context of decentralization. The focus is on four organizational dimensions of CHC discretion that resulted from the multi-layered decision-space created by decentralization in Indonesia. We relate these dimensions to specific outcomes of CHC activities, leading to the following combinations of organizational dimensions and health care outcomes: 1) CHC decision-space use and innovation; 2) CHC organization design and efficiency; 3) variations in CHC skill mix of professionals and efficacy, and 4) CHC collaboration with community organizations and the number of weighed children. Overall, the central research question in this book is: “How can variation in CHC innovation, efficiency, and efficacy be explained by CHCs’ organizational characteristics and social contexts?”

Data and information sources

We retrieved data from various sources on the characteristics and performance of CHCs. We analyzed a variety of documents. For example, we analyzed government regulations to compare the degree of decision-space and the strength of the accountability mechanisms as well as government regulations regarding the conditions
in which a CHC can have certain structural characteristics, such as a 24-hour emergency unit, or how many skills should be present in a CHC. We studied social media sources containing information on CHC practices, such as social media posts, and also analyzed online job descriptions of various CHC positions.

**Expert interviews** were used as an additional information collection method. The experts in this study are CHC directors with specific and exclusive knowledge that helped us understand the context of CHCs and how they operate in practice. The interviews were conducted twice: at the beginning of the project and after the results were known.

For the second, third, and fourth studies, we analyzed a dataset of 589 CHCs operating in Indonesia in 2011. Although this sample amounts to only 6.4% of the total population of Indonesian CHCs, data on health performance are hard to find because of the wide geographical dispersion of CHCs and the under-developed infrastructure of information management systems in the Indonesian health sector. The year 2011 was chosen because it was the most recent for which these two sources had the most information available. We combined both sources to create our sample, retrieving CHC data published on the official Ministry of Health website and consulting 37 district health profile reports published by the Department of Health. These reports present information per CHC.

**Four studies on Indonesian Community Health Centers**

The four studies in this book build on the assumption that in order to comprehend CHC performance, we need to consider both the characteristics of CHC as an organization, and characteristics of the health system. Below, we summarize the studies.

**Study 1: Community Health Center innovation and decision-space use**

The Ministry of Health (MoH) defines national health goals (e.g., reducing maternal mortality in 2005) and strategies. At the organizational level, CHCs have the decision-space to define how they would like to translate the national strategies to organizational strategies and programs. Using this organizational decision-space is expected to enable CHCs to respond innovatively to community health problems and needs, and to tailor services to their specific context. However, the presence of decision-space does not necessarily guarantee that innovation happens. Thus, the central question of the first empirical chapter is *under which conditions does decentralization of the Indonesian public health sector favor innovations at the district and organization (CHC) level?*

We use a decision-space approach and theorize that decision-space combined with appropriate accountability mechanisms will lead to innovation practices to improve health performance. Decision-space is defined as a characteristic embedded in CHCs, and the accountability mechanisms refer to the arrangement of relations between
actors in the health system, such as other organizations in different sectors and domains (legislative body).

Indonesia's two waves of decentralization create the opportunity for a detailed comparative examination of how different institutional arrangements may affect health care innovation within the same socio-cultural context. We use the tools of *comparative institutional analysis* to map how key institutional dimensions in the health sector changed from the first to the second wave of decentralization. *Policy documents and administrative regulations* are our major sources in applying this framework to the Indonesian case. Given the paucity of health care innovations in the Indonesian system, we submit the few cases where innovation reportedly did occur to close scrutiny. The purpose of this case analysis is to uncover possible commonalities in the conditions for and the pathways to innovation during both waves of decentralization. Our main data sources for this step are *earlier case study descriptions and media accounts*.

The study has two main findings. First, the decision-space approach proved to be particularly useful to map changes in these particular institutional contexts, because it allowed us to disentangle key decision and accountability domains. Our institutional analysis showed that arrangements during the first and the second wave of decentralization differ considerably, and there is also quite some variation in decision-space and accountability across different domains in each phase. Whereas during the first phase decision-space was broad across most domains, CHC autonomy remained very low, creating a major stumbling block for capacity-enhancing innovation. Since the second wave of decentralization, the institutional framework increased accountability pressure in combination with more decision autonomy with regard to CHC structure and function, but somewhat lowered decision-space in the remaining domains. This combination seems to be favorable for capacity-enhancing innovation at the CHC level.

