

Co-production as a driver of satisfaction with public service organizations: An analysis of German day-care centres

Introduction

Public management has undergone significant changes in the last decades. Since the 1980s at the latest, the new-public-management paradigm was leading and had initiated massive efforts of administrative reform (Alford 1989). At present, there is a broad consensus that the new-public-management philosophy did not keep (all of) its promises (see, e.g., Osborne, Radnor, and Nasi 2013). One important explanation for new public management's failure can be found in a misguided perspective on the processes of service delivery and public-value creation that is fundamentally based on the so-called "product dominant logic". To put it pointedly, the new-public-management paradigm implicitly views public organizations as places where an industrial production takes place (Osborne and Strokosch 2013).

Contrary to this view, however, public organizations do not produce material goods. Rather, public organizations provide services to meet public needs. Accordingly, a paradigm shift has occurred in public management research, in the course of which the so-called "service dominant logic" has gained significance (Osborne et al. 2013). A central idea of this approach is that consumers take part on producing of public services they consume (they act as "co-producers") or they take part on creation of policies (they act as "co-creators") (Vargo and Lusch, 2008). Thus, the customer value of services is created collaboratively in an interaction between the service provider and the consumers. Hence, service providers must make a "service proposition" that fits to the customer needs and must design processes of co-production in such a way that the customer value is maximized and that the providers' competitive position in the marketplace is strengthened.

The co-production phenomenon is just as important to public service organizations (PSO) as to for-profit service companies (Alford 1989). However, the strategic implications

of the service dominant logic cannot be fully transferred to the public sector (Osborne 2018): Besides unwilling and coerced clients (e.g., prisoners) and the existence of multiple stakeholder groups with different and in part contrary needs and goals, a high level of client loyalty can be regarded as a negative operating result in the context of public service provision (e.g., homeless people that return again and again to a communal shelter). Against this background, the service-dominant-logic concept was adapted to the public sector under the names “public service dominant logic” (e.g., Osborne et al. 2013) or “public service logic” (e.g., Osborne 2018). Coming from the public service logic, Osborne, Radnor, Kinder and Vidal (2015) have developed a so-called SERVICE framework for sustainable management of PSO. One of the SERVICE framework’s propositions states that co-production is a driver of the effectiveness of public service provision and the generation of innovative public service propositions. Likewise, Bryson, Sancino, Benington, and Serensen (2017) attribute a prominent role to processes of co-production in the so-called strategic-triangle conceptualization.

Though attention to the participation of citizens in the process of public service provision has strongly increased, several authors (see, e.g., review article of Voorberg, Beekers, and Tummers, 2015) highlight significant gaps in research on citizen co-production. The current study aims at closing some of these gaps: First and according to Voorberg et al. (2015), most studies do not define the factual objectives of co-production strategies, as the focus of such studies is more process-oriented. In addition, there are also papers that doubt the commonly assumed positive effects of co-production (e.g., Williams, Kang, and Johnson 2016). The current study develops and validates a model of the effects of co-production on client satisfaction and, hence, it explicitly tries to explain whether co-production has (significant) positive or negative outcomes. Second, the mechanisms of the effects of co-production on public-value creation and different outcome categories have been insufficiently researched (Loeffler and Bovaird 2016, Osborne, Strokosch, and Radnor 2018), and

conditions leading to these outcomes remain unclear (Nabatchi et al. 2016). To provide more evidence in this regard and in line with Hartley, Alford, Knies, and Douglas's (2017) request to analyse operational co-production procedures that create public value, this study takes various forms of co-production into account. Furthermore, the current paper considers different mediating variables that are interposed in the assumed causal relationship between co-production and client satisfaction. Third, Verschuere, Brandsen, and Pestoff (2012), Bovaird, Fleming, Loeffler and Osborne (2017) amongst others criticize that most of the empirical papers on co-production use qualitative research designs as well as case study designs. In order to produce more robust empirical findings, this survey study uses quantitative cross-sectional data from German clients of childcare services.

This paper considers childcare services as factual research object and this kind of public service has some peculiarities: First and different from tax-return services amongst others, childcare is characterized by a continuing relationship between users and service providers. Second, childcare services are demanded voluntarily. Hence, no coerced or extremely unwilling customers are involved in the service interactions. Third, the direct beneficiaries of childcare services (i.e., children) are not the persons that participate in citizen co-production activities this paper examines (i.e., parents). Hence, this paper looks at a relationship between PSO and an important stakeholder group that Smith and Friedman (1994) name indirect custom-provider relationship.

Co-Production in PSO

Different actors are involved in the provision of public services and, in particular, collaborations with the third sector and direct involvement of citizens have become increasingly important. In line with this insight, Brandsen and Pestoff (2006) distinguish among three modes of cooperation in public service provision: co-management, co-governance, and co-production. Poocharoen and Ting (2015) add co-consulting to the other

three concepts. Co-consulting refers to planning processes in which citizen and professionals are equal partners. Co-management describes constellations in which third-sector organizations produce public services in cooperation with government agencies. Within the framework of co-governance, third-sector organizations participate in the planning and design of public services. These modes of co-production are of secondary importance in the present study because it focuses on the phenomenon of citizen co-production, in which citizens as individuals participate in the production of public services (Brandsen and Honingh 2018, Nabatchi, Sancino, and Sicilia, 2017).

In line with the idea of the public service dominant logic, the role of the beneficiaries of social services has changed from passive consumers to active stakeholders (Alford 2002). Hence and according to Brandsen and Honingh (2016, p. 431) co-production is defined as “a relationship between a paid employee of an organization and (groups of) individual citizens that requires a direct and active contribution from these citizens to the work of the organization” (see Cepiku and Giordano, 2014 for a review of various other co-production definitions). Bovaird (2007) categorizes different types of relationships between professionals and users. In particular, the typology considers different levels of participations of users in service delivery and planning (i.e., a continuum from professionals as sole service deliverer to users as sole service deliverer). In line with Bovaird (2007), Surva, Tönurist, and Lember (2016) state that co-production encompasses activities of co-design and co-implementation. Voorberg et al. (2015) differentiate between co-implementation, co-design, and citizens as initiators. Confirming to these papers, Osborne and Strokosch (2013) distinguish between “consumer co-production”, “participative co-production”, and “enhanced co-production”. Consumer co-production is located at an operational level of service production and closely linked to the fact that production and consumption of services take place simultaneously. According to the authors, PSO should aim at balancing the clients’ expectations regarding public service provision and factual service quality. Contrary to this, participative co-

production relates to the participation of citizens in the strategic planning and design of the public-service-provision process (i.e., co-design and citizens as initiators). Participative co-production aims at user involvement, while consumer co-production strives for user empowerment. Finally, Osborne and Strokosch (2013) regard enhanced co-production as a combination of co-production at the operational and strategic level of public-service-production process. The authors highlight user-led innovation of public services as the goal of enhanced co-production.

