Analysing the relationship between health service production method and performance outcome

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Abstract
Public services are increasingly outsourced yet full outsourcing is not always possible due to e.g. market reasons or the management challenges. Thus public organisations apply varying methods to their health and social service delivery. This research looks at the relation between these different delivery methods and outsourcing outcomes. Quantitative and qualitative data is analysed considering four health and social care service delivery types in 29 Finnish municipalities. Our findings partly contradict transaction cost economics in how service asset specificity and measurability impact outsourcing success. The actual management and organisation of the outsourcing and the municipality size explain the findings.

Keywords: outsourcing outcomes, transaction cost economics, health and social care services

Introduction
Following the outsourcing trends in manufacturing sectors, the healthcare sector is one of the top industries for outsourcing growth (Guimarães and de Carvalho, 2011). Also, specifically public sector organisations´ operational environment has become more complex and less stable due to increased financial insecurity and political reformations arising from the increased insecurity. The changes in public organisations´ operational environment have realised in two ways: budget cuts and an increase in the private providers´ role in public health and social service delivery. Public services are more and more delivered by private and third sector providers (Yang et al., 2015). Extending and intensifying competition between providers, public and private, has become a popular means to pursue better value for money in public social and health care deliveries (Rodrigues and Glendenning, 2015). The core motivation behind increased reliance on private providers is the idea that through collaboration between sectors better outcomes are achieved than acting independently (Caldwell et al., 2017). However outsourcing and different hybrid applications undeniably bring about challenges, such as misalignment of goals and/or incentives, information asymmetry, different management practices, and increased risks at both organizational and individual levels (Caldwell et al., 2017; Rodrigues and Glendenning, 2015; Van Slyke, 2007). Some of these challenges can be tackled structurally or contractually, but some challenges require the development of practices as well as the overall public service management approach (Caldwell et al., 2017; Taponen and Kauppi, 2017). Outsourcing of public services is not always possible due to uncompetitive markets, external pressures, or regulations (Puranam et al., 2013). Thus, a combination of delivery methods, in-house delivery and outsourcing, has been suggested as the most suitable (see Caldwell et al., 2017; Yang. et al., 2009). This concept of parallel service delivery, i.e. of combining both "make" and "buy" is not a novel approach (Nordigården et al., 2014). The benefits of a combination approach have been recognised as lower risks and the opportunity for continuous learning (McNally, 2006; Nordigården

et al., 2014). However, these so-called hybrid models have been criticised for being expensive (see for instance Mols, 2010). While several case studies exist on individual outsourcing decisions, no studies systematically address the comparison of service delivery costs across cities with different service production methods (Levin and Tadelis, 2010). According to Sarto and Veronesi (2016) a large number of research on public health services outsourcing has focused on the impact of clinical leadership on outsourcing outcomes rather than the impact of the service method.

This paper focuses on the analysis of the delivery methods applied by different Finnish municipalities in social and health services. The delivery methods present different alternatives on the continuum between total outsourcing and total internal service delivery, with parallel production choices in between. We study *how the service delivery method and how the delivery is managed impact the cost of the service delivery.* We use a combination of objective, archival and questionnaire data. We include a variation of social and health services in our analysis with different characteristics of asset specificity and service complexity as outlined in transaction cost economics.

Literature review

Options for/methods of service delivery

Governments can produce services for citizens through i) in-house delivery, ii) outsourcing, and, iii) hybrid-model (combination of the first two) (Hefetz and Warner, 2012). The production choice is typically framed according to transaction cost economics to reflect the various cost factors associated, such as fixed assets, labour and overall transaction costs (Brown and Potoski, 2003b).

Internal production of services is described by Levin and Tadelis (2010) simply as the use of salaried employees. In in-house service delivery, the public sector organization is in charge of all the service delivery phases, including production and distribution to citizens (Brown and Potoski, 2003a). Outsourcing, or external service production entails detailed contracts with performance requirements with an external actor for the entire production and distribution of a service to citizens, though financing and regulatory control remain with the public sector organization (Brown and Potoski, 2003b; Levin and Tadelis, 2010). The contracts can be made with different types of external parties: other government organisations (e.g. a neighbouring municipality), private organizations or non-profits (Brown and Potoski, 2003a). Levin and Tadelis (2010) actually suggest that the contracts with other public organisations are a choice somewhere between in-house and external service delivery, e.g. a substitute for in-house delivery for a city too small to provide certain services effectively.