Second, our case analysis revealed that successful innovation initiatives were often built on the presence and cultivation of cooperative social networks, with both external and internal stakeholders. In the upper echelons, personal connections facilitated lobbying key decision makers in the system. Lower in the hierarchy, social networks of CHC management, health staff and community members contributed to build the trust and commitment that was necessary to carry out the sometimes major restructuring required to implement an innovation. Since networking capacity most likely differs considerably across CHCs, it may be one condition possibly explaining variation in CHCs’ innovation potential.

**Study 2: Community Health Center efficiency, organization design and context**

The MoH also determines the requirements of the need to establish a CHC. A CHC should be present in areas ranging between 30,000 and 60,000 citizens. The central government also regulates the basic organizational structure of a CHC. For example, CHCs are allowed to have branches at the village level, or an inpatient care unit when the next hospital is far away.
At the organizational level, CHCs have the decision-space to propose their structures and allocate their budgets, within some limits. For example, CHCs can expand their structures based on demographic considerations, such as the population size of their service coverage area. The MoH also allows CHCs to have spatial units without limit in quantity. Hence, CHCs can have branches in villages, thereby organizing health care even closer to communities. The same goes for horizontal units, such as a 24-hour care unit or an emergency room, but approval from the upper level institutions is required.

We expect that CHCs will adapt their organizational structures so that they fit the specific context of the service coverage area, resulting in more efficient CHCs, meaning that some CHCs achieve better results with the same input. The second empirical chapter therefore asks: Is there variation in CHC efficiency in Indonesia, and if so, how can CHCs’ organizational characteristics and context explain this variation?

Drawing on contingency theory reasoning, we apply a context-design performance framework. It assumes that structural compatibility with their social context determines CHC efficiency (Marathe, et al., 2007). The concept of structural compatibility refers to a CHC’s internal organizational characteristics, particularly its degree of horizontal and spatial differentiation. The social context refers to the characteristics of the service coverage area, such as poverty and remoteness.

We generated technical efficiency scores for 589 CHCs using data envelopment analysis (DEA). The study uses Tobit regression analysis to analyze the relation between CHC efficiency and CHC horizontal and spatial differentiation, and context characteristics (poverty, remoteness).

The results show that both organizational design and context matter to CHC efficiency. With regard to design, horizontal differentiation, but not spatial differentiation, has an impact in two ways. CHCs with a less diverse staff mix (number of functions present in its staff) outperform those with a more diverse staff mix. Furthermore, remoteness matters to the impact of the second organizational design condition, the number of horizontal units. Efficiency rates are highest for CHCs with an intermediate number (range 1–2) of horizontal units, but this effect holds only for CHCs in non-remote areas. Furthermore, the impact of the number of horizontal units becomes weaker to the degree that the proportion of poor people increases in a CHC’s service coverage area in non-remote areas. This implies that poverty may cancel out the potential efficiency benefits a CHC may realize through keeping an intermediate number of horizontal units.

Although the context conditions poverty and remoteness affect CHC efficiency, this effect is not direct. This conclusion is particularly relevant from a policy perspective. Being the first study to disentangle the joint impact of two closely related context conditions, a CHC’s remoteness and the proportion of poor inhabitants in its service coverage area, our findings show that the socio-economic status of the population in its area does not directly influence CHC efficiency. Furthermore, in non-remote areas, the indirect effect of poverty – in the sense of tempering the efficiency
gains from an intermediate number of horizontal units – is weak. CHCs with larger service coverage areas do slightly better, but this effect is weak. A third context condition has a direct effect: CHCs with larger service coverage areas do slightly better, but this effect is weak, too.

**Study 3: Community Health Center efficacy and skill mix of professionals**

The Ministry of Health Decree No. 128/2004 lists eight types of health staff professions (skill mix) that must be available in each CHC: doctors, dentists, midwives, nurses, nutritionists, pharmacists, public health officers, and sanitarians or environmental health officers. This range is formally required based on the assumption that these professionals are necessary for CHCs to realize their four basic functions.