Nabatchi, Sancino, and Sicilia (2017) provide another typology of the different manifestations of co-production and the authors' approach considers the level of co-production (i.e., individual vs. group vs. collective) as well as the phase of the service cycle (co-commissioning, co-design, co-delivery, and co-assessment). Nabatchi et al. (2017) hereby complement other categorization schemes by explicitly considering prospective and retrospective components (i.e., ex-ante collection of information about client needs and ex-post assessment of service quality).

Outcomes of Co-Production in PSO

As already mentioned, the integration of users in the process of public service delivery is indispensable. Accordingly, PSO make value propositions that must meet the needs of the clients. PSO then create public value in an interaction with the users or other stakeholders based on these value propositions (Osborne 2018). In contrast to the concept of the service-profit chain (see, e.g., Heskett, Jones, Loveman, Sasser, and Schlesinger, 1994), which is valid for profit-oriented enterprises, the primary goal of PSO is not the optimization of economic value (i.e., firm profit or companies' stock price), rather they have to provide value to the public. The conceptualization and measurement of public value and, thus, the outcomes of co-production is not trivial. According to Bryson et al.(2017), there is a plethora of public-value definitions and these definitions are not congruent. Some definitions focus on

instrumental issues (i.e., public organizations' effectiveness); others are more process-oriented (e.g., increasing citizen involvement). The strengthening of democracy or reinforcing social cohesion, on the other hand, constitute a public value that is a means in itself. Furthermore and due to their multiple stakeholders with different needs, different objectives can be of relevance for one and the same PSO. Accordingly, multiple and sometimes competing goals of PSO activities' outcomes need to be distinguished. Third and unlike profit determination, outcomes measurement in a PSO activity context is not trivial.

Williams et al. (2016) highlight the relational aspect of the public-value concept that can be captured by perceptual indicators. Based on this and comparable with Fledderus (2015), this paper's empirical study considers parent satisfaction as perceptual outcome of co-production in childcare organizations. Consumer satisfaction is a psychological construct that has been intensively researched in the fields of marketing and consumer psychology (see, e.g., Anderson, Fornell, and Lehmann, 1994). Consumer satisfaction is a result of a cognitive process in which quality expectations are compared to the perception of actual quality (Churchill and Suprenant, 1982). Hence, client satisfaction should be high when PSO service quality meets parental needs. Furthermore, equity theory as well as attribution theory also help explain variations in satisfaction responses (Oliver and DeSarbo, 1988). Equity theory links parental satisfaction to fairness judgment about input-output ratios of entities involved in service transactions. In a childcare setting, perceptions of a balanced input-output relation between, for instance, parents and professional staff should result in favourable satisfaction judgments. According to attribution theory, consumer satisfaction is based on causal inferences and these are made in exceptional cases (i.e., good or bad service experiences). For example, parents may think that a temporary closure of a nursery school due to a flu outbreak could not be controlled by the institution. In the case of this "non-controllability" attribution, the dissatisfaction of the parents would not be high. In sum, parental satisfaction appears to be

an suitable indicator that covers a board range of the facets that constitute the outcomes of co-production.

Conceptual Framework

The current study builds upon Pestoff's (2012) typology that distinguishes between economic, political, and social co-production. Pestoff developed this typology based on peculiarities of the Swedish childcare sector, which is similar to the German childcare sector that is subject of the current study. This study assumes that co-production has a positive effect on client satisfaction. Though, the current study hypothesise that co-production impacts satisfaction in an indirect manner. Hence and in addition to co-production as explanatory variable, the conceptual framework of this paper includes the level of information available to the parents, person-organization fit, and perceptions of structural quality as mediators. Figure 1 gives an overview the delineated conceptual framework.

Figure 1 about here

Mediators of Co-Production's Effect on Satisfaction with PSO

The conceptual framework of the current study comprises three mediators (see Figure 1). In line with Dhirathiti's (2018) study the current study considers perceived quality of facilities and equipment as one of these mediators. Based on the service-quality framework of Donabedian (1997) as well as on Chaebo and Medeiros's (2017) structural conditions for effective co-production, perceived quality of facilities and equipment can be assigned to the subdimension of *structural quality* (i.e., material and personnel resources). Contrary to process quality, the structural quality of childcare services can be more easily assessed by

external parties such as parents. Previous research consistently shows positive effects of service-quality perceptions on customer satisfaction (e.g., Gok and Sezen 2013).

Second and according to Kristof (1996, p. 4 et seq.), *person-organization fit* represents “the compatibility between people and organizations that occurs when: (a) at least one entity provides what the other needs, or (b) they share similar fundamental characteristics, or (c) both.” Person-organizations fit has gained great importance in human resource management research and, for instance, Tepeci and Bartlett (2002) show that person-organization fit is as a predictor of employee job satisfaction and other employee-related behavioural intentions (e.g., intentions to leave the organization). Moreover, in line with Risman, Erickson, and Diefendorff (2016), higher levels of employee-organization fit result in more pronounced work motivations and better work outcomes.

The present study takes another perspective and looks at the client-organization fit. Based on a brand-image-transfer rationale, a strong employee-organization fit can spill over to consumers (Yaniv and Farkas 2005). Subsequently, the client-organization fit can influence the assessment of the service organizations and their offerings. Moreover, and more important, the same authors highlight that a strong consumer-organization fit may have a positive effect on brand evaluation as well. The results of the meta-analysis of Kristof-Brown, Zimmerman, and Johnson (2005) supports this notion. In line with the definition of Kristof (1996), a strong consumer-organisation fit reflects value congruency and fulfilment of needs. Jasper and Steen (2019) emphasize that value tensions in PSO can have detrimental effect. On the contrary and considering a so-called theory of collective identities, Bagozzi, Bergami Marzocchi, and Morandin (2011) show that a close relationships between consumers and organization that go along with shared knowledge, values, and experiences may result in increased action tendencies that benefit the company.

As a third and upstream mediator, the model includes the level of information that is available to the stakeholders (e.g., parents). Based on the agency theory (Miller 2002), this

study assume a positive effect of the level of information on the perceived quality of facilities and equipment. A better provision of information goes along with a mitigation information asymmetries between clients and PSO. Clients with more information about PSO' internal structures and procedures have more knowledge about existing gaps in service and the resulting possibilities for improvement. Based on this broader knowledge, these well-informed clients can better voice their wishes and needs to the social service providers and purposefully influence decision-making processes (Miller 2002). As a consequence, the resources available in the PSO are more likely to be allocated to the uses preferred by the clients.

