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RESEARCH

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# Socioeconomic and attitudinal differences between service users of private and public early childhood education and care in the Finnish context

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## Abstract

The marketisation and privatisation of welfare services such as early childhood education and care (ECEC) have been a global trend in recent decades. Earlier research suggests that market-based ECEC provision often leads to inequalities and stratification of service users. In Finland, as in other Nordic countries where provision of ECEC has traditionally been a public responsibility, ECEC services have also been undergoing marketisation and privatisation. Until now, especially in Finland, little has been known about service users of public and private ECEC or parental decisions between public and private ECEC. This study addresses that gap by showing that the clientele of private and public ECEC differ in their socioeconomic attitudinal characteristics. It appears that the combination of marketisation and privatisation of ECEC extends processes of educational and social distinction into the early childhood.

**Keywords:** Early childhood education and care, Privatisation, Marketisation, Selectivity, Choice, Stratification

## Introduction

Issues related to parental decisions between public and private schools in different education policy contexts are a subject of wide academic interest (e.g. Ball et al., 1996; Benson et al., 2014; Goldring & Phillips, 2008; Holmes Erikson, 2017; Morris & Perry, 2019). Research findings underline the importance of family socioeconomic status (SES) and class position in such decisions. However, although there seems to be an emerging interest in families' choices between public and private services in early childhood education and care (ECEC) (e.g. Garvis & Lunneblad, 2018; Ghosh & Dey, 2020; Kampichler et al., 2018; Karlsson et al., 2013; Vamstad, 2016), the topic has been still scarcely investigated. This article addresses this research gap by investigating the selection of private versus public ECEC in the Finnish context.

There is an abundance of research examining how various family characteristics, such as SES or ethnicity (e.g. Coley et al., 2014; Grogan, 2012; Petitclerc et al., 2017; Sibley

et al., 2015) and ECEC policies and systems (e.g. Meyer & Jordan, 2006; Pavolini & Van Lancker, 2018; Sylva et al., 2007; Van Lancker & Ghysels, 2016) are related to parents' childcare decisions and children's ECEC attendance. Moreover, due to the emphasis placed on the beneficial impact of high-quality ECEC for children's learning and development (van Huizen & Plantenga, 2018), there is a growing body of research studying inequalities in the use of high-quality ECEC (Becker & Schober, 2017; Cloney et al., 2016; Grogan, 2012; Mierendorff et al., 2018; Stahl et al., 2018). Previous research suggests that national ECEC policies, regarding for example public supply, universal entitlement and low costs for low-income families, have the potential to reduce inequalities in ECEC participation (Meyers & Gornik, 2003; Petclerc et al., 2017; Van Lancer, W. 2018; Van Lancker & Ghysels, 2016). Although ECEC participation appears somewhat stratified also in the Nordic context (see Sibley et al., 2015; Krapf, 2014), Nordic countries are often considered textbook examples of universalistic welfare policies that make ECEC services accessible for children from all backgrounds. In comparison to European parents, on average Nordic parents also perceive ECEC services to be more accessible (Ünver et al., 2018).

In recent decades, Nordic ECEC systems have undergone relatively intense marketisation and privatisation development (Dýrfjörð & Magnúsdóttir, 2016; Haugh, 2014; Mahon et al., 2012; Ruutiainen et al., 2020; Westberg & Larsson, 2020). In this study, the marketisation refers to promotion of parental choice and competition between different service providers, and privatisation means increasing involvement of private sector in service provision (Anttonen & Meagher, 2013; Hansen & Lindholm, 2016; van Der Werf et al., 2021). Even though marketisation and privatisation have taken many different forms in the Nordic contexts (see Trætteberg et al., 2021), generally said, they have rather shaped the existing ECEC systems than replaced one paradigm (universalism) with another one (market logic) (Naumann, 2011; Ruutiainen et al., 2020; Westberg & Larsson, 2020). For example, in Finland (Ruutiainen et al., 2020) and in Sweden (Westberg & Larsson, 2020), marketisation and privatisation have entailed the increase of private for-profit ECEC provision and policy measures that have sought to increase parental choice. However, the ideal of universalism is still manifest in the mainly publicly provided ECEC services, children's legal entitlement to ECEC and generous demand-side subsidies granted by municipalities to cover the costs of private ECEC services. Moreover, the same legislation, structural quality standards and curriculum framework apply to both, public and private providers, which aims to harmonise the quality of both sectors.<sup>1</sup>

Even though private ECEC seems to have increased under the umbrella of universalistic ideals in Finland, it has been suggested that service users of public and private ECEC could become differentiated based on their social and educational backgrounds (Ruutiainen et al., 2021). This study extends the current understanding of how parental ECEC decisions may be shaped by national and municipal policies, and by family and

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<sup>1</sup> To date, there has not been academic research that would have compared actual quality differences between public and private services in Finland extensively. However, there has been some reports and public conversation that indicate that at least some private services have difficulties in producing high-quality ECEC (HS, 21.1.2019; IS, 7.2.2019; MOT, 20.6.2022; Riitakorpi et al., 2017). Moreover, there is a great shortage of ECEC teachers, especially in the capital region which has raised conversation about the quality of public ECEC as well.

parental characteristics, through examining the potential differentiation of public and private centre-based ECEC users in Finland. The study investigates whether family SES or parental attitudes are associated with the use of public or private centre-based ECEC. The impact of national and local policies is addressed by considering subsidies for private ECEC use in the research design.

### **Parental ECEC decisions as accommodations**

Parental ECEC decisions, and thus the potential differentiation of private and public ECEC users, reflect many contextual factors. Therefore, such decisions may be better understood as accommodations to prevailing contextual conditions than as free choices (Meyers & Jordan, 2006). Research has suggested that parental decisions are shaped by: local ECEC policies and employment opportunities; the availability, affordability and accessibility of ECEC services; parental beliefs, attitudes and demographic characteristics; child-related factors; and the financial and other resources available (e.g. Archambault et al., 2020; Coley et al., 2014; Ghos & Dey, 2020; Sylva et al., 2007; Vandenberg & Lazzari, 2014; Vandenberg et al., 2008). The interest of this study is especially in the role of families' SES and parental attitudes in parents' ECEC decisions. Moreover, other factors theoretically related to the decisions, namely the subsidy model used, parents' countries of birth, the need for flexibly scheduled ECEC and the amount of ECEC received, are considered in the research design.