CHCs and district offices have the decision-space to propose the inclusion of additional health professions to a CHC. In the collected data (2011), CHC health staff ranges from two to ten professions, with more than 50% of the sample failing to meet the minimally required skill mix of eight professions. This variation in skill mix implies that some CHCs lack the capacity to carry out their four core functions. The research question of the third empirical paper is therefore which combination(s) of skills (defined as professions) lead to high efficacy in Indonesian CHCs?

We build on earlier skill-mix research proposing that the variation in skill-mix configuration in a health sector organization can explain variation in performance. This literature also postulates that there are two mechanisms that explain the relation between skill-mix configuration and the performance of health care organizations: substitution and complementarity (Buchan & Poz, 2002; Misangyi & Acharya, 2014). We propose that CHCs with a lower skill mix than the standard will still be able to perform optimally due to the substitution mechanism.

We inquire with fuzzy set qualitative comparative analysis (QCA) which combination(s) of skills (defined as professions) lead to high efficacy of Indonesian CHCs. We define four kinds of efficacy indicators, representing outcomes of the four CHC functions: primary health care, mother and infant care, preventing infectious diseases, and health promotion activities. We use the data set of 598 CHCs derived from health profile reports in 2011 for the efficacy variables.

We divide the possible range of staff positions over the four functional domains, depending on who has the prime responsibility to execute the tasks in this domain (based on an analysis of job descriptions). Furthermore, we investigate what mechanisms explain the relationship between skill mix and high CHC outputs (efficacy). We analyze job descriptions to derive expectations about which staff members could substitute for each other.

In the CHCs in our sample, the ‘standard’ skill mix required by the government does not lead to higher efficacy in any of the functional domains. This suggests that a standard skill mix increases coordination costs (Barr, 1995). It could contribute to high quality services, something we did not analyze in this study.
The analysis also suggests that as a mechanism, complementarity is important, given that most pathways require five or six professions in the configuration, and in most configurations professions from multiple functional groups are core or contributing factors. In terms of substitution, we observed within group substitution especially, and not so much between group substitution, whereas we expected the latter to be more dominant, based on the job profile analysis. We expected nurses and midwives to be key in substituting for other staff, but our analyses show that these professions matter 'only' as contributing and not as core conditions.

Although the analysis did not lead to one pathway to overall efficacy, the various pathways generated share similarities to some extent: GPs, nurses and midwives are contributing conditions; dentists, pharmacists and promotional staff are important – albeit in different compositions. Inductive analyses revealed that the presence of additional health facilities, and especially the presence of an ambulance service, might be an important additional characteristic of the high efficacy CHCs identified by our analysis.

In sum, the various professions in a skill-mix configuration complement each other. The presence of a specialist – such as a pharmacist or dentist – may reduce the workload of the generalist staff such as nurses and GPs. This task differentiation in terms of specialists and generalists seems to be key to achieving high efficacy in certain domains, as shown in our sample. In terms of substitution, we conclude that substituting for staff requires an overlap in tasks and expertise for it to contribute to high efficacy, given that substitution within a functional group is more prominent than substitution between functional groups.

**Study 4: The co-production between Community Health Centers and community organizations**

Monitoring the weight of children is crucial to detect malnutrition early. To weigh children in Indonesia’s challenging demographic and geographic circumstances requires collaboration between CHCs and community-based organizations. This study analyzes this collaboration and its effect on the number of children that are weighed.

Two decrees by the Ministry of Home Affairs and the Ministry of Health in Indonesia mandate CHCs to collaborate with Posyandu (community organizations) in providing health care services. Posyandu are expected to be present at the neighborhood level, helping CHCs to reach out to the community. CHCs have the decision-space to activate Posyandu in order to co-produce health care services with them.

The study categorizes the Posyandu in three types, based on the strength of their human resource base, their scope of activities and member base, and their degree of autonomy: strong, intermediate and weak. The fourth empirical paper asks if and how specific CHC characteristics and the type and number of strong Posyandu relate to number of children weighed in a community, as an example of one particular health care output (efficacy).
This study builds upon an organization-community relation perspective and a service co-production perspective. We expect that CHCs that operate in areas with strong community-based service organizations (Posyandu Mandiri) will be more effective in reaching the population to have their children weighed, compared to CHCs that do not work in areas with such strong Posyandu. However, we assume that the performance in this domain also depends on how well CHCs internally organize themselves to reach out to local communities (Subramony, 2017), particularly in terms of the number of midwives, branches and promotion activities.