The present study considers the concept of norm crystallization (see Chatman 1989) to explain the effect of the level of information on person-organization fit. Norm crystallization refers to how strongly the members of an organization share universal norms or values. This study assumes that higher levels of information among clients are associated with stronger intra-organizational dissemination of these values and norms. Furthermore, the level of crystallization represents a determinant of the strength of organizational values and a high crystallization goes along with strong intra-organizational ties. Against this background it is assumed that the perceived person-organization fit increases with the amount of information supplied to the organizations' stakeholders. Based on these considerations, hypotheses H_{1a} and H_{1b} read as follows:

H_{1a}: The positive effect of level of information on satisfaction with PSO will be mediated by perceived structural quality.

H_{1b}: The positive effect of level of information on satisfaction with PSO will be mediated by perceived person-organization fit.

Co-Production's Effect on Satisfaction with PSO

Economic co-production in childcare facilities manifest itself in the form of cash donations, time donations (e.g., volunteering as cleansing person), or in-kind donations (e.g., books or toys). Furthermore, parents' engagement in direct help in caring for the children is assigned to economic co-production, too. Hence, economic co-production in day-care centres in many cases bears resemblance to Boivard's (2007) notion of "user co-delivery of professionally designed services". According to Pestoff (2009) economic co-production aims at improving service quality and at maintaining the common service level (e.g., in times of high sick leave of professional staff). Economic co-production relates to the operational level of service production and, thus, has similarities with Osborne and Strokosch's (2013) concept of "consumer co-production".

The resource dependency theory may help to explain the effect of economic co-production on satisfaction. Organizations' structure and behaviour are determined by its resources. The theory indicates that organizations are to a certain degree dependent on external resources (Wicker and Breuer 2011). Users that provide these resources to PSO become economically involved in the provision of public services to ensure both the continued provision of a service and to improve service quality (Pestoff 2009). We hypothesize that an increase in the resources provided by monetary, in-kind, and time donations may lead to better service quality (Prentice 2015), which will subsequently will have a positive effect on satisfaction. Hypotheses H_{2a} therefore is:

H_{2a}: The positive effect of the level of economic co-production on satisfaction will be mediated by perceived structural quality.

Social co-production in childcare facilities relates to festivities (e.g., summer party or Christmas celebrations), open house days and informational events (see Pestoff, 2012). According to Pestoff (2009), parents contribute with their time and material goods to these

events to achieve “the social goals of a public service or to promote its social activities” (p. 208). Social co-production cannot be clearly assigned to any of the co-production categories listed above. This can be explained by the fact that social co-production is more associated with bringing people together as well as with the dissemination of information and ideas values than with the actual production of services. In addition and confirming to Fledderus, Brandsein, and Honingh (2014), (social) co-production can strengthen trust among the stakeholders of PSO. In addition and since social co-production should therefore spread organizational values, this study assumes that social co-production reinforces the cohesion between PSO’s internal and external stakeholder groups. This notion is in line with Chaebo and Medeiros’ (2017) idea of cognitive conditions for effective co-production. Thus, social co-production should strengthen social ties and result in stronger perceptions of person-organization fit. Hence, hypotheses H_{2b} is:

H_{2b}: The level of social co-production has a positive effect, which indirectly affects the satisfaction through the mediators level of information and person-organisation fit.

Board meetings with/without power to decide for parents, suggestion schemes, and possibilities for informal exchange of ideas and information are appearances of parents’ *political co-production* in childcare organizations (see, Pestoff, 2012). Therefore, political co-production is comparable with Boivard (2007) concept of “traditional professional service provision with user-community consultation on service planning and design issues”. One purpose of political co-production is to give users the opportunity to articulate their needs to improve service quality and to generate ideas for service innovations. In addition, political co-production gives parents the power to make decisions about the way the childcare-service provision is designed. Hence, the concept of political co-production bears resemblance to Osborne and Strokosch’s (2013) notion of “participative co-production” on the strategic level.

According to Vidal (2006), co-production leads to a better allocation of resources. Considering this notion, this study hypothesizes that political co-production should result in a better representation of clients' preferences due to their involvement in decision-making processes and discussions (Pestoff 2012) as well as an enhanced acceptance of resulting outcomes (Callahan 2007). Within this context, Osborne et al. (2012) state that co-production can unearth hidden knowledge or latent needs, respectively, among customers and, based on this, promote innovation processes. These favourable effects of participation in decision making is well-known in the field of medicine, where previous research shows (e.g., Shay and Lafata 2015) that shared decision-making can be associated with higher patient satisfaction.

As a result of the communication channel opened up by political co-production, information can be better exchanged between involved parties (Vamstad 2012). In particular, clients serving as board members receive more and better information about, for instance, daily routines (e.g., children's eating and sleeping hours) or strategic issues (e.g., changes in the range and scope of public services), thus reducing information asymmetries. Therefore, we assume that stronger political co-production is associated with a higher level of information among client representatives on parent councils and among general clients. In line with an agency-theory rationale (Miller 2002), better-informed council members should exert their control function over the service provider's management more effectively and can thus impact decision more purposefully. Better fulfilment of client needs should also result from political co-production and this mechanism should result in a higher accountability towards clients and other relevant stakeholders (Van Puyvelde et al. 2012). Therefore, higher levels of political co-production should result in better information among parents and subsequently in a better performance of PSO. Based on this, hypothesis H_{2c} is:

H_{2c}: The level of political co-production has a positive effect, which indirectly affects the satisfaction through the mediators (i.e., level of information and structural quality).

Empirical Study

To validate the delineated model, the current study conducts an empirical analysis based on an online survey of parents from Germany. This study applies a partial-least-squares (PLS) structural equating modelling (SEM) methodology. To test the stability of parameter estimates, this study uses a bootstrapping procedure based on 1.000 bootstrap runs and calculates bias-corrected bootstrapping intervals. According to Hair et al. (2017), PLS-SEM estimation provides several benefits when compared to covariance-based methods, especially when testing complex structural models. For instance, PLS maximizes explained variances and therefore increases prediction accuracy and does not make strict distributional assumptions.