The hybrid model is also known in literature by terms such as parallel production, plural governance and concurrent sourcing (Mols, 2010; Nordigården et al., 2014; Parmigiani, 2007). In this type of production model, the governmental organization contracts with an outside party while simultaneously keeping a portion of the service production in-house (Brown and Potoski, 2003). Organisations using this operating model use both the market and the hierarchy forms of governance as discussed in transaction cost economics (Parmigiani, 2007). Nordigården et al. (2014) suggest that organisations should employ such a parallel production strategy as a correctly compiled combination of in-house delivery and outsourcing can enable optimization of capacity utilization, outsourcing of cost-inefficient production, maintaining competencies and avoiding lock-in risk with suppliers.

Performance impacts of service delivery methods

Many studies refer to cost benefits of outsourcing public service delivery, in the form of e.g. avoidance of capital expenditure, more efficient delivery of services, overall cost reductions and better meeting of budgets (Barlow et al., 2013; Marques and Berg, 2011; Pelkonen and Valovirta, 2015). Some studies are even able to demonstrate specific cost saving levels with large-scale data, for example Levin and Tadelis (2010) demonstrate a significant correlation between privatization and per capita city spending for US cities; according to them cities that outsource ten per cent more of their services to the private sector spend about three per cent less per capita. Overall, however, evidence on the cost savings and efficiency gains of outsourcing in the public (health and social care) sector is mixed (Guimarães and de Carvalho, 2011). The most cost-efficient option is suggested to be determined by transaction cost economics (TCE) (Williamson 1981). Based on TCE, the service

delivery decision should be determined based on the characteristics of the service: 1) its level of asset specificity in terms of e.g. specialized investments in physical infrastructure and technical expertise, and, 2) the difficulty in specifying the contract, measuring the service and monitoring the service delivery (Brown and Potoski, 2003b; Hefetz and Warner, 2012; Williamson, 1981). Outsourcing is the recommended choice for services with low asset specificity and/or easy measurability and monitoring to avoid supplier opportunism and transaction costs related to managing the contract (Brown and Potoski, 2003b; Levin and Tadelis, 2010). It is overall typically advised for an organization's non-core functions to minimize the risks of outsourcing and maximize cost efficiency (McIvor 2000; Van de Water and van Peet 2006). With difficult measurement of service quality and quantity, and/or high asset specificity then, public sector organizations typically rely more on internal service delivery methods (Brown and Potoski, 2003b; Levin and Tadelis, 2010).

Many public organisations nowadays are employing the hybrid model with parallel in-house and outsourced service production (Nordigården et al., 2014; Taponen and Kauppi, 2017). Some studies assume that the cost of such a parallel strategy is higher than a single governance form (Mols, 2010), but it can also be a source of benefits e.g. when a firm maintains custom production in-house and outsources more generic production (Parmigiani, 2007). Complete outsourcing can be problematic without in-house experience (Parmigiani, 2007), and continuing with internal service delivery while outsourcing parts of the delivery can help solve information asymmetry problems between buyers and suppliers (Heide, 2003). Thus a situation of 'blind leading the seeing' (Taponen and Kauppi, 2017) is avoided whereby the purchasing organization is unable to properly measure and manage the performance of the supplier without relevant cost information from internal operations as comparison (Heide, 2003). Parallel production allows the internal service delivery to be compared against market prices, as well as the estimation of suppliers' margins for price cuts; cost transparency and bargaining power are increased (Mols, 2010; Nordigården et al., 2014). Outsourcing can also provide opportunities to benchmark and learn from external suppliers, leading to improvements in internal service (Nordigården et al., 2014; Taponen and Kauppi, 2017).