Consequently, we propose that the number of children being weighed has a positive relationship with particular characteristics of the CHC (number of midwives, CHC branches and promotion activities) and the number of strong Posyandu that co-produce the service. Moreover, we expect a positive interaction effect of CHC characteristics and the presence of strong Posyandu. We compiled an archival data set from 37 local government reports on health CHC profiles published in 2011 and applied negative binomial analyses to test our hypotheses.

The analysis of the complete sample showed that the three CHC characteristics (number of midwives, CHC branches, and promotion activities) are not significantly related to the number of weighed children under five years old, whereas the analyses of the split sample showed an unexpected negative significant effect of the number of CHC branches on the number of children being weighed in the non-remote areas. These results hint at the relative unimportance – or even potentially counterproductive effect – of these CHC characteristics with regard to the number of weighed children, at least in this sample.

With regard to the importance of Posyandu in weighing children, we found a small but surprising negative effect of the number of strong Posyandu on the number of weighed children for the complete sample but not for the split sample. Moreover, unexpectedly we found that other types of Posyandu – the weak and intermediate ones – are positively and significantly related to the number of weighed children, both in the complete and the non-remote sample. Hence, it is not so much that organizationally strong Posyandu facilitate more children being weighed; on the contrary.

Only one hypothesis was partly confirmed, given that the analysis of both complete and non-remote samples showed a (small) significant interaction effect between the number of CHC promotion activities and the number of strong Posyandu. This resonates with the idea that this type of Posyandu can help strengthen the effect of CHC promotion activities on the number of children being weighed.

The above-mentioned unexpected findings can be explained in multiple ways. First, all Posyandu, whatever type they are, have at least one CHC staff member that works with the Posyandu. This may not necessarily be a midwife, but another CHC staff member, which might explain the absence of an effect of the number of midwives. Furthermore, regarding the significant negative effect of CHC branches on the number of weighed children in the non-remote sample, it was suggested that CHC branches are
mainly focused on addressing health problems (i.e. cure) and not so much on weighing children as a preventive measure.

With regard to the significant negative effect of strong Posyandu and the positive significant effect of weak and intermediate Posyandu, multiple mechanisms may have been at work. First, strong Posyandu are allowed to collect funds or goods among community members, including the families with children that visit the Posyandu. Although this is done in close consultation with the community, and contributions depend on ability to pay, this might make mothers reluctant to visit this kind of Posyandu and might make them choose other types (weak or intermediate ones) that provide a free weighing service. This gives hints at the importance of the cost dimension in the decision to let a child be weighed.

Second, there might be an issue of reverse causality at work in relation to the strong Posyandu and the institutional context. In 2011, the Ministry of Home Affairs announced a regulation stating that it would work to reinforce the Posyandu. This regulation might have triggered the Ministry of Health and the Ministry of Home Affairs, as our experts suggested, to encourage Posyandu to increase their human resources base, scope and autonomy as a way to increase the number of weighed children, particularly in areas where this number was lower. Hence, it may well be that the number of strong Posyandu has increased in areas because fewer children were being weighed.

Third, the unexpected findings could be understood in relation to differences in the degree of autonomy between the three types of Posyandu we distinguish. The weak and intermediate Posyandu are less autonomous than the strong Posyandu since they are more under the control of the government and still receive training from CHCs. This might imply that there is closer monitoring and scrutiny of the implementation of tasks in the weak and intermediate Posyandu, resulting in potentially positive effects for their weighing activities, despite the fact that they are less stable, implement fewer activities and have less coverage. Hence, there might be a control mechanism at work here, leading to more effective outcomes with regard to weighing children in those Posyandu that are more monitored.

This study's unexpected findings show the importance of studying co-production of health services by public service organizations and community organizations and the necessity to continue with attempts to more precisely define the boundary conditions under which co-production can contribute to desired health outcomes.
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Niezen, M. G. & Mathijssen, J. J., 2014. Reframing professional boundaries in health care: A systematic review of facilitators and barriers to task reallocation from the


Appendixes

Test of U-shaped relationships and their moderation (Chapter 3)

Testing for U-shaped relationships and their moderation

In addition to two linear main effects, the hypotheses in this study predict two curvilinear main effects, and two moderated curvilinear (interaction) effects. Testing for (moderated) U-shape relationships requires some additional diagnostics, which are outlined in this Appendix 10.1 along the lines suggested by Haans, Pieters & He (2016). Using the results of the full Model (C) in Table 3-7 we first describe how we assessed the presence or absence of a U-Shaped relationship between our two predictors X (organizational design, organizational context), and our dependent variable Y (technical efficiency), and then present the diagnostics we applied to see whether or not this relationship is moderated by poverty (Z).