Setting

The present study's factual research object are childcare facilities in Germany. In 2017, there were 3,822,837 preschool children supervised in German kindergartens. PSO from the public sector (32.97%), the for-profit sector (3.07%), and the nonprofit sector (63.96%) provided citizens with day-care services (DESTATIS 2017). Day-care quality and costs in Germany are mainly regulated on the federal state level. Aspects of quality that are regulated include minimum teacher-child ratio, maximum group size, and training. Therefore, day-care can vary substantially from one German federal state to another (Schober and Spiess 2015). Kindergarten fees are non-existent or relatively low by international standards: Actual fees are regularly determined depending on the income of the parents. However, costs are covered in big parts by municipalities or the state, respectively, which means that day-care quality is mostly independent of parents' willingness or ability to pay (Schober and Spiess 2015). Since 2008, parents have had the legal claim to obtain a place in kindergarten for children aged one year. Based on this federal initiative to increase childcare for children younger than three years, significantly higher care rates have been achieved in Germany (DESTATIS 2015).

Data Gathering Procedure

Parents are the most important stakeholder group of childcare facilities, and we consider parental satisfaction as an indicator of public value created by co-production activities. Hence, the basic population considered in this study are German parents whose children are cared for by public and non-profit day-care facilities. Qualtrics, an online research company, provided access to a national online panel of German citizens. Solely respondents who had child cared for in a day-care centre were not included in the final sample. Moreover, in this study, we only consider those parents who had their children in a public or non-profit kindergarten. Due to their small number, for-profit day-care centres were not taken into account. This procedure yielded a sample of 767 parents. Contrary to the distribution in this study's sample, non-profit kindergartens dominate in Germany. This study corrects for this discrepancy by weighting single cases in the analysis based on the public or non-profit sponsorship of the PSO. Table 1 depicts the distribution of further characteristics of the childcare facilities.

Insert Table 1 about here

Table 2 depicts the age and gender characteristics of the interviewed parents in the current study's sample. The current study does not claim representativeness of the used sample: First and because of variations in internet usage, national online panels are never representative of the resident population of a specific country. Second, there is no valid information available about the distribution of German parents' demographic and psychographic characteristics that could be used as benchmarks. However, the distribution of

school-leaving qualification, respondents' denomination, place of residents, and inhabitants of the place of residence fit the actual distribution in Germany.

Insert Table 2 about here

Measurement Reliability and Validity

This study measures all the model components depicted in Figure 1 based on reflective measurement scales. The co-production scales were based on Pestoff's (2012) conceptualization; 7-point items with 'low degree' and 'high degree' as scale anchors were used. We deleted two items from Pestoff's original economic co-production scale due to problems concerning convergent validity. A direct measurement approach that comprises three 7-point Likert scales was used to measure the person-organization fit. The measurement of the supply of information is based on a self-developed three-item 7-point Likert scale. The perceived structural quality was measured based on six items. We considered 'very satisfied' and 'not satisfied at all' as the scale's anchors. The overall satisfaction scale is based on Gustafsson, Johnson and Roos's (2005) measurement approach, and we used a continuous measurement scale with numerical values ranging from 1 to 100 as the scale's anchors. The wording of the question items is depicted in Appendix A.

Table 1 depicts reliability and validity statistics and the factor loadings¹. All factor loadings are significant. The values of the factor reliability and average-variance-extracted (AVE) statistics are above the recommended thresholds. Furthermore, the Fornell-Larcker

¹ In addition, a confirmatory factor analysis reveals a very good global fit of the measurement model with $\chi^2 = 724.61$; $p < .001$; $\chi^2/df = 3.06$; CFI = 0.95, SRMR = 0.05; RMSEA = 0.05; PCLOSE = 0.24.

ratio indicates the discriminant validity of the measurement. Harman's single factor test and the common-latent-factor method indicate no problems related to common method bias.

Insert Table 3 about here

Effects of Covariates

Besides the model components depicted in Figure 1 this study also considers covariates, such as age, gender, parents' council membership, migration background, denominational status and satisfaction with teacher-child ratio. Besides 'satisfaction with teacher-child ratio', which was measured on a metric scale, all covariates were operationalized as variables with two or three categories. Appendix B shows the significant effects of the structural variables on the model components as supplementary information.

Insert Appendix B about here

The results indicate a positive effect of parent council membership on person-organization fit (.07, $p < .05$) as well as a positive effect of being in a parent initiative on the perceived level of information (.06, $p < .01$), which corresponds to the study's line of reasoning. In addition, the perceived satisfaction with teacher-child ratio shows a positive effect on all considered variables. In accordance with the findings of Seemann et al. (2015), who found that faith-based organizations are perceived as less competent when compared to their secular counterparts, religious non-profit status results in lower perceived satisfaction (-

.06, $p < .05$). Respondents living in East Germany reveal higher quality (.1, $p < .01$) and information level (.07, $p < .04$) perceptions. This effect might be due to historical reasons. West German mothers have a history of taking long maternity leaves, while East German mothers pursue a more employment-centred life course. Therefore, West German parents tend to have more conservative attitudes towards day-care use, resulting in higher quality expectations (Schober and Spiess 2015). Male respondents reveal a lower perceived person-organization fit (-.12, $p < .00$). This effect can be explained by the still-conventional distribution of roles, where women are more involved in early childhood education.

Path Analysis and Mediation Analysis Results

The PLS SEM results reveal a good explanatory power of the delineated model approach: The adjusted R^2 of satisfaction with PSO is .64. Furthermore, the R^2 s of the mediators, namely, structural quality (adjusted $R^2 = .35$), person-organization fit (adjusted $R^2 = .55$), and level of information (adjusted $R^2 = .44$), indicate a good model fit, too. **Table 4** depicts the values and significance of the path coefficients as well as their effect sizes (f^2). The PLS SEM results reveal no significant direct effects of all three forms of co-production on satisfaction. This finding is in line with the study's mediation hypotheses H_{2a-c} . The level of information provided to the clients has a significant direct and positive effect on person-organization fit and perceived structural quality of the facility and equipment. Furthermore and contrary to the mediation hypotheses H_{1a} and H_{1b} , level of information has a significant direct effect on satisfaction with PSO.

Insert Table 4 about here

Table 5 shows the total indirect effects of co-production and level of information on satisfaction with PSO. In line with hypotheses H_{2b} and H_{2c}, the mediation analysis shows a significant total indirect effect of social co-production and political co-production. It has to be pointed out here that political co-production has the strongest total indirect effect on satisfaction. Furthermore and contrary to hypothesis H_{2a}, the total indirect of economic co-production on satisfaction is not significant. As **Table 2** shows, this non-significant total effect is caused by the fact that solely one of the direct effects of economic co-production on the mediating variables is significant (i.e., effect on structural-quality perception). In line with hypotheses H_{1a} and H_{1b}, the total indirect effect of level of information on satisfaction is significant. Considering level of information's significant direct effect, the current study shows that person-organization fit and quality perceptions function as partial mediators.