Methods and data

This paper focuses on the analysis of the delivery methods applied by different Finnish municipalities to the delivery of social and health services. In Finland, there are a total of 297 municipalities who are responsible for delivering social and health care services to their citizens until 31.12.2019 as long as their population is at least 20 000 people. Smaller municipalities are obliged to cooperate in service delivery. From 2020 onwards, the service delivery will be centralized to 18 districts. There is an ongoing wave of marketization in relation to publicly funded health and social care services in Finland (Puthenparambil et al., 2017). Additionally, ongoing political reformation of the health and social care delivery, initiated in 2014, has brought about various social and health care delivery methods. The variance in service delivery methods arises from the strong political will of introducing patient choice and thus opening of the markets for private providers. This has also resulted as the public organisations´ aspiration to be as cost efficient as possible to secure local production and to be a competitive option compared to private providers. Especially the smaller municipalities have experienced a threat of losing local services.

We include a variation of social and health services in our analysis with different levels of asset specificity and measurability as outlined in TCE. The selection was based on preliminary data analysis and the researchers´ knowledge of the Finnish public organisations´ use of delivery methods. The services selected listed in Table 1. The unit of analysis is the relation between the selected service delivery method and the costs of service delivery. The asset specificity and measurability level of the services were evaluated by professionals responsible for the care deliveries. They were asked to rate the services selected for these two criteria on a scale of 1-3, with 3 meaning high and 1 indicating low on the selected indicator. Asset specificity was explained to indicate the effort entering a market would require. Measurability was defined as how descriptive current indicators are in terms of care quality and effectiveness. Social services were evaluated by 6 people, of which 5 were social workers

and 1 was an economist. The health service was evaluated by 5 medical doctors and one economist. The values presented in Table 1 are the averages of these independent evaluations.

Table 1 - Classification of Selected Services

Service type	Service delivery	Asset specificity	Service measurability
Social care	Child protection: Foster care (public facilities and families)	Medium (2,42)	Medium (2,33)
Social care	Housing services for elderly (24/7 care)	Medium (2,25)	High (2,67)
Social care	Home care for the elderly	Low (1,58)	High (2,58)
Health care	Primary care (delivered in outpatient clinics)	Low (1,36)	High (2,67)

We first carried out a quantitative analysis of the correlation between the service delivery method and the resulting service delivery costs for these four services in 29 municipalities. The municipalities were chosen to include a variation in geographical locations and size. Smallest municipality in our sample has a population of 1 957 and the largest a population of 274 583. Each municipality has outsourced at least some of the services selected to this study. The analysed quantitative data consists on care expenditure and the percentage of outsourced delivery (Tilastokeskus, 2017a, Tilastokeskus, 2017b). After the quantitative data analysis, we analysed archival data (outsourcing contracts) and written answers from the municipalities to questions related to outsourced services (see Annex 2 for the questions asked). The written answers were collected from the municipalities by the Ministry of Social Affairs and Health. The questionnaires were sent via email. The analysed quantitative data are from 2016. The analysed qualitative data was collected in 2017. The quantitative data is combined from 2 publications of Statistics Finland. In previous analysis of similar data, it has been recognised that the expenditure in care varies beyond what can be explained by different age structures, geographic or other variables (THL, 2017). It is important to recognise that the age structures in Finnish municipalities vary significantly, some smaller and remote areas have 40 % more people over the age of 65 than the national average. In comparison, the metropolitan area of Helsinki, the Finnish capital, has 20 % less people over the age of 65 than the national average (Kuntaliitto, 2017).