### **Availability and accessibility of services**

The prerequisite of choice between public and private ECEC services is that both services are available (Karlsson et al., 2013). In Finland, around 18% of ECEC services are privately provided (FIFHAW, 2020; FEED, 2019), but private services are unequally distributed. While in some municipalities, approximately 40–50% of ECEC is privately provided and at least one small municipality has outsourced its whole ECEC provision to private service provider, in almost half of Finland's municipalities, private services are not available (Lahtinen & Svartsjö, 2020). Private services are available especially in larger urban municipalities which have decided to support private provision. Mostly, these services are centre-based, although there is also some private family day care. Providers of private centre-based ECEC vary from small local entrepreneurs and non-profit providers to larger non-profit organisations and for-profit chains (see FEED, 2020). The present study considers the responses of informants who lived in municipalities where, at the minimum, one private ECEC centre was located, to ensure that the informants had at least a theoretical option to choose a private ECEC centre.

Previous research suggests that in highly privatised and marketised ECEC systems, availability of services is poorer in neighbourhoods of lower socioeconomic status than in better off neighbourhoods (Cloney, 2016; Noailly & Visser, 2009; Penn, 2011). In more deprived areas, ECEC provision is mainly a public responsibility (Brennan, 2016). In Finland, the only study (not peer reviewed) that has compared locations of ECEC centres observed no differences in average household income between the neighbourhoods of public and private ECEC centres (Ruutiainen, 2018). Moreover, Finnish parents using private ECEC may be somewhat more willing to manage longer transportation distances than parents who use public ECEC (Sulkanen et al., 2020, see also Kosunen, 2014). In the

USA, especially middle-income parents have shown preference for childcare characteristics other than convenient transfer distance (Kensinger Rose & Elicker, 2008). Thus, it might be expected that the possible differentiation of service users cannot be explained only by the nearby availability of private ECEC.

### **Affordability of services**

The affordability of ECEC services understandably determine their accessibility, especially for low-income families (Archambault et al., 2020; Meyers & Gornick, 2003; van Lancker & Ghysels, 2016; West, 2006). This is because low-income families' ECEC decisions and participation in general are restricted by prices (Early & Burchinal, 2001; Japel & Friendly, 2018). This association remains statistically significant after controlling for mothers' employment situation and parents' nationalities, which might reflect cultural values concerning ECEC (Abrassart & Bonoli, 2015). Where public and private options are available, low-income families tend to more often select public ECEC (Ghosh & Dey, 2020; West, 2006) or schools (Bosetti, 2004) where tuition is lower than in the private settings. In Germany, there is a strong positive association between the customer fees set by individual providers and the SES of their clientele, which increases the stratification of ECEC service users (Mierendorf et al., 2018). In countries where universal ECEC provision and income-tested customer fees are available, household income has less impact (Petitclerc et. al, 2017; Stewart et al., 2014).

In Finland, municipalities have a legal obligation to provide ECEC services for local families. Fees for public ECEC are income tested, ranging from 0 to 290 euros per month (Act on ECEC Fees, 2016). The public sector also grants demand-side subsidies for families using private ECEC services. Private day care allowance (PDA) is available for all families using private childcare or ECEC services, and its value varies between 174 and 320€, depending on household income. On top of the PDA, around 36% of municipalities pay a municipal supplement (MS), which is usually a flat rate or partially income tested. Moreover, roughly 36% of municipalities grant income-tested vouchers for purchasing private ECEC (Lahtinen & Svatsjö, 2020). The use of vouchers (12.2% of children attending ECEC at 2019) has increased over the last decade, and the use of the PDA (6% in 2019) has decreased, respectively (FEEC, 2019)<sup>2,3</sup> The main difference between the two-subsidy systems relates to the fees that are left for parents to pay. Especially with income-tested vouchers, customer fees in the private sector are relatively close to those in the public sector. The less flexible PDA (+ potential MS) system, on the other hand, entails that the customer fee in the private sector is about the same for every family. It is notable that the legislation that set a maximum fees in the public services does not apply to private services, who are allowed to charge extra (Laiho & Pihlaja, 2022). Some municipalities have, however, limited the extra fees the private providers are allowed to charge by their local voucher contracts. Previous research indicates that between 1997 and 2009, the PDA was mainly used by higher SES families (Räsänen & Österbacka, 2019). In contrast, another Finnish study did not find any association between family's

<sup>2</sup> Municipalities can purchase ECEC services straight from the private sector. Purchased services are, however, left out of this examination, because they do not promote parental choice in the same way as demand-side subsidies.

<sup>3</sup> After 2019, the share of vouchers has been increasing and the share of PDA decreasing (FIFHAW, 2022).

income level and their ECEC decision (Pihlaja & Warinowski, 2018). A Swiss study, in turn, showed that income-testing of customer fees is positively associated with the ECEC participation of low-income children (Abrassart & Bonoli, 2015). Therefore, it may be assumed that income-tested vouchers allow families in diverse financial situations to select private ECEC, whereas the less flexible PDA system might favour families who would anyway have to pay the maximum fee in the public sector.

### **Family socioeconomic status**

A large body of research has used family SES characteristics as independent variables when examining parental ECEC or school decisions (e.g. Petitclerc et al., 2017; Ball et al., 1996; Vincent & Ball, 2006; Sibley et al., 2015; Bosetti, 2004; Grogan, 2012; Vandebroeck et al., 2008; Coley et al., 2014). Usually, SES is measured by household income and parental education level. In this study, the same measures are used. As described, household income level is related to the affordability of ECEC services, especially if customer fees are high. In Finland, there is no research on private providers' customer fees. However, it can be stated that the customer fees of services that accept vouchers are often a little higher than those in public services, and the customer fees of services that accept the PDA are often a higher again (see Ruutiainen et al., 2020, 2021).