Insert Table 5 about here

Table 6 reports the value and significance of all possible specific indirect effects as well as their bias-corrected bootstrap intervals. In line with the previous mediation results, this more detailed mediation analysis reveals several high indirect effects of political co-production and this is in line with hypothesis H_{2c}. The positive indirect effects of political co-production on person-organization fit and structural quality are very pronounced. In particular, the POL→INFO→PO→SAT effect is decisive for the explanation of variations in the parents' satisfaction ratings. The specific indirect effects of social co-production are not as pronounced as those of political co-production. Furthermore and again contrary to hypothesis H_{2a}, there are no significant specific indirect effects of economic co-production on satisfaction or the mediators. Finally and in line with the hypotheses H_{1a} and H_{1b}, perceived structural

quality and person-organization fit mediate to effect of level of information on satisfaction. It has to be highlighted here that the indirect effect of level of information via person-organization fit is considerably stronger than that via perceived quality.

Insert Table 6 about here

Discussion of Study Results

In sum, this study demonstrates that co-production has a significant indirect effect on client satisfaction. The level of information provided to the parents as well as the perceived person-organization fit and structural quality as mediating variables. Furthermore, the level of information provided to the clients is an essential antecedent of both perceived person-organization fit and service quality evaluations. Hence and in line with previous research, co-production mitigates the information asymmetry between users and service providers (Vamstad 2012); it also and strengthens clients' attachment to the organization (Bagozzi et al. 2012) and the perceived structural quality, which in turn improves perceived satisfaction (Gok and Sezen 2012).

The considered dimension of co-production do not have an equally strong effect on satisfaction. More precisely and first, *economic co-production* does not have an direct or indirect effect on satisfaction. Furthermore and in line with the study assumptions, the level of economic co-production has no significant effect on person-organization fit. Confirming to the resource-dependency theory, economic co-production significantly increases perceived structural quality. However, this direct effect of economic co-production is quite low. According to Pestoff (2006) and as this study has discussed above, economic co-production is strongly characterized by volunteering. Considering a line of argumentation from Kreutzer

and Jäger (2011), the weak effect of economic co-production can be explained by dysfunctional conflicts between volunteers and professional staff. Lavasseur (2018) also addresses these conflicts of interests and resulting struggles between full-time employees and volunteers. In addition, Osborne and Strokosch (2013) highlight that volunteers indeed have experience and skills. Yet, volunteers can supplement the professional staff only to a limited extent and only in certain areas. In other words and as Andreassen, Breit, and Legard (2014) put it, co-production in the form of volunteering has its barriers in the lack of experience and in dilettantism on the clients' side. Accordingly, a high degree of economic co-production does not necessarily have to be associated with positive outcomes of PSO activities. Besides positive effects of volunteering on organizational efficiency, Musso, Young, and Thom (2019) emphasise that volunteer management increases administrative complexity which can be taken as an explanation for the weak effect of co-production, too. Finally, parents can attribute the need for economic co-production to the management incompetency in PSO. According to the attribution theory (see, e.g., Oliver and DeSarbo, 1988), such external causal attributions of negative events can result in marked dissatisfaction responses. Accordingly, positive and negative influences of economic co-production on satisfaction among the parents may have offset one another.

Social co-production has a moderate positive total indirect effect on satisfaction with PSO. The specific indirect effects reveal that social co-production impacts satisfaction via person-organization fit and level of information. Hence, supporting day-care providers by volunteering at social events increases parents' level of information. Based on this insight and in accordance to Chatman's (1989) norm-crystallization rationale, it can be concluded that social co-production contributes to the dissemination of values that are valid throughout the PSO. These mutual values then contribute to a sense of common bond (i.e., person-organization fit), which is a direct antecedent of satisfaction among clients of PSO. Hence, participation in the planning and implementation of social events fosters the shared similarity

between a person's self-concept and his or her image of the organization. Nevertheless, social co-production effect on satisfaction with PSO is not very pronounced. Furthermore and in line with Williams and colleagues' (2016) notion, the PLS SEM analysis (see Table 2) reveals a negative direct effect of social co-production that is almost significant ($p = .10$). With more families where both partners work full time, social co-production in terms of supporting bake sales, Christmas parties and so on necessitates considerable effort from the parents. There might be little understanding of calls for help, and the parents may perceive that they do not obtain any additional value for their time invested. Furthermore, social pressure from other parents might be the only reason why parents are involved in social co-production activities and the "compulsory" nature of social co-production may result in a negative impact on satisfaction. Therefore and looked at from the perspective of the equity theory (see, e.g., Oliver and DeSarbo, 1988), the only modest positive satisfaction responses could be due to the perception of unfair input-output relations on side of the parents.

Political co-production has the strongest total indirect effect on satisfaction with the childcare facilities. The strongest specific indirect effects of political co-production on satisfaction run through the information level and then either via person-organization fit or structural quality on satisfaction with PSO. Being involved in decision-making processes, for example by serving as a board member or by being a member in a parent initiative, results in an increase in the level of information among parents and apparently decreases the negative impact of information asymmetries (Pestoff 2014). Furthermore, by being involved in political co-production, clients may influence the organization in terms of its characteristics, culture and goals, which leads to a better match of the clients' and the organizations' values and therefore to increased satisfaction. In addition, the positive influence via perceived quality can be explain by the notion that political co-production gives clients more control over the planning and delivery of services they or their children use (Bovaird 2007 and Pestoff 2009). Hence, the result of this study complies with previous research, which reveals that parental

control in the provision of childcare helps to increase the quality of services (Leviten-Reid 2012).

Limitations, Implications, and Avenues for Future Research

The study's results have to be considered against the backdrop of some limitations. First, the study considers a specific type of social service in one European country and thus the extent to which the study exhibits external validity is not certain. Second, this survey study considers one information source and measures the model's components by employing one instrument. Thus, common method bias could present a problem. We tried to address this problem by using different measurement scales and scale anchors. Moreover, the results of the common method bias assessment did not reveal any pronounced problems. Third, this study does not claim representativeness with regard to respondents (i.e., parents) in the sample. Fourth, the validated model represents a consumer psychological model approach of client satisfaction, and we did not control for structural variables (e.g., facility size). Fifth, the present study does not formulate hypotheses for every possible direct or indirect effect. Therefore, the present study is to a certain degree of exploratory nature. Finally, the current study explains client satisfaction and thus considers only one indicator of public-value creation.