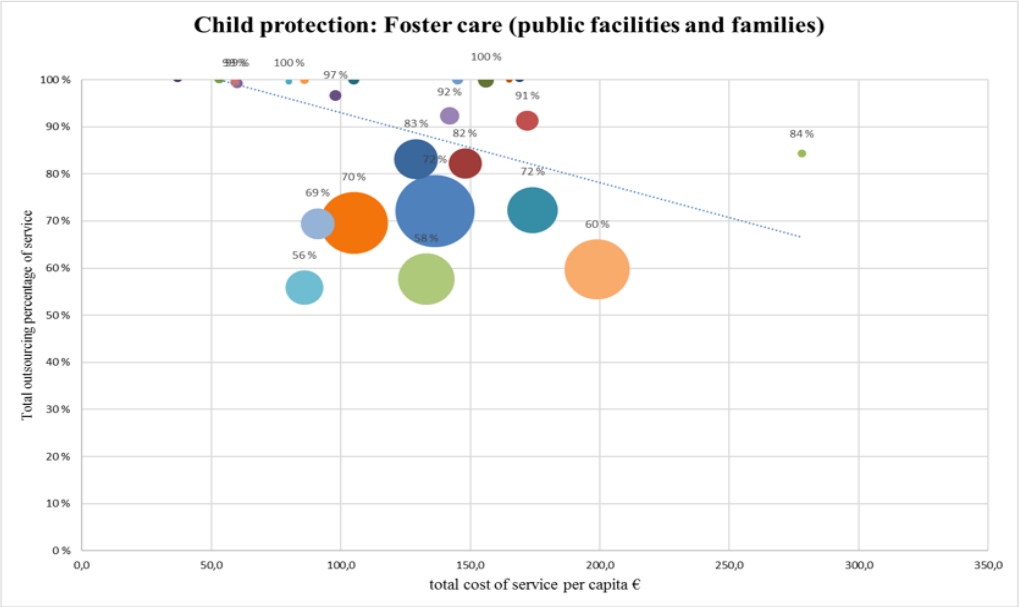
Results

Costs of the service delivery (cost per capita) in relation to the selected method for service delivery are presented next in figures 1-4 for each service type These figures also factor in the relative size of the municipality. Figure 1 describes the results of the quantitative analysis reflecting the correlation between the service production method and the service costs in child protection service delivery: Foster care (public facilities and families) which is a social service evaluated as medium in both asset specificity and service measurability. As can be seen from figure 1, it is evident that neither an emphasis on outsourcing nor an emphasis on in-house delivery seems to incur significantly lower costs per capita. Smaller municipalities outsource more, but more extensive use of outsourcing has not systematically increased nor lowered the service costs in comparison to bigger municipalities which rely more on in-house service delivery. The findings presented above in Figure 1 support the conclusion that in order for outsourcing or in-house delivery to be clearly more cost efficient, the service needs to clearly match with the theoretically suggested criteria for asset specificity and/or measurability, while the service here scored mid-way on both.

We classified housing services for the elderly medium in asset specificity and high on measurability. As per Figure 2, the results no dot present a clear trend of cost efficiency in in-house delivery nor outsourcing. A this service is recommended for outsourcing based on the high measurability but a clear conclusion cannot be reached based on the medium level of asset specificity, no clear relationship appears to exist between the extent of outsourcing and costs either. It seems that generally costs of the service delivery are higher for smaller municipalities.

Figure 3, on home care for the elderly, provides the most surprising results. The results show that outsourcing increases the costs per capita. This is the opposite of the conclusion from the literature

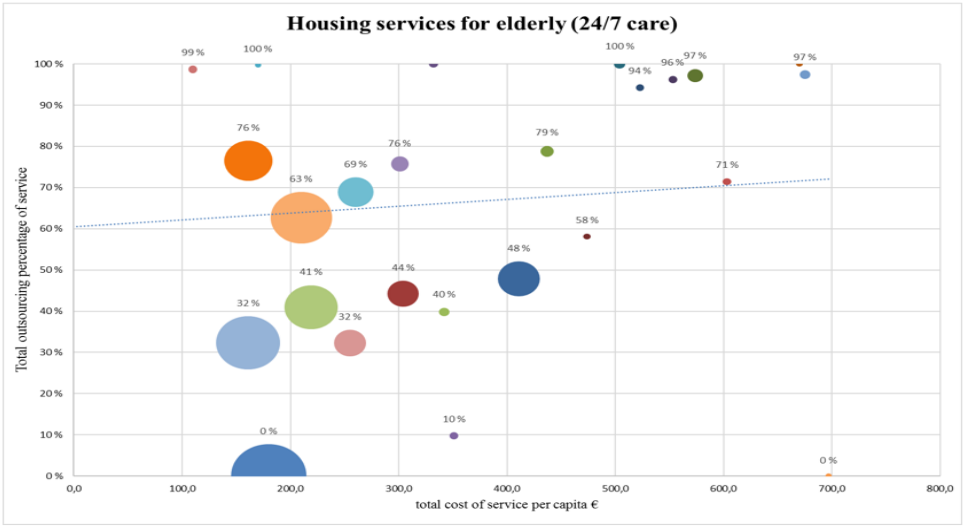
review that a service, such as home care for the elderly, that is low on asset specificity and high on measurability, would be provided more cost efficiently through outsourcing. Yet from the figure, the size of the municipality appears to have a similarly high effect on the costs per capita as the degree of outsourcing. The smaller municipalities, which also rely more on outsourcing, carry higher costs.