In addition to SES, as Bourdieu-oriented research suggests, parental education level also indicates their class position and available cultural and social resources (see Jæger & Karlson, 2018; Xie & Ma, 2019). It is well documented that parents make use of such resources when making decisions about their children's education (Ball et al., 1996; Benson et al., 2014; Goldring & Phillips, 2008; Kampichler et al., 2018; Kosunen & Carasco, 2014, 2016; Kosunen & Rivière, 2018). Middle-class (high SES) parents' valuations, tastes and ability to distinguish differences between different settings tend to differ from those of working-class parents, and they are therefore more likely to engage in choice-making in ECEC markets (Vincent & Ball, 2006). Highly educated middle-class parents orient deliberately to ECEC choice in ECEC markets and invest cultural and financial resources in finding ECEC solutions beyond the mainstream that are ideal from the perspective of children's individual development. Working-class parents with lower education, on the other hand, appear to be less selective in their choices and search for ECEC from within mainstream solutions primarily on the basis of tangible criteria (Kampichler et al., 2018). Thus, in addition to the observation that highly educated parents are more likely to consider quality in their ECEC decisions (Grogan, 2012; Johansen et al., 1996), their perceptions of ECEC quality appear to differ as well (Kampichler et al., 2018) and they rationalise the importance of ECEC for children in different ways (Kampichler, 2021). In public-private decisions in the Indian context, this becomes visible in the way that highly educated, educationally aspirant parents prefer private preschools, which they believe better prepare their children for school (Ghosh & Dey, 2020). Earlier research in the Finnish context, however, indicated that parental education level was not related to their ECEC decision (Pihlaja & Warinowski, 2018). Moreover, ECEC providers' access policies can favour the children of highly educated parents, as examples from Belgium (Vandebroeck et al., 2008) and Netherlands (van Der Werf et al., 2021) suggest.

Also in a school context, highly educated middle-class parents appear to actively seek school options and eventually select private options (Ball et al., 1996; Bosetti, 2004). Especially middle-class parents appear to prefer schools with class and ethnicity compositions similar to their own (Benson et al., 2014; Rønning Haugen, 2020). The same kind of social segregation is also observed in the ECEC context (Becker & Schober, 2017). Even in Sweden, where customer fees and the quality of private services are regulated, higher educated parents appear to choose private ECEC more often (Garvis & Lunneblad, 2018; Vamstad, 2007).

### **Attitudes and beliefs**

Parental attitudes and beliefs appear to be one component shaping their ECEC decisions (Sylva et al., 2007). Parents with progressive beliefs about childrearing—who favour self-directed child behaviour—consider quality and practical aspects in their ECEC decisions more than parents with traditional childrearing beliefs that emphasise adult directives. This relationship seems, however, to be moderated by family SES, since it is observed only among low-income parents (Grogan, 2012). Moreover, parents with a child-centred orientation appreciate safe and well-supervised environments, children’s autonomy and self-sufficiency. Parents with a school readiness orientation, in turn, value ECEC’s contribution to children’s learning skills and social relationships with peers and teachers (Gamble et al., 2009).

Support for public ECEC provision has been shown to be especially strong among working mothers and lower SES parents. Moreover, national ECEC policies correlate with parental attitudes towards public ECEC provision: the larger and the more positively assessed current public childcare provision is, the more it is supported (Chung & Meuleman, 2017). Those parents whose children are in state schools and those with lower SES are less willing to exercise school choice. This has been suggested to stem from their attitudes, namely, belief in the value of public education and the idea that every school should be able to accommodate the learning needs of every child (Bosetti, 2004).

Earlier research indicates that Finnish parents of under one-year-old children trust more in public ECEC than in private ECEC. Parents also perceived the quality and competence of the staff to be slightly higher in public services than in private services (Pihlaja & Warinowski, 2018). Moreover, parents who use private ECEC reason their choice differently than parents whose use public ECEC. The former emphasise the specialisation and values of ECEC, diverse pedagogical activities, home-likeness, and group size. The latter more often value flexible opening hours and suitable location (Sulkanen et al., 2020). This indicates differing attitudes and orientations towards the role of ECEC among public and private service users. However, it is not known whether these attitudes, beliefs and orientations vary according to family SES. Therefore, in this study, possible interrelationships between parental attitudes, the ECEC provider and family SES are examined.

### **Other factors**

Finally, previous research has suggested other potentially differentiating factors regarding the use of private ECEC. Ruutiainen et al.’s (2021) interview study with Finnish

private ECEC providers suggests that children with immigrant backgrounds may be underrepresented within private services. This observation is supported by research conducted in other contexts (Abrassart & Bonoli, 2015; Vandenbroeck & Lazzari, 2014; Schober & Spiess, 2013; Scholz, Erhard, Hahn & Harring, 2018; van der Werf et al., 2020). The study also suggests that hours of ECEC used per week and the need for flexibly scheduled ECEC are factors in private providers' customer selection (Ruutiainen et al., 2021). Therefore, immigrant background, the child's weekly attendance hours in ECEC and the need for flexibly scheduled ECEC are controlled for in the present study.

### Research questions

The aim of this study is to investigate whether the service users of public and differently subsidised private ECEC services differ in their socioeconomic and attitudinal characteristics. Figure 1 illustrates the conceptual model of the research. The research questions (RQs) are as follows:

RQ1: How do service users of public ECEC and service users of private ECEC, provided with vouchers or private day care allowance, differ in their socioeconomic background?

RQ2: How do the attitudes of service users of public ECEC and service users of private ECEC, provided with vouchers or private day care allowance, towards ECEC and its provision differ?

RQ3: Does the linkage between the ECEC provider (public or private) and parental attitudes vary according to family SES?