Testing for U-shaped relationships

Equation (1) represents a dependent variable Y as a function of a linear and a curvilinear main effect of independent variable X. Including the linear main effect is required, because leaving it out implies the strong assumption that the turning point of the curve is at X=0 (Haans et al, 2016:1181):

\[ Y = \beta_0 + \beta_1 X + \beta_2 X^2 \quad (1) \]

Three diagnostics assess whether or not the curvilinear effect \( X^2 \) is significant (Lind & Mehlum, 2010):

1) The value of \( \beta_2 \) has to be significant. Table 3-7 Model C shows significant values of \( \beta_1 \) and \( \beta_2 \) for only one of the organizational design variables, the number of horizontal units. It shows a negative and significant curvilinear effect (\( \beta_2 X^2 = -0.121 \)) between horizontal units and efficiency in non-remote areas.

2) The slope must be sufficiently steep at ends of the data range (i.e. the minimum or the lowest value, XL, and the maximum or the highest value, XH). The relationship is U shaped, if \( \beta_1+2 \beta_2 XL \) is negative and significant, and if \( \beta_1+2 \beta_2 XH \) is positive and significant. The relationship has an inverted U shape, if \( \beta_1+2 \beta_2 XL \) is positive and significant and if \( \beta_1+2 \beta_2 XH \) is negative and significant. As the test statistics in Table 3-7 shows, the effect of the number of horizontal units on efficiency has an inverted U shape and is significant.
3) The turning point - $\beta_1/2$ $\beta_2$ should be located well within the data range, i.e. not in the left or right end of the data range. This is indeed the case for the number of horizontal units.

In sum, the curvilinearity diagnostics reveal a significant inverted U-shape relationship between the number of horizontal units and efficiency (see table 10-1 for illustration of calculation).

**Test for moderated U-shaped effects**

Equation (2) adds a moderation effect ($Z$) to Equation (1).

$$Y = \beta_0 + \beta_1X + \beta_2X^2 + \beta_3XZ + \beta_4X^2Z + \beta_5Z \quad (2)$$

A moderation is present if the interaction effect $\beta_4$ is significant. If $\beta_4$ is positive, the moderator flattens the curve, if $\beta_4$ is negative, it steepens it. According to Table 3-7 Model C, only poverty significantly moderates the direct relationship between the number of horizontal units and technical efficiency, and this holds only for non-remote areas. This finding suggests that poverty flattens the inverted U-shaped relationship between the number of horizontal units and technical efficiency. This is in line with Hypothesis 3b.

### Table 10-1 Test Statistics for curvilinearity and moderation

<table>
<thead>
<tr>
<th>Direct effect of number of horizontal units on efficiency (non-remote)</th>
<th>Left side</th>
<th>Right side</th>
<th>Turning point</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_1/2\beta_2$</td>
<td>$\beta_1+2\beta_2X_L$</td>
<td>$\beta_1+2\beta_2X_H$</td>
<td>$-\beta_1/2\beta_2$</td>
<td>The left side is positive and the right side is negative form an inverted U shape relationship. The turning point is within the minimum and maximum value located about at the second quartile (empirically significant).</td>
</tr>
<tr>
<td>Min-max:</td>
<td>0·3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\beta_1$</td>
<td>0·281</td>
<td>0·281</td>
<td>-0·445</td>
<td>1·161</td>
</tr>
<tr>
<td>$\beta_2$</td>
<td>-0·121</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interaction between number of horizontal units and poverty on efficiency (non-remote)</th>
<th>Left side</th>
<th>Right side</th>
<th>Turning point</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_3/2\beta_4$</td>
<td>$\beta_3+2\beta_4X_L$</td>
<td>$\beta_3+2\beta_4X_H$</td>
<td>$-\beta_3/2\beta_4$</td>
<td>The left side is negative and the right side is positive form a U shape relationship. The turning point is within the minimum and maximum value located about at the second quartile (empirically significant).</td>
</tr>
<tr>
<td>Min-max</td>
<td>0·3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\beta_3$</td>
<td>-0·007</td>
<td>-0·007</td>
<td>0·011</td>
<td>1·167</td>
</tr>
<tr>
<td>$\beta_4$</td>
<td>0·003</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Job descriptions of CHC staff (Chapter 4)