In particular, measures of economic and political co-production appear to be instrumental in increasing client satisfaction. *Prima facie*, the positive mediated effect of social co-production (e.g., joint organization and holding of open house days or church festivals) on client satisfaction suggests the advantageousness of an increase in social co-production as well. However, because of the negative direct effect on client satisfaction, managerial decisions concerning social co-production have to be made with caution. For instance, social service providers should keep in mind that an increase in social co-production might increase clients' performance expectations. In line with the confirmation/disconfirmation paradigm of customer satisfaction, non-profit social service

providers should either control performance expectations or improve their performance to prevent dissatisfaction among clients. Moreover, the organizations should avoid putting parents under pressure so they do not feel overly obligated to support the kindergarten by volunteering.

This study opens several avenues for future research. First, additional structural and process variables could be included. For example, future research could consider the different locations of the facilities (urban vs. rural), facility size or educational concepts as explanatory or control variables. Second, future research could focus on intercultural differences or consider other areas of social welfare, such as nursing homes, housing assistance or services for disabled people. Third, due to the specific conditions in Germany, the study should be replicated in other countries to ensure external validity. Fourth and based on Bovaird's (2007) classification of professional-user relationships, the current model approach or modified versions of it could be tested in different settings (e.g., user-community co-delivery with professionals, without formal planning and design processes). Fifth and considering a notion of Osborne and Strokosch (2013) amongst others, future research could analyse how co-production influences the innovation activity of PSO. Finally, future research could examine parents' initiatives in more detail. These parents' initiatives represent the kindergartens that are founded by parents and have a high degree of parent participation. Such an analysis could provide a more in-depth understanding of the drivers and barriers as well as the outcomes of participatory mechanisms.

References

- Alford, J. 1998. "A public management road less travelled: Clients as co-producers of public services." *Australian journal of public administration* 57 (4): 128-137. doi: 10.1111/j.1467-8500.1998.tb01568.x.

- Alford, J. 2002. "Why do public-sector clients coproduce? Toward a contingency theory." *Administration & society* 34 (1): 32-56. doi: 10.1177/0095399702034001004.
- Anderson, E. W., Fornell, C., and Lehmann, D. R. 1994. "Customer satisfaction, market share, and profitability: Findings from Sweden." *Journal of marketing*, 58 (3): 53-66. doi: 10.2307/1252310
- Andreassen, T. A., E. Breit and S. Legard. 2014. "The making of 'professional amateurs'." *Acta sociologica* 57: 325-340. doi: 10.1177/0001699314552736.
- Bagozzi, R. P., M. Bergami, G. L. Marzocchi, and G. Morandin. 2012. "Customer–organization relationships: Development and test of a theory of extended identities." *Journal of applied psychology* 97 (1): 63. doi: 10.1037/a0024533.
- Bovaird, T. 2007. "Beyond engagement and participation: User and community coproduction of public services." *Public administration review* 67 (5): 846-860. doi: 10.1111/j.1540-6210.2007.00773.x.
- Bovaird, T., Flemig, S., Loeffler, E., and Osborne, S. P. 2017. "Debate: Co-production of public services and outcomes." *Public Money & Management*, 37 (5), 363-364. doi: doi.org/10.1080/09540962.2017.1294866.
- Brandsen, T., and M. Honingh. 2018. "Definitions of co-production and co-creation." In *Co-production and co-creation: Engaging citizens in public services*, edited by T. Brandsen, T. Steen, and B. Verschuere, 10-17. Abingdon: Routledge.
- Brandsen, T., and V. Pestoff. 2006. "Co-production, the third sector and the delivery of public services: An introduction." *Public management review* 8: 493-501. doi: 10.1080/14719030601022874.
- Bryson, J., Sancino, A., Benington, J., and Sørensen, E. 2017. "Towards a multi-actor theory of public value co-creation." *Public management review*, 19 (5), 640-654. doi: 10.1080/14719037.2016.1192164.

- Cepiku, D., and Giordano, F. 2014. "Co-production in developing countries: Insights from the community health workers experience". *Public management review*, 16 (3), 317-340.
- Callahan, K. 2007. "Citizen participation: Models and methods." *International Journal of Public Administration* 30 (11): 1179-1196. doi: 10.1080/01900690701225366.
- Chaebo, G., and Medeiros, J. J. 2017. "Conditions for policy implementation via co-production: the control of dengue fever in Brazil." *Public management review*, 19 (10), 1381-1398.
- Chatman, J. A. 1989. "Improving interactional organizational research: A model of person-organization fit." *Academy of Management Review* 14: 333-349. doi: 10.5465/amr.1989.4279063.
- Churchill Jr, G. A., and Surprenant, C. 1982. "An investigation into the determinants of customer satisfaction." *Journal of marketing research* 19 (4): 491-504. doi: 10.2307/3151722
- DESTATIS. (2015). Betreuungsquote unter 3-jähriger Kinder in Westdeutschland deutlich gestiegen [Press release]
- DESTATIS. (2017). *Kinder und tätige Personen in Tageseinrichtungen und in öffentlich geförderter Kindertagespflege am 01.03.2017*. Retrieved from: https://www.destatis.de/DE/Publikationen/Thematisch/Soziales/KinderJugendhilfe/TageseinrichtungenKindertagespflege5225402177004.pdf?__blob=publicationFile
- Dhirathiti, N. S. 2018. "Co-production and the provision of lifelong learning policy for elderly people in Thailand." *Public management review*. doi: 10.1080/14719037.2018.1540723
- Donabedian, A. 1997. "The quality of care". *Archives of pathology & laboratory medicine*, 121: 11.