## Method

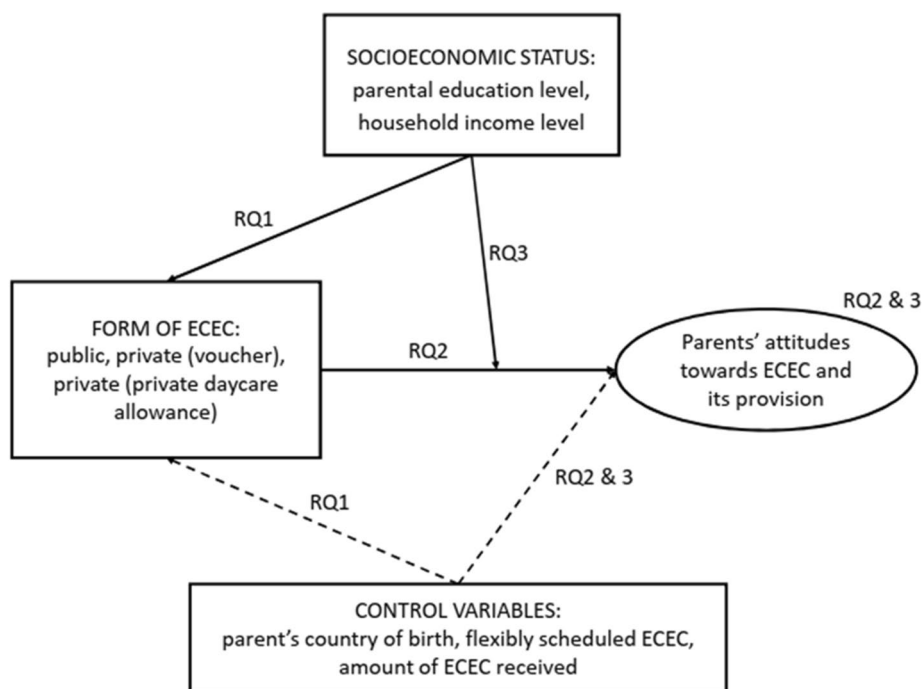
### Data collection and participants

The present study utilises cross-sectional survey data collected for the CHILDCARE research project in 2019. The project is a collaborative effort between the Universities of Jyväskylä and Tampere, and the National Institute of Health and Welfare, and it has been financed by the Strategic Research Council Program, 'Equality in Society' (2015–2021) at the Academy of Finland (SA 293049 and SA 314317). The Ethical Committee of the University of Jyväskylä has approved the research protocol.

The survey was sent to 7764 parents of 4081 children living in 13 Finnish municipalities.<sup>4</sup> The parents all had a child who was born between 1 October 2014 and 30 September 2015. At the time of the survey, the focal children were approximately 4 years old. Altogether 1871 parents (response rate 24%) of 1458 children (35.7%) participated in the survey. In this research, only the responses of those parents whose four-year-old child was in public or private ECEC centre were used, which meant 1416 parents of 1109 children. For 307 of these children, both parents had responded. Examination of

<sup>4</sup> The survey was a follow-up study for the majority of the parents. The first wave of data collection was conducted in 2016 in 10 of the 13 municipalities included in the present data collection. Because many families had moved since the first data collection, there were respondents from 71 Finnish municipalities.





**Fig. 1** The conceptual model of the research. Continuous arrows refer to actual research questions (RQ) and dashed arrows refer to variables to be controlled for

the data’s representativeness based on the Chi-square goodness-of-fit test<sup>5</sup> showed that mothers, highly educated parents, employed parents, upper white-collar employees and managers, lower-income households and families living in the capital area were overrepresented among the participants ( $p < 0.001$ ). Moreover, as seen in Table 1, families whose child was in public ECEC and families that received vouchers were slightly underrepresented, whereas families receiving the PDA were overrepresented ( $p < 0.001$ ) (see FEEC, 2019).

**Measures and variables**

The *form of ECEC* was investigated by asking ‘what childcare or early childhood education arrangements do you have in place for your 4-year-old?’ The respondent was asked to choose from 13 options including ‘municipal day care centre’ and ‘private day care centre’. Moreover, parents were asked to choose between nine options concerning which childcare subsidies they received. The options included service vouchers and PDA. The form of ECEC was coded into three categories: 1 = public ECEC, 2 = private ECEC + voucher and 3 = private ECEC + PDA.

*Family socioeconomic status* was measured by *parental education level* and *household income level*. *Parental education level* was measured by asking for the respondent’s highest level of education (1 = no vocational education, 2 = vocational course or equivalent, 3 = vocational school or other vocational qualification, 4 = post-secondary

<sup>5</sup> Because there are no statistics available for Finnish parents whose child participates in ECEC, the research data is compared to Finnish parents who have a 4-year-old child.

**Table 1** Shares of different forms of ECEC in the research data and Finland

Form of ECEC	Research data (%)	Finland (%)
Public	79.4	81.1
Voucher	10.7	12.2
PDA	9.9	6.0

non-higher vocational qualification, 5=lower university of applied sciences degree, 6=higher university of applied sciences degree, 7=lower university degree, 8=higher university degree university degree). The classification of educational levels was based on *International Standard Classification of Education (ISCED, 2011)* so that it considers the Finnish education system. The responses were categorised into a dummy variable: 0=primary/secondary education (options 1–4) and 1=tertiary education (options 5–8).

*Household income level* was measured by asking for the household's net income per month using 12 response options: 1=less than 500€, 2=500–1000€ to 11=7000–8000€, 12=more than 8000€. To increase the families' comparability, the income level is reported as equivalent income, which takes into account family composition (SF, 2021). The middle point of the income range was used in the calculation. Households were grouped into three income categories: low income, middle income and high income. A dummy variable was formed from each category (e.g. low income: 0=no, 1=yes). The high-income group served as a reference group. Following EUROSTAT (2021a), the low-income threshold was set at 60 (14 970€ per year in 2018) per cent of median equalised disposable income (24 950€ per year) (see SF, 2020). For defining high-income households, there is no established threshold (Atkinson & Brandolini, 2013). However, EUROSTAT (2021b) has used thresholds of 130, 140, 150 and 160 per cent of median equalised disposable income. Of those, the 140 per cent (24 950€ per year) threshold was used in this study.<sup>6</sup>

*Parents' attitudes towards ECEC* were investigated through 16 items. The respondents were explicitly asked to answer on the basis of their general perceptions about ECEC. Eight of these assessed attitudes towards public and private service provision and the chargeability of ECEC, while eight concerned ECEC quality (see Table 2). Parents' perceptions about the quality of ECEC (in general) are indicated by items that reflect the themes that have been debated in the public discussion in Finland. Finnish parents have also taken part to this debate. The items include statements about the ECEC's ability to guarantee child's safety and emotional well-being, and ECEC's educational potential as well as aspects related to adequacy and qualifications of personnel. The response scale for all items was 1=strongly disagree ... 5=strongly agree.