N=25 municipalities. Size of the bubble represents relative size of the municipality

Figure 1 - Results: Child Protection: Foster care (public facilities and families)

The results of primary care (Figure 4) are similar to those of home care for the elderly. The bigger the size of the municipality, the lower the costs per capita are and the lower the outsourced portion of the service delivery is. The results contradict with the statement that with high asset specificity and low measurability, high levels of in-house service delivery is more cost efficient than outsourcing.



N=26 municipalities. Size of the bubble represents relative size of the municipality

Figure 2 - Results: Housing Services for Elderly (24/7 care)

Performance impacts of service delivery methods

In light of the results presented above in figures 1-4, we did not verify the conclusion of TCE that services with high asset specificity and low measurability are more cost efficient in-house. We found the opposite to be true. For services with low levels of asset specificity and high measurability, high levels of outsourcing in our data set do not provide lower costs than high levels of in-house service delivery. The results presented in figures 1 and 2 for child protection services (medium in asset specificity and medium in measurability) and housing services for elderly (medium in asset specificity

and high in measurability), indicate that for a service where asset specificity and measurability are not both in line with TCE predictions for production method type, a clear relationship between service production method and costs cannot be found. Based on the results, the size of the municipality seems to have a significant impact on the costs of the service delivery per capita.

Based on the results presented, it is clear that parallel service delivery does not provide lower. The results presented in Figure 2 provide some evidence that a combination of delivery methods can be cost efficient, but the results for the three other services demonstrate that generally parallel production is not a cost efficient way to organize service production.