**Table 10-2 Summary of analysis of job descriptions of CHC staff**

<table>
<thead>
<tr>
<th>Profession</th>
<th>Tasks</th>
</tr>
</thead>
</table>
| **Doctors or General Practitioners** | • Prevent, diagnose & treat illness, disease & injury, for all disease categories & methods of treatment, also continuous & comprehensive care  
                                       • Responsible for maintaining general health + conducting medical education & research activities  
                                       • Supervising the implementation of care & treatment plans by other health care providers  
                                       • (World Health Organization 2012:41)                                                                                                                                                            |
| **Dentists**                   | • Diagnose & treat injuries & abnormalities of the teeth, mouth, jaws & associated tissues  
                                       • Prevent disease  
                                       • Promote & restore oral health  
                                       • (World Health Organization 2012:42)                                                                                                                                                            |
| **Midwives**                   | • Plan, manage, provide & evaluate midwifery care services before, during & after pregnancy, childbirth, & newborn care  
                                       • Provide normal delivery care for reducing health risks to women & newborns  
                                       • Supervise midwifery care plans & conduct midwifery education activities  
                                       • (World Health Organization 2012:43)  
                                       • Additional job description, translated from the blog *akreditasi Puskesmas*29  
                                       • At beginner level, diagnose illness in pregnant women & infants + Diagnose mouth & dental illness  
                                       • Provide temporary medication + Help with surveillance of infectious diseases  
                                       • Visit houses with one family member requiring family care + Monitor the mental growth of infants & toddlers  
                                       • Help physicians to manage the CHC + Actively stimulate public participation & multi sector collaboration                                                                                                                                 |
| **Nurses**                     | • Plan, manage, provide & evaluate specialist nursing services due to effects of illness, injury, or other physical or mental impairment, or potential risks for health.  
                                       • May conduct nursing education & research activities in their chosen areas of specialization  
                                       • May conduct midwifery education activities & provide consultation to other nursing practitioners  
                                       • (World Health Organization 2012:43)  
                                       • As translated from the blog *akreditasi Puskesmas*30  
                                       • Diagnose patients with infectious diseases + Provide first medication to patients with dental problem  
                                       • Provide immunization to infants & elementary school aged children + Inform about healthy living to the patient  
                                       • Visit the patient’s family as follow up when needed + Visit elementary schools & monitor health problems  
                                       • Provide temporary medication & health information to patient with mental illness                                                                                                                                 |

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<table>
<thead>
<tr>
<th>Profession</th>
<th>Tasks</th>
</tr>
</thead>
</table>
| Public health officials        | • Plan, manage, provide & evaluate basic public health services for disease prevention & promotion of population health  
                              | • Manage environments to reduce health risks of the community         
                              | • (World Health Organization 2012: 45)                                
                              | • As translated from the blog Muh-haris: 31                          
                              | • Monitor all programs to increase the health status of the community 
                              | • Design the CHC program in relation to the health problems of the community  
                              | • Conduct socialization training in the community on how to maintain healthy behavior |
| Environmental health           | • Plan, assess & investigate the implementation of programs & regulations to monitor & control environmental factors that can potentially affect water, sanitation, food hygiene, food safety;  
                              | • Carry out disease investigation & prevention                        
                              | • (World Health Organization 2012: 45)                                
                              | • As translated from the blog of Muh-haris:                           
                              | • Field monitoring by visiting the houses & public building in the service coverage area (as translated from the blog akreditasi Puskesmas) 
                              | • Coach the community about clean water & usage, healthy toilet, environmental cleanliness, & herbal plantation at home 
                              | • Help the community to find clean water source & conservation, monitor the hygiene of industry & public spaces |
| Nutritionist                   | • Plan, manage, provide & evaluate various dietary interventions, clinical or public health nutrition programs, food safety, food technology or food toxicology programs (World Health Organization 2012: 45):  
                              | • As translated from the blog of Muh-haris:                           
                              | • Conduct training about nutrition to the community + Design plans & programs to increase the nutrition status of the community 
                              | • Coordinate & conduct the technical coaching to the cadre of community based organization |
| Pharmacist                     | • Store, preserve, compound, & test & dispense medicinal products     
                              | • Counsel on the proper use & adverse effects of drugs & medicines following prescriptions issued by medical doctors & other health professionals  
                              | • Contribute to researching, preparing, prescribing & monitoring medicinal therapies for optimizing human health 
                              | • (World Health Organization 2012: 41)                                