The *control variables* included the parent's country of birth (0=Finland, 1=other), the amount of ECEC received (0=0–27 h per week, 1=over 27 h per week), flexibly scheduled ECEC (i.e. a need for ECEC at evenings, overnight and/or at weekends, where 0=no and 1=yes).

<sup>6</sup> The results' sensitivity to different threshold values (130% and 150%) is discussed in the conclusion. EUROSTAT defines low-income and high-income thresholds in different articles. Therefore, we combine information from EUROSTAT (2021a) and EUROSTAT (2021b).

**Table 2** Descriptive statistics

Variables	%	M (SD)
The form of child's ECEC		
Public ECEC centre	79.4	–
Private ECEC centre + voucher	10.7	–
Private ECEC centre + private day care allowance	9.9	–
Parental education level		
Primary or secondary education	24.3	–
Higher education	75.7	–
Household income level		
Low	19.6	–
Middle	61.1	–
High	19.3	–
Parents' attitudes related to public and private ECEC provision and the chargeability of ECEC		
1.1. My municipality offers a sufficient choice of day care services (e.g. provision at municipal and private day care centres and family day care)	–	3.75 (1.18)
1.2. Municipal ECEC is of higher quality than private provision	–	3.05 (0.95)
1.3. Private ECEC services should be more readily available	–	2.82 (0.93)
1.4. Private ECEC offers a more diverse range of activities than municipal	–	2.68 (0.92)
1.5. Municipalities should invest more in municipal ECEC provision than in subsidising private service	–	3.68 (0.96)
1.6. Municipal ECEC providers are better in meeting children's special needs than private providers	–	3.16 (0.86)
1.7. ECEC should be free of charge for all children	–	3.16 (1.35)
1.8. ECEC should be free for 5-year-old children	–	3.63 (1.19)
Parents' attitudes related to the quality of ECEC		
2.1. Children do not receive sufficient individual attention in ECEC	–	2.57 (0.96)
2.2. The child's need for support is adequately considered in ECEC	–	3.73 (0.71)
2.3. Day care group sizes are too large	–	3.94 (0.92)
2.4. ECEC provides the stimulation that children need	–	4.12 (0.63)
2.5. ECEC is unable to secure lasting relationships	–	2.72 (0.97)
2.6. Children learn necessary social skills in ECEC	–	4.43 (0.59)
2.7. High-quality ECEC requires highly trained personnel	–	3.82 (1.04)
2.8. Adults cannot spend enough time with children and/or listen to them in ECEC	–	3.23 (0.97)
Parent's country of birth (0 = Finland, 1 = other)	88.6, 11.4	–
The amount of ECEC received (0 = 0–27 h/week, 1 = over 27 h/week)	18.7, 81.3	–
Flexibly scheduled ECEC (0 = no, 1 = yes)	96.3, 3.7	–

Percentages (%) are presented for categorical variables and means (*M*), and standard deviations (*SD*) are presented for continuous variables. *N* = 1375–1416

### Data analysis

Analyses related to RQ1 were conducted with Stata 17. Missing data was imputed using a multiple imputation procedure with 20 imputations (Schlomer et al., 2010). Analyses related to RQs 2–3 were conducted with Mplus software (Muthén & Muthén, 2017). The full-information-maximum-likelihood (FIML) procedure was used to account for missing data (Enders, 2010). In all analyses, the hierarchical nature of the data (i.e. both parents had responded for 307 children) was considered by estimating unbiased standard errors.

Differences in the SES characteristics of service users of different ECEC forms (RQ1) were investigated via multinomial logistic regression analysis. The form of ECEC was used as a dependent variable. Each form was used as a reference category in turn.

Parental education level and household income level were independent variables. The parent's country of birth, amount of ECEC received and flexibly scheduled ECEC were controlled for. To examine relative over- or underrepresentation of a certain service user group between different ECEC forms, the group comparisons were first conducted via relative risk ratios (RRR) and their 95% confidence intervals (CI) (StataCorp, 2021). RRR values under 1 mean that the relative risk that serves as the numerator (e.g. the probability that a child of a low-educated parent is in public ECEC, divided by the corresponding probability for a child of a highly educated parent) is greater than the relative risk that serves as the denominator (e.g. the probability that a child of a low-educated parent is in private voucher subsidised ECEC, divided by the corresponding probability for a child of a highly educated parent). Using the examples in parenthesis, an RRR over 1 indicates that a relatively larger proportion of public ECEC service users are low educated, while a relatively larger proportion of voucher subsidised private ECEC users are highly educated. RRR values under 1 indicate the opposite. The RRR is statistically significant if its CI does not include value 1. The RRR allows for inducing the relative proportions of service users, but the measure of effect is misleading and difficult to interpret (see Niu, 2020; Breen et al., 2018). Therefore, as recommended (Niu, 2020), the effect sizes are presented as average marginal effects (AME) and their 95% CI. If the 95% CI does not include value 0, the result is considered to be statistically significant. For binary variables, AME measures the change in predicted probability when the value of the independent variable changes from 0 to 1. For categorical variables, the AME is relative to that variable's reference category (Breen et al., 2018; Niu, 2020). AMEs are presented as percentage points.