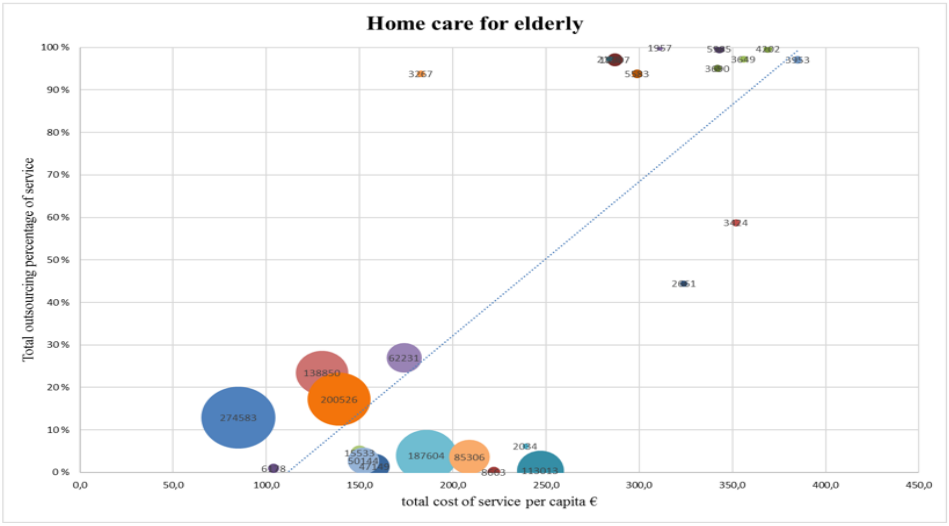


Figure 3. Results: Home Care for Elderly

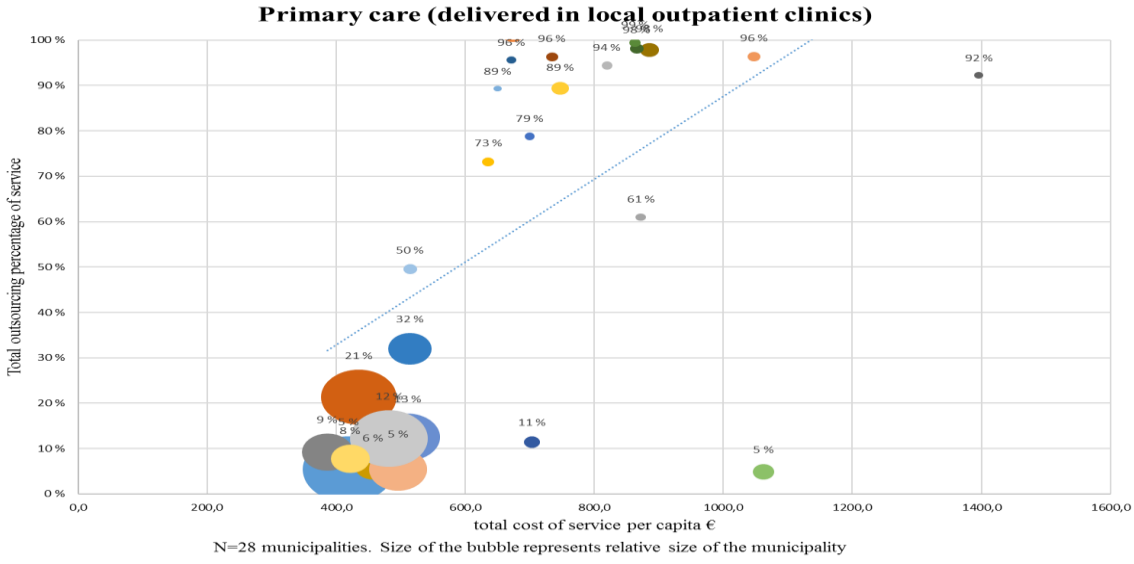


Figure 4. Results: Primary care (delivered in local outpatient clinics)

Discussion

Next, we will discuss the results of the quantitative data analysis with the help of the archival and questionnaire data analysis.

Differences in the Outsourced Portion of Different Service Types

In Figure 1, the variation in the use of outsourcing for each service type was presented. Overall, in our sample outsourcing is used the most in the delivery of child protection services (foster care in public facilities and families). This is likely due to the service nature. Our questionnaire answers revealed that some municipalities have experienced difficulties in coordinating the cooperation

between private sector providers and public officials in the context of social care: "*The most challenging thing has been the interface cooperation between our municipality and the private provider and with the monitoring officials. The interface between the municipality and the private provider has also required refining as the official decisions on caret are the municipality´s responsibility."* This mirrors the variation in the degree of outsourcing for home care for the elderly.

Outsourcing is used relatively widely in the delivery of housing services for the elderly (24/7 care). The service is easily standardized which makes the use of outsourcing and multiple providers easier for a municipality. Similarly to child protection services, all municipalities in our sample outsource at least some part of the service delivery. This is interesting in the light of medium level of asset specificity. Municipalities typically own the local facilities for providing housing services for the elderly. Entering a market area requires a private provider to rent the municipality´s facility, which often requires updating, or investments in a new building depending on the purchaser´s need. Thus the market situation is more attractive for private providers in bigger municipalities in which there are more potential customer coming outside of the outsourcing contract with the municipality. Presumably the smaller municipalities have had less negotiation power when agreeing on the terms related to the use of facilities. This might be one of the reasons behind the higher production costs per capita for the smaller municipalities presented in Figure 2 above.