Acknowledgement

First and foremost, praise and gratitude to Allah the Most Merciful the Most Graceful for the opportunity, strength and miracles for me to complete this project.

Working on this thesis is a delightful series of journeys that I have never imagined before. Nevertheless, this journey would never find its end without the guidance from my supervisors, Rafael Wittek, Ronald Holzhacker and Liesbet Heyse. Rafael, my sincere gratitude for your endless encouragement, valuable insights, your supervision and warmness in discussions, in supervision meetings, SCIO meetings and wonderful research group dinners. Ron, my sincere gratitude for your supervision during SinGa meetings and conferences. Liesbet, I would say “you are an angel who conveyed miracles to me”, thank you for your patience to work with me, your endless encouragement during the project, your valuable insights, your personal attention, optimism, and positive thoughts that are contagious.

I also would like to extend my sincere gratitude for the reading committee, Peter Groenewegen, Nardi Steverink, and Laksono Trisnantoro for taking the time to read and comment on the thesis. I also would like to utter my appreciations to Bart Los, Fernando Nieto Morales, and Mark Huisman for great collaborations, contributions and inputs for the methods applied in the research.

I also want to thank all members of the Sustainable Cooperation, Institutions and Organizations (SCIO) team, Francesca Giardini, Janine Weeting and all the colleagues from the ICS year group 2013, Ashwin Rambaran, Loes van Rijsewijk, Ruta Savickaite and Mala Sondang Silitonga and many more that I cannot mention here. It was a pleasure to cooperate with wonderful people, who generously shared their knowledge and experiences during colloquia, ICS Courses and ICS Forum Days. I also would like to thank the SinGa team, Johan Waltjer, Wendy Tan, and Niels Hermes for discussing articles in SinGa meetings.

I extend my appreciation to PhD-mentor Rie Bosman and Beau Oldenburg (Faculty of BSS) and Marijke Wubbolt (Faculty of Arts) for their generous help and guidance, as well as to Saskia Simon and Monique Heuvel for secretarial support. Also my appreciation to the Faculty of Behavioral and Social Sciences and Faculty of Arts for excellent and sophisticated support and facilities during my study.
My study here would not have been possible without the permission and funding from the Ministry of National Development Planning/Bappenas, therefore, this is a good opportunity to thank Pak Yahya, Ibu Yuke, Pak Guspika, Pak Edy and the whole SPIRIT crew. The journey of my study also would never have happened without encouragement from my home office, the National Institute of Public Administration, the chairperson Pak Adi Suryanto, my supervisors Ibu Purwastuti, Pak Anwar Sanusi, Ibu Sri Hadiati, Pak Muhammad Taufiq, Pak Bambang Suhartono, Pak Haris Faozan, also my colleagues at Pusat Kajian Kinerja Kelembagaan and Pusat Kajian Reformasi Administrasi.

My appreciation also goes to the staff from the Ministry of Health and Community Health Centers for their time, shared information, discussions and data for this thesis. I thank Pak Jeremy from the Ministry of Health, Pak Lalu Amir the Director of Puskesmas Darek and Lalu Ihsan the director of Puskesmas Kopang, Bu Elly Suprihatin the director of Puskesmas Rajeg, dr. Fikri the Director of Puskesmas Kronjo, as well as dr. Nunung from Puskesmas in Depok.