Analyses for RQs 2 and 3 were conducted within the exploratory structural equation (ESEM) framework (Asparouhov & Muthén, 2009; Marsh et al., 2009), as it can integrate the EFA measurement model (here, the attitude dimensions) within the traditional confirmatory factor analysis (CFA)/structural equation modelling (SEM) framework. This increases the validity of the results, as the associations of the measurement error-corrected latent variables of the parents' attitudes with the SES characteristics and ECEC form can be examined while controlling for the parent's country of birth, the amount of ECEC received and flexibly scheduled ECEC.

The overall goodness of fit of all models related to RQs 2–3 was evaluated with the  $\chi^2$  test, root mean square error of approximation (RMSEA), the Tucker–Lewis Index (TLI), the comparative fit index (CFI) and standardised root mean square residuals (SRMR). The  $\chi^2 p$  value should be greater than 0.05, whereas values smaller than 0.06 for RMSEA and 0.08 for the SRMR, and values higher than 0.90 for both the TLI and the CFI were considered representative of an acceptable fit (Hu & Bentler, 1999; Kline, 2016). Due to the large number of parameters estimated, TLI and RMSEA, which correct for parsimony, may be particularly important in ESEM (Marsh et al., 2009). However, since research regarding the adequacy of the above-mentioned criteria for ESEM is still lacking (Arens & Morin, 2016), in this study the criteria are used rather as a guide than as strict rules in model evaluation, as suggested in other ESEM studies as well (Arens & Morin, 2016; Marsh et al., 2009).

Prior to the main analyses related to RQ2, the structure of parents' attitudes was examined via exploratory factor analysis (EFA). Due to some skewness in the attitude

variables, the robust MLR estimator was used. Moreover, oblique rotation was chosen, because it allows the attitude dimensions to correlate. The dimensions of parents' attitudes were identified based on eigenvalues-over-one criterion (Kaiser, 1960), the interpretability of the solution (Gorsuch, 1983) and goodness-of-fit indexes. Furthermore, items that cross-loaded (i.e. loadings of 0.32 or higher; Tabachnik & Fidell, 2001) on two or more factors were excluded from the final solution. Finally, the reliability (Cronbach's alpha) for each dimension of the final factor structure was examined. The results are shown in Table 7.

Then, differences in attitudes towards ECEC's provision and quality across users of different ECEC forms (RQ2) were examined by comparing the means of the attitude dimensions across the three service user groups. The fit of the constrained model (i.e. the means of the attitude dimensions constrained to be equal across the service user groups) was compared to that of the model in which the means of the attitude dimensions were estimated freely across the groups using the  $\chi^2$  difference test (Satorra & Bentler, 2001). A statistically significant test result suggests that the free model fits the data better than the constrained model. Given that the  $\chi^2$  difference test is sensitive to large sample size ( $N=1416$  in our study) and non-normality of the variables, plus it does not accommodate the effects of model complexity, the free models always fit the data better than more constrained models. Therefore, we also inspected the changes in TLI (Marsh et al., 2009), CFI and RMSEA (Chen, 2007; Cheung & Rensvold, 2002). A change of  $-0.01$  or less in TLI (Marsh et al., 2009) and CFI (Cheung & Rensvold, 2002) and a change of  $+0.015$  or less in RMSEA (Chen, 2007) indicate reasonable support for the constrained model. Pairwise comparisons of the service user groups were conducted via Wald's  $\chi^2$  test (Muthén & Muthén, 2017). Prior to the mean comparisons, the measurement invariance of the structure of parents' attitudes across the forms of ECEC was investigated and found to be satisfactory (see Table 8; Marsh et al., 2009).

Interaction between the SES characteristics (analysed separately) and the form of ECEC on parents' attitudes (RQ3) was examined by following a similar procedure as for the analysis in RQ2 for mean comparisons. In both analyses, the attitude factors served as dependent variables, and they were regressed on the form of ECEC and the control variables. Differences in regression coefficients between the form of ECEC and the attitude factors were compared according to the SES characteristics. Furthermore, in the analysis including household income level, parental education was controlled for and vice versa.

## Results

### SES characteristics and the form of ECEC

Firstly, differences in the SES characteristics (education and income level) of users of different ECEC forms were examined, while controlling for the parent's country of birth, the amount of ECEC received and flexibly scheduled ECEC (Table 3).

The results based on relative risk ratios (RRR) in Table 3 show that compared to public ECEC, relatively higher proportions of users of private ECEC (vouchers or PDA) are highly educated. Public ECEC has a relatively higher proportion of service users with lower education. The users of the two forms of private ECEC do not differ based on education. Moreover, it was found that children from high-income households are

**Table 3** Relative risk ratios (RRR) between family SES characteristics, control variables and the form of child’s ECEC

	Private ECEC: voucher Public ECEC	Private ECEC: PDA	Private ECEC: PDA Private ECEC: voucher
	RRR [95% CI]	RRR [95% CI]	RRR [95% CI]
Socioeconomic characters			
Parental education level (0 = primary/secondary education, 1 = tertiary education)	<b>1.95 [1.18–3.21]</b>	<b>3.06 [1.61–5.84]</b>	1.57 [0.72–3.46]
Household income level			
Low income	1.10 [0.57–2.11]	<b>0.49 [0.25–0.95]</b>	0.45 [0.19–1.08]
Middle income	1.08 [0.65–1.78]	<b>0.57 [0.37–0.88]</b>	<b>0.53 [0.29–0.98]</b>
High income	Ref.	Ref.	Ref.
Control variables			
Parent’s country of birth (0 = Finland, 1 = other)	0.51 [0.22–1.19]	1.44 [0.82–2.54]	<b>2.84 [1.09–7.41]</b>
Amount of ECEC (0 = 1–27 h/ week, 1 = 28 h or more/week)	1.22 [0.72–2.09]	1.26 [0.68–2.32]	1.03 [0.48–2.21]
Flexibly scheduled ECEC (0 = no, 1 = yes)	0.18 [0.24–1.36]	0.21 [0.03–1.61]	1.18 [0.07–19.09]