- Fledderus, J. 2015. "Does user co-production of public service delivery increase satisfaction and trust? Evidence from a vignette experiment." *International journal of public administration*, 38 (9): 642-653. doi: 10.1080/01900692.2014.952825.
- Fledderus, J., Brandsen, T., and Honingh, M. 2014. "Restoring trust through the co-production of public services: A theoretical elaboration." *Public management review*, 16 (3), 424-443.
- Gok, M. S., and B. Sezen. 2013. "Analyzing the ambiguous relationship between efficiency, quality and patient satisfaction in healthcare services: the case of public hospitals in Turkey." *Health policy* 111 (3): 290-300. doi: 10.1016/j.healthpol.2013.05.010.
- Gustafsson, A., M. D. Johnson, and I. Roos. 2005. "The effects of customer satisfaction, relationship commitment dimensions, and triggers on customer retention." *Journal of Marketing*, 69: 210-218. doi: 10.1509/jmkg.2005.69.4.210.
- Hair, J., C. L. Hollingsworth, A. B. Randolph, and A. Y. L. Chong. 2017. "An updated and expanded assessment of PLS-SEM in information systems research." *Industrial management & data systems* 117 (3): 442-458. doi: 10.1108/imds-04-2016-0130.
- Hartley, J., Alford, J., Knies, E., and Douglas, S. 2017. "Towards an empirical research agenda for public value theory." *Public management review*, 19 (5), 670-685. doi: 10.1080/14719037.2016.1192166.
- Jaspers, S., and Steen, T. 2019. "Realizing public values: enhancement or obstruction? Exploring value tensions and coping strategies in the co-production of social care." *Public management review*, 21 (4): 606-627. doi: 10.1080/14719037.2018.1508608.
- Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser, W. E., and Schlesinger, L. A. 1994. „Putting the service-profit chain to work." *Harvard business review*, 72 (2): 164-174.
- Kreutzer, K., and U. Jäger. 2011. "Volunteering versus managerialism: Conflict over organizational identity in voluntary associations." *Nonprofit and voluntary sector quarterly* 40: 634-661. doi: 10.1177/0899764010369386.

- Kristof, A. L. 1996. "Person-organization fit: An integrative review of its conceptualizations, measurement, and implications." *Personnel psychology*, 49(1): 1-49. doi: 10.1111/j.1744-6570.1996.tb01790.x
- Kristof Brown, A. L., R. Zimmerman, and E. Johnson. 2005. "Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit." *Personnel psychology* 58: 281-342. doi: 10.1111/j.1744-6570.2005.00672.x.
- Lavasseur, K. 2018. "Co-producing accountability? Drawing conclusions from non-profit child care services in Manitoba." *Canadian public administration* 61: 26-44. doi: 10.1111/capa.12252.
- Leviten-Reid, C. 2012. "Organizational form, parental involvement, and quality of care in child day-care centers." *Nonprofit and voluntary sector quarterly* 41: 36-57. doi: 10.1177/0899764010388846.
- Loeffler, E. and T. Bovaird. 2016. "User and community co-production of public services: What does the evidence tell us?" *International journal of public administration* 39 (13). 1006-1019. doi: 10.1080/01900692.2016.1250559.
- Miller, J. L. 2002. "The board as a monitor of organizational activity: The applicability of agency theory to nonprofit boards." *Nonprofit management and leadership* 12: 429-450. doi: 10.1002/nml.12407.
- Nabatchi, T., A. Sancino, and M. Sicilia. 2017. "Varieties of participation in public services: The who, when, and what of coproduction." *Public administration review* 77 (5): 766-776. doi: 10.1111/puar.12765.
- Nabatchi, T., T. Steen, M. Sicilia, and D. Brand. 2016. "Understanding the diversity of coproduction: Introduction to the IJPA special issue." *International journal of public administration* 39 (13): 1001-1005. doi: 10.1080/01900692.2016.1177836.

OECD. (2018). Social Expenditure Database. Retrieved 21/03/2018, from

<http://www.oecd.org/social/expenditure.htm>

Oliver, R. L., and DeSarbo, W. S. 1988. „Response determinants in satisfaction judgments.”

Journal of consumer research, 14 (4): 495-507.

Osborne, S. P. 2018. “From public service-dominant logic to public service logic: are public

service organizations capable of co-production and value co-creation?.” *Public*

management review, 20 (2): 225-231. doi: 10.1080/14719037.2017.1350461.

Osborne, S. P., Radnor, Z., Kinder, T., and Vidal, I. 2015. “The SERVICE framework: A

public-service-dominant approach to sustainable public services.” *British journal of*

management, 26 (3): 424-438. doi: 10.1111/1467-8551.12094

Osborne, S. P., Radnor, Z., and Nasi, G. 2013. “A new theory for public service management?

Toward a (public) service-dominant approach.” *American review of public*

administration, 43 (2): 135-158. doi: 10.1177/0275074012466935.

Osborne, S. P., Z. Radnor, and K. Strokosch. 2016. “Co-production and the co-creation of

value in public services: a suitable case for treatment?” *Public management review*, 18

(5): 639-653. doi: 10.1080/14719037.2015.1111927.

Osborne, S. P., and Strokosch, K. 2013. “It takes Two to Tango? Understanding the C o-

production of Public Services by Integrating the Services Management and Public

Administration Perspectives.” *British journal of management*, 24: S31-S47. doi:

10.1111/1467-8551.12010.

Osborne, S. P., K. Strokosch, and Z. Radnor. 2018. “Co-production and the co-creation of

value in public services.” In *Co-production and co-creation: Engaging citizens in*

public services, edited by Brandsen, T., T. Steen, and B. Verschuere, 18-26.

Abingdon: Routledge. doi: 10.4324/9781315204956-3

- Pestoff, V. 2009. "Towards a paradigm of democratic participation: citizen participation and co-production of personal social services in Sweden." *Annals of Public and Cooperative economics*, 80 (2): 197-224. doi: 10.1111/j.1467-8292.2009.00384.x.
- Pestoff, V. 2012. "Co-production and third sector social services in Europe: Some concepts and evidence." *Voluntas*, 23: 1102-1118. doi: 10.1007/s11266-012-9308-7.
- Pestoff, V. 2014. "Collective action and the sustainability of co-production." *Public Management Review* 16: 383-401. doi: 10.1080/14719037.2013.841460.
- Pestoff, V. 2018. "Co-production at the crossroads of public administration regimes." In *Co-production and co-creation: Engaging citizens in public services*, edited by Brandsen, T., T. Steen, and B. Verschuere, 27-36. Abingdon: Routledge. doi: 10.4324/9781315204956-4.
- Pestoff, V., S. P. Osborne, and T. Brandsen. 2006. „Patterns of co-production in public services: Some concluding thoughts." *Public management review* 8 (4): 591-595. doi: 10.1080/14719030601022999.
- Poocharoen, O. O., and Ting, B. 2015. "Collaboration, co-production, networks: Convergence of theories." *Public management review*, 17 (4), 587-614.
- Prentice, C. R. 2015. "Why so many measures of nonprofit financial performance? Analyzing and improving the use of financial measures in nonprofit research." *Nonprofit and voluntary sector quarterly* 45: 715-740. doi: 10.1177/0899764015595722.
- Risman, K. L., R. J. Erickson, and J. M. Diefendorff. 2016. The impact of person-organization fit on nurse job satisfaction and patient care quality. *Applied nursing research* 31: 121-125. doi: 10.1016/j.apnr.2016.01.007.
- Schober, P. S., and C. K. Spiess. 2015. „Local day-care quality and maternal employment: Evidence from East and West Germany." *Journal of marriage and family* 77 (3): 712-729. doi: 10.1111/jomf.12180.