Home care for the elderly and primary care delivered in outpatient clinics have the greatest variation in the levels of outsourcing. There are however different reasons behind the variation in the use of outsourcing in the delivery of these services, as the two services are very different in nature. Home care does not require investments from a private provider and the delivered service is easy to measure. The service is easily standardized which makes the use of multiple providers, and therefore outsourcing, easier for a municipality. Also, home care does not generally require integration to a wider service delivery. Thus many of our case organisations favour using multiple providers (private and public) for this service. On the other hand, the service delivery is also quite easy to manage internally. This indicates that the typical triggers for outsourcing, often arising from internal performance issues in service delivery (McIvor et al., 2009; Taponen and Kauppi, 2017), might emerge less as measurement is relatively easy. Also the education level of required staff is relatively low which makes it easier to recruit the needed resources to work directly for the municipality.

The field looks very different for primary care, since a variety of care is provided in outpatient clinics. Primary care covers everything between the treatment of flu patients to home based care, covering approximately 90% of all patient interaction (Health and Social Care Information Centre, 2016). Private providers are inclined to invest in facilities for primary care delivery since a municipality´s expenditure on primary care may amount up to 30% of the municipality´s total expenditure. Regardless of the size of the municipality, the costs are millions annually. Typically one provider, either private or public, is favoured as a production method. According to one organisation in our sample: *"One of the most important factors which contribute to the functionality of our [outsourcing] contract, is that the responsibility of our population´s welfare has transferred completely to a company, this has made partial optimization almost impossible."* Based on the results of the quantitative data analysis, this same statement applies to full internal delivery. By centralising the service delivery to one provider, the risk of service fragmentation or the development of parallel functions instead of comprehensive disease management (Albrecht, 2011) are mitigated efficiently.

Why is service delivery generally more expensive for smaller municipalities than bigger ones?

According to the principle of economies of scale, the costs per capita for service delivery are higher the lower the number of population in the capita is. Our results reflect the cost efficiency of the delivered care. However, pursuing cost efficiency is not the only motivation for outsourcing. The trigger for outsourcing often arises from internal performance issues in service delivery (McIvor et al., 2009; Taponen and Kauppi, 2017). In Finland these issues can be caused by difficulties in recruiting personnel in more secluded areas, resulting in issues with service availability and inefficiency of internal service delivery (Taponen, 2017). Some Finnish municipalities end up in situations in which outsourcing is seen as an only option due to materialized risks in service delivery

(Taponen and Kauppi, 2017). Based on our results, this seems to be particularly true for the small municipalities. Several of them in our sample mention that securing the availability of services locally is the main motivation for outsourcing. Also, the smaller municipalities describe realized cost savings compared to the previous state of internal service delivery before outsourcing. This indicates that the service delivery is more expensive with a small population base than large population overall, but outsourcing can still provide relative cost advantages. Many of the smaller municipalities in our sample had had contracts with contracts with other public providers (coalitions of municipalities) to gain economies of scale. Several small municipalities voiced a dissatisfaction against this production method and reported that outsourcing to private sector is preferred: "*Compared to the previous operating model, the situation is much better [now] from our municipality´s perspective. Especially related to health services we were not able to ensure local delivery.*" Another small municipality had experienced the same: "*Contract steering has been much easier than as a part of a municipality coalition, in which the voice of a small municipality was not heard.*"

Differences in resource and expertise level are another possible explanation for the relative cost efficiency of bigger municipalities. Based on our questionnaire results it seems that the smaller municipalities have a strong desire to steer and have an impact, but lack adequate resources. According to Awortwi (2012) lacking resources and/or abilities in managing outsourcing contracts might lead to the realization of risks. Some of the smaller municipalities report contractual issues which have incurred additional costs during contract terms. When a service delivery is outsourced, the contract, created during the competitive tendering phase, is the most critical management tool (Malatesta and Smith, 2014). A coalition of two municipalities describes their situation as follows: *"The service description which were attached to the invitation to tender was on a too high level and the described entities were too general, this has made it harder to monitor the realization of the contract. The service provider has constantly reduced functions and for instance combined persons´ assignments because the contract and the service descriptions have left room for it."* The outsourcing contracts the smaller municipalities hold with the private providers are generally less specific than the contracts between bigger municipalities and private providers. Especially specific, and rather strict, terms related to pricing are included in the bigger municipalities´ contracts. Sanctions and incentives are widely used and efforts are made to control the price level during the contract term. One of the biggest municipalities in terms of population levels described their contract management as follows: *"Continuous dialogue/operational model enables guiding the contract, interfering with possible deviations quickly and sharing information of current situations. On the other hand this requires an effort from several people."* On the contrary a smaller purchaser stated that: *"In a small municipality we do not have the reporting systems in use, which monitoring the contract and the functionality of the service delivery requires."* The effectiveness of the contract, and the measures in it, are dependent on the resources and abilities in contract management (Awortwi, 2012).