Statistically significant results are bolded

**Table 4** Average marginal effects (AME) of family SES characteristics and control variables

	Private ECEC: voucher AME (%) [95% CI]	Private ECEC: PDA AME (%) [95% CI]	Public ECEC AME (%) [95% CI]
Socioeconomic characteristics			
Parental education level (0 = primary/secondary education, 1 = tertiary education)	<b>4.8 [1.1–8.4]</b>	<b>7.1 [3.8–10.4]</b>	<b>– 11.8 [– 16.5 – – 7.2]</b>
Household income level			
Low income	1.7 [– 4.4–7.7]	<b>– 6.8 [– 12.8 to – 0.8]</b>	5.1 [– 2.8–13.1]
Middle income	1.4 [– 3–5.8]	<b>– 5.7 [– 10.5 to – 0.9]</b>	4.3 [– 1.8–10.4%]
High income	Ref.	Ref.	Ref.
Control variables			
Parent’s country of birth (0 = Finland, 1 = other)	<b>– 5.4 [– 13.6 to – 0.6]</b>	4.4 [– 1.9–10.6]	1.1 [– 6.4–8.5]
Amount of ECEC (0 = 1–27 h/ week, 1 = 28 h or more/week)	1.5 [– 3–6.2]	1.7 [– 3.1–6.4]	– 3.2 [– 9.5–3]
Flexibly scheduled ECEC (0 = no, 1 = yes)	<b>– 8.5 [– 13.6 to – 3.4]</b>	<b>– 7.4 [– 12.9 to – 2]</b>	<b>15.9 [8.5–23.4]</b>

Statistically significant results are bolded

The result is statistically significant if CI does not include 0. Ref. = reference category

CI = 95% confidence interval

proportionally overrepresented in PDA subsidised private ECEC (henceforth PDA ECEC) compared to public ECEC, and children from low- and middle-income households are proportionally overrepresented in the public ECEC compared to PDA ECEC. It was also found that children from high-income households are proportionally overrepresented in PDA ECEC compared to voucher subsidised private ECEC (henceforth voucher ECEC), and children from middle-income families are proportionally

overrepresented in voucher ECEC compared to PDA ECEC. Comparisons with low-income households, however, fall just short of statistical significance. No income-based differences were found between service users of public ECEC and voucher ECEC.

The average marginal effects in Table 4 indicate that highly educated parents are more likely to select PDA ECEC than low-educated parents. Moreover, children in high-income households are more likely to participate in PDA ECEC than children living in low- or middle-income households. Household income level does affect the likelihood of using public or voucher centres.

#### **Parental attitudes towards ECEC and its provision by the form of ECEC**

Secondly, the attitudinal differences of parents using different forms of ECEC were examined. The items are shown in Table 2. First, the structure of parental attitudes towards ECEC and its provision was examined. As a result of EFA (Table 7), four attitude dimensions were formed. The first dimension expressing positive attitude towards municipal over private ECEC was named *Preference for municipal ECEC* (items 1.2–1.6 in Table 2). The second dimension, named *Cost-free ECEC*, expresses positive attitude towards cost-free ECEC (items 1.7, 1.8). The third dimension expresses a critical stance concerning the individual attention that children receive in ECEC, which was named *Individual attention* (items 2.1–2.3, 2.5, 2.8). The fourth dimension expresses ECEC's utility for individual children and thus was named *Individual utility* (items 2.4, 2.6). Measurement invariance of the structure of parents' attitudes across the service user groups was examined and found to be acceptable (Table 8).

The results (Table 5 upper part) show that most changes in fit indexes exceeded the cutoffs, meaning that evidence was found of attitudinal differences between service users of different ECEC forms. Pairwise comparisons (Table 6) found that parents whose children were in public ECEC had the most positive attitudes towards public ECEC provision, whereas parents whose children were in PDA ECEC were the least positive. Moreover, parents whose children were in PDA ECEC had more critical attitudes towards ECEC's (in general) ability to take every child individually into account than parents whose children were in public ECEC. The form of ECEC did not differentiate parents in terms of their attitudes towards the chargeability of ECEC or ECEC's utility for individual child.

#### **The role of SES characteristics in the linkage between form of ECEC and attitudes**

Thirdly, it was examined whether the relationship between the form of ECEC and parents' attitudes varies with family SES characteristics. The results presented in Table 5 favour the constrained model for both SES characteristics, suggesting that the relationship between the form of ECEC and attitudes towards ECEC and its provision did not vary with family SES characteristics. Hence, service users of different forms of ECEC appear to differ in their attitudes in the same way regardless of household income level or parental education level.

**Table 5** The attitudes of services users of different forms of ECEC: differences and interaction with SES

Estimated models	$\chi^2$ value	df	Scaling correction	$\chi^2$ difference test <sup>a</sup>	CFI	$\Delta$ CFI	TLI	$\Delta$ TLI	RMSEA (90% CI)	$\Delta$ RMSEA	SRMR	$\Delta$ SRMR
<i>RQ2: Mean differences across service users of different forms of ECEC</i>												
Equal means	1037.73	391	0.98		0.843		0.84		0.06 (0.056; 0.065)		0.103	
Freely estimated means	830.01	383	0.98	$\Delta\chi^2(8) = 174.16^{***}$	0.891	-0.048	0.887	-0.047	0.05 (0.046; 0.055)	0.01	0.079	0.024
<i>RQ3: Interaction with SES</i>												
<i>Household income level</i>												
Constrained model	889.74	497	1.07		0.905		0.9		0.042 (0.037; 0.046)		0.069	
Free model	834.71	449	1.08	$\Delta\chi^2(48) = 53.70^{n.s}$	0.907	-0.002	0.891	0.009	0.044 (0.039; 0.048)	-0.002	0.066	0.003
<i>Parental education level</i>												
Constrained model	600.77	299	1.13		0.922		0.909		0.039 (0.034; 0.043)		0.056	
Free model	591.13	275	1.12	$\Delta\chi^2(24) = 13.56^{n.s}$	0.918	0.004	0.896	0.013	0.041 (0.037; 0.046)	-0.002	0.056	0