Also gratitude to my SinGa colleagues, Tatang Mustaqin and Teh Rohmah, Raden Usman Effendi and Mba Bani, Nureni Wijayati, Kuswanto and Mba Fitri, Annisa Paramitha Wiharani and Mas Krisna, Laksni Kusumasutti and Bli Kadek, Petrus Kranenbaum, Prayoga Pramana, Tri Efriandi, Isti, Titis, and Stephanie, for your warmth as a big family in Groningen. Also thank you to Hans Koetschruiter and Elina Aaltonen for the help and warmth you provided to my family. Tim Zwaagstra, Awalia Febriana and Surayah Sumarsono, thank you for your helps in my first settlement. My special gratitude goes to Kim, Mathias, Fez and Kiki, Annemieck Hilgen and Romeo, as well as Lennart, Haidar, Saphira, Kia, Berli, Ausie, Vina, Adi, Tana, Keisya, and Katya, for our memorable friendship with my kids. Thank you to the International School Groningen, Borgmansschool, de Gromiest, BC Go, SKSG, Jeugdhulp Academy, and Zwemschool Ebert where my kids gained valuable knowledge and skills. Also thank you to the Association of Indonesian Students in Groningen for organizing memorable Indonesian events in Groningen.

My special appreciation goes to Janine Weeting and Anissa Paramitha Wiharani for your kindness and time to accompany my steps to the golden chair in the corona. Thank you for becoming my parnymphs.

Finally, thank you to my beloved parents Ibu and Bapak, my brothers, Bardi Yanta, Dwihano Satrianto, Joko Erwanto, and Andri Maulana, and all other family members in Indonesia for their endless pray. Finally, but paramount, my dearest kids, Disya Praditina and Galih Nurhayudin Rasyid, thank you for being my source of inspiration, spirit, and true companions in this journey.
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Suwatin Miharti obtained a bachelor’s degree in Public Administration from the Faculty of Social and Political Sciences, Diponegoro University, Indonesia, in 1997. She has been working as a government officer at the National Institute of Public Administration since 2000. She completed a master’s degree in Urban Management and Development from the Institute for Housing and Urban Development Studies at Erasmus University, Rotterdam, the Netherlands, funded by Studeren in Nederland scholarship. In 2013 she started her joint-admission PhD program (Interuniversity Center for Social Science Theory and Methodology (ICS) at the Department of Sociology; and Governance and Sustainable Society in Indonesia (SInGA) at the Department of International Relation and International Organization) at the University of Groningen, the Netherlands. The recent study was funded by Indonesian government through the Scholarship Program for Strengthening the Reforming Institution (SPIRIT) BAPPENAS.
The ICS series presents dissertations of the Interuniversity Center for Social Science Theory and Methodology. Each of these studies aims at integrating explicit theory formation with state of the art empirical research or at the development of advanced methods for empirical research. The ICS was founded in 1986 as a cooperative effort of the universities of Groningen and Utrecht. Since 1992, the ICS expanded to the University of Nijmegen and since 2017 to the University of Amsterdam (UvA). Most of the projects are financed by the participating universities or by the Netherlands Organization for Scientific Research (NWO). The international composition of the ICS graduate students is mirrored in the increasing international orientation of the projects and thus of the ICS series itself.


44. Anna Petra Nieboer (1997). *Life events and well being: A prospective study on changes in well being of elderly people due to a serious illness event or death of the spouse.* Amsterdam: Thesis Publishers.


126. Ayse Güveli (2007). *New social classes within the service class in the Netherlands and Britain. Adjusting the EGP class schema for the technocrats and the social and cultural specialists.* ICS-dissertation, Nijmegen.


This dissertation aimed to shed more light on the largely neglected organizational side of decentralization in health care systems: the role of Community Health Centers (CHCs). Point of departure for this project is the assumption that variation in the structure, composition and management of these front-line organizations strongly affects health outcomes in their respective service coverage areas. From four empirical studies, the findings suggest that variation in performance remained wide and the organizational dimensions of Community Health Centers matter. Scholars and policy makers may benefit from devoting more attention to this neglected dimension in their future attempts to improve the performance of the Indonesian health care sector.

Suwatin Miharti studied Public Administration in Semarang - Indonesia, Urban Management and Development in Rotterdam - the Netherlands, and Organization Studies in Groningen - the Netherlands. She works as a researcher in the National Institute of Public Administration in Indonesia and wrote some articles on public administration, organization, and management.

ISBN (print) : 978-94-034-1232-0
ISBN (digital) : 978-94-034-1231-3