Why is parallel production used so seldom and so expensive?

As discussed in relation to the results of the quantitative analysis, parallel service delivery (a combination of in-house service delivery and service outsourcing) does not provide lower costs than high levels of service outsourcing or high levels of in-house service delivery. The results also indicated that municipalities use parallel production very seldom in the delivery of home care for the elderly, where a clear emphasis either of outsourcing or in-house delivery is described in Figure 3. Parallel production is more often applied in the other three service types, where there appears greater variation in the percentage of service delivery outsourced. The risk of service fragmentation (see Albrecht, 2011), arising from increased amount of interfaces between different providers, had somewhat realised in several municipalities applying a combination of in-house delivery and outsourcing based on the answers to our questionnaire. Challenges occur especially within the interface of privately provided primary care and publicly delivered specialised care, i.e. in cases when the outsourced service is part of a wider service delivery. A medium sized municipality from our sample describes the issue: *"When we were entering the contract, we did not clarify enough what kind of impact [partial outsourcing of primary care] will have to our outpatient clinic´s operations*

and resources. The nurse resources of our outpatient clinic are used by the private provider quite a lot and to secure our own operations we had to employ more staff […] Also, we did not take into account the costs of using our facilities – the private provider uses the outpatient clinic´s facilities "without a cost"". The described situation demonstrates two critical issues: the preparation of the contract and the realisation of the risks of using parallel production. Our findings verify the assumption of some previous studies that the costs of a parallel production strategy is higher than a single governance form of either private or outsourced production (Mols, 2010). Another municipality had returned to in-house production from the use of parallel production. Similarly to the medium sized municipality in our sample, this municipality had outsourced the doctoral services in an outpatient clinic: *"All and all outsourcing only doctors and having all other resources as internal is not functional. We should have used total outsourcing."* These experiences indicate that parallel production should not be implemented by outsourcing part of the personnel delivering the same service. It prevents achieving the recognised benefits of parallel production such as continuous benchmarking on internal and outsourced service processes or positive competition between public and private producers (see Mols, 2010; Nordigården et al., 2014).

Conclusions

The three options for organizing a service delivery are in-house delivery, outsourcing, and a hybrid-model. Reflected with the principles with TCE and the classification of services (Table 1), we examined the relation between the service delivery method and the costs of the delivery based on objective cost data, and augmented this analysis with questionnaire data. The analysis was carried out for of 29 municipalities and 4 service types. We found that, opposite to TCE, a service with low asset specificity and high measurability is more cost efficient when provided internally. This result was surprising. We also identified that the service delivery overall is more expensive for smaller municipalities; these smaller municipalities also employ outsourcing more than bigger municipalities, potentially exactly as an attempt to control the high costs. It might be that regardless of the low asset specificity, small municipalities may suffer from insufficient provider markets. The validity of this finding requires to be tested with bigger sample of service with similar characteristics. The qualitative data analysis revealed lack of resources in contract management and capacities in formulating the most critical management tool, the contract in small municipalities.

We found that parallel service delivery does not provide lower costs than high levels of service outsourcing or high levels of in-house service delivery. The qualitative data analysis revealed that some of the municipalities had implemented a hybrid form in service delivery by not maintaining a part of the service internally as parallel, but by outsourcing part of the resources completely. Our findings clearly indicate that this approach is not recommendable.

These findings should be further tested with different health and social services. Also a country comparison would increase the generalisability of the results. If possible, several years of data should be analysed to control for the effect of the duration of outsourcing and other factors impacting costs.

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