<sup>a</sup> A reference model fits the data better if  $p < 0.05$ ;  $\Delta$  = change <sup>n.s.</sup>  $p > 0.05$ ; <sup>\*\*\*</sup>  $p < 0.001$



**Table 6** Differences in attitudes across different ECEC service user groups

Attitude dimensions	Compared groups	Wald test ( <i>df</i> = 1)	Group differences
Factor 1 Preference for municipal ECEC	PDA vs. public	<b>128.51<sup>b</sup></b>	Public > PDA
	voucher vs. public	<b>33.92<sup>b</sup></b>	Public > voucher
	voucher vs. PDA	<b>9.61<sup>a</sup></b>	Voucher > PDA
Factor 2 Cost-free ECEC	PDA vs. public	0.26	
	voucher vs. public	0.18	
	voucher vs. PDA	0.004	
Factor 3 Individual attention	PDA vs. public	<b>4.00<sup>a</sup></b>	PDA > public
	voucher vs. public	2.30	
	voucher vs. PDA	0.20	
Factor 4 Individual utility	PDA vs. public	0.34	
	voucher vs. public	0.14	
	voucher vs. PDA	0.69	

<sup>a</sup>  $p < 0.05$ <sup>b</sup>  $p < 0.001$ 

## Conclusions

This study examined the potential differentiation of private and public ECEC service users based on SES or attitudes concerning the quality and provision of ECEC in Finland. Moreover, the role of SES characteristics in the relationship between the form of ECEC and parental attitudes was examined. According to the results, the SES and attitudes of public and private ECEC service users differ, but the attitudinal differences do not relate to family SES.

According to the findings, when compared to public ECEC and, to a lesser extent, voucher ECEC, high-income households are overrepresented in the clientele of PDA ECEC. Therefore, this study suggests that income-tested customer fees and subsidies (public provision and vouchers) make public and private ECEC accessible also for low- and middle-income families. More inflexible subsidies (PDA) with unregulated customer fees appear to favour high-income families. The results are in line with previous research (e.g. Archambault et al., 2020; Japel & Friendly, 2018; van Lancker & Ghysels, 2016) indicating that the affordability of ECEC services plays an important role in how accessible they are for different families. The present results also support the view that the subsidy model is crucial in the affordability of services for families (Abrassart & Bonoli, 2015; Van Lancer W, 2018; Vandebroek & Lazzari, 2014).

In line with previous research (e.g. Garvis & Lunneblad, 2018; Ghosh & Dey, 2020; Kampichler et al., 2018; Vincent & ball, 2006), this study indicates that parents' decision between public and private services is related to parental education level. Those parents whose children are in private ECEC are more likely to be highly educated than those whose children participate in public ECEC. Earlier research suggests that highly educated parents choose ECEC deliberately, and their quality perceptions differ from those of less educated parents (Grogan, 2012; Kampichler et al., 2018; Vincent et al., 2008). Therefore, even though in Finland the public and private sectors are bound by the same quality standards and curriculum framework, it may be that highly educated parents view private and public ECEC differently (see also Vamstad, 2016). This conclusion is supported by previous research. Finnish parents with children in private ECEC

have been found to be more likely to explain their decision with reference to the content of ECEC than parents with children in public services, who give more value to practical reasons (Sulkanen et al., 2020). Furthermore, the parents of school-aged children in Finland consider the reputations of different schools and classes when contemplating their decisions; entering a 'selective space', however, (rather than the local space of school catchment areas) requires social, cultural and economic resources (Kosunen, 2014). In the context of different ECEC facilities these SES-related decisions have potential to create parallel worlds of ECEC where decisions of parents with higher SES and lots of available resources aim to increase children's future competitiveness or cultivate their individuality, whereas the rationalisations shaping the decisions pertaining children with lower socioeconomic background are more related to the adaptation into the society (Kampichler, 2021). However, more research on how parents with different SES make sense of different forms of public and private ECEC, as well as the kind of 'hot knowledge' involved in constructing the reputation of different ECEC settings (see Vincent et al., 2008) in the Finnish, and more generally in the Nordic, context where the policies, on the one hand, support increasing private provision and, on the other hand, aim to harmonise the quality and content of ECEC between both public and private sectors, is needed.

Previous research suggests that parents' SES shapes their attitudes and beliefs, which, in turn, relate to their ECEC decisions (Bosetti, 2004; Grogan, 2012). We found four dimensions of parental attitudes towards the quality of ECEC and its provision in general: *Preference for municipal ECEC*, *Cost-free ECEC*, *Individual attention* and *Individual utility*. Parents whose children were in private ECEC showed less preference for municipal ECEC provision (i.e. more preference for private). Moreover, compared to parents using public services, parents receiving PDA had more critical attitudes towards the ability of ECEC (in general) to take children individually into account. Hence, this study supports previous research insofar that parental attitudes are related to the form of ECEC used. However, these differences did not vary by family SES. Due to the cross-sectional design of this study (see the limitations section below), the implications of this finding are only speculative. In general, service users of private provision may have less preference for municipal ECEC provision because they are satisfied with the ECEC they receive in the private sector, as suggested by earlier research (Saranko et al., 2021). Moreover, it is possible that PDA and voucher systems create qualitatively different kinds of ECEC markets. In addition to legislative regulation, municipalities obligate private voucher subsidised providers to follow the terms of local voucher contracts. With PDA systems there are no such contracts (see Lahtinen & Svartsjö, 2020), suggesting that a PDA system allows more diverse service provision than voucher systems. This speculative view is supported by earlier qualitative studies (Ruutiainen et al., 2020, 2021) indicating that Finnish municipal decision makers and private ECEC providers position voucher subsidised private ECEC as a part of the public service network and PDA ECEC as a separate sector complementing public provision. Moreover, it appears that large, more standardised ECEC chains provide services, especially in municipalities that grant vouchers. PDA ECEC might be more diverse, including relatively more small local entrepreneurs and services