- Seemann, A. K., F. Dreves, C. Gebele D. K. Tscheulin. 2015. „Are religiously affiliated hospitals more than just nonprofits? A study on stereotypical patient perceptions and preferences.” *Journal of religion and health* 54 (3):1027-1039. doi: 10.1007/s10943-014-9880-9.
- Shay, L. A., and J. E. Lafata. 2015. “Where is the evidence? A systematic review of shared decision making and patient outcomes.” *Medical decision making* 35 (1): 114-131. doi: 10.1177/0272989x14551638.
- Smith, L. J., and M. L. Friedman. 1994. “Measuring satisfaction with services when the customer is not the consumer: The child care service example.” *Journal of nonprofit & public sector marketing* 2: 9-28. doi: 10.1300/j054v02n01_03.
- Surva, L., Tõnurist, P., and Lember, V. 2016. “Co-production in a network setting: providing an alternative to the national probation service.” *International journal of public administration*, 39 (13), 1031-1043. doi: 10.1080/01900692.2016.1193752.
- Tepeci, M., and A. B. Bartlett. 2002. “The hospitality industry culture profile: a measure of individual values, organizational culture, and person-organization fit as predictors of job satisfaction and behavioral intentions.” *International journal of hospitality management* 21: 151-170. doi: 10.1016/s0278-4319(01)00035-4.
- Vamstad, J. 2012. “Co-production and service quality: The case of cooperative childcare in Sweden.” *Voluntas* 23: 1173–1188. doi: 10.1007/s11266-012-9312-y.
- Van Puyvelde, S., R. Caers, C. Du Bois, and M. Jegers. 2012. “The governance of nonprofit organizations: Integrating agency theory with stakeholder and stewardship theories.” *Nonprofit and Voluntary Sector Quarterly* 41: 431-451. doi: 10.1177/0899764011409757.
- Vargo, S. L., and Lusch, R. F. 2008. “Service-dominant logic: continuing the evolution.” *Journal of the Academy of marketing science*, 36(1), 1-10. doi: 10.1007/s11747-007-0069-6

- Vidal, I. 2006. "Reflections on the market, networking and trust." *Public Management Review* 8 (4): 583-589. doi: 10.1080/14719030601022973.
- Voorberg, W. H., V. J. Bekkers, and L. G. Tummers. 2015. „A systematic review of co-creation and co-production: Embarking on the social innovation journey." *Public management review* 17: 1333-1357. doi: 10.1080/14719037.2014.930505.
- Wicker, P., and C. Breuer. 2011. "Scarcity of resources in German non-profit sport clubs. *Sport management review*" 14 (2): 188-201. doi:10.1016/j.smr.2010.09.001.
- Williams, B. N., Kang, S. C., and Johnson, J. 2016. "(Co)-Contamination as the Dark Side of Co-Production: Public value failures in co-production processes." *Public management review*, 18 (5), 692-717.
- Yaniv, E., and F. Farkas. 2005. "The impact of person-organization fit on the corporate brand perception of employees and of customers." *Journal of change management* 5: 447-461. doi: 10.1080/14697010500372600.

Appendix A: Question Items

Economic Co-Production:

- ... volunteering as a cleaning person.
- ... as a craftsman.
- ... as an accounting clerk.
- ... donation of toys.
- ... monetary donations.
- ... helping with the care of the children.

Social Co-Production:

- ... helping with the planning and holding of celebrations (e.g., Christmas party or Saint Martin's move).
- ... donating, for example, cakes and drinks as well as money for the organization and holding of events.
- ... helping to organize and conduct open house days and other events.

Political Co-Production:

- Parents in our daycare center can advise on meetings with the sponsor/management with being able to influence the decisions directly.
- ... without being able to influence the decisions directly.
- The sponsor/management of the daycare actively consults the parents to find out what their wishes and needs are.
- Parents can send in written suggestions for improvement, and the sponsor/management will consider these suggestions.
- ... always express themselves on important issues and issues in informal conversations (e.g., while picking up children) and these comments are taken into account by the institution/management.

Level of Information:

- I am always well informed about what is going on in the daycare.
- The daycare always gives me the information that is important to me.
- Before changes or important decisions are made, parents are always well informed.

Person-Organization Fit

- My values and goals are similar to the values and goals of the daycare of my child.
- I cannot get used to the organizational culture of the daycare. (-)
- I feel a sense of belonging to this institution.
- The things the daycare stands for are also important to me as a parent.

Structural Quality:

- How satisfied are you with the facility's buildings.
- ... furniture and movables.
- ... rooms for playing and learning.
- ... rooms for sleeping and relaxing.
- ... possibilities to romp and for sports.
- ... equipment with books and other media.

Satisfaction:

- How satisfied are you with the daycare of your child?
- To what extent does your child's daycare meet your expectations?
- How close is the daycare of your child to the performance or quality of an ideal daycare facility?

Appendix B: Significant Effects of the Covariates on the Model Components

| | | Path | P Values |
|-------------------------------------|---|-------|----------|
| Effects of Parent Characteristics | 31-40 years → Quality | 0.14 | 0.01 |
| | 41 years or older → Quality | 0.12 | 0.03 |
| | Collage education → Satisfaction | | |
| | East Germany → Information | 0.06 | 0.01 |
| | East Germany → Quality | -0.06 | 0.03 |
| | High school diploma → Satisfaction | -0.12 | 0.00 |
| | Non-denominational state → Quality | -0.09 | 0.00 |
| | Male → Person-organization Fit | 0.07 | 0.04 |
| | Parents council membership → PO | 0.07 | 0.01 |
| Effects of Facility Characteristics | Parent initiative → Information | -0.09 | 0.02 |
| | Religious nonprofit status → Satisfaction | 0.05 | 0.08 |
| | Migration background (< 10 %) → Quality | 0.28 | 0.00 |
| | Migration background (< 10 %) → Satisfaction | 0.16 | 0.00 |
| | Satisfaction with teacher-child ratio → Information | 0.33 | 0.00 |
| | Satisfaction with teacher-child ratio → Person-organization Fit | 0.14 | 0.00 |
| | Satisfaction with teacher-child ratio → Quality | 0.07 | 0.03 |
| | Satisfaction with teacher-child ratio → Satisfaction | 0.06 | 0.04 |

Notes. Due to space limitations, the figure only reports significant effects. Satisfaction with teacher-child ratio is operationalized as a 7-point Likert scale. All other variables are binominal or multi-nominal variables and are operationalized as dummy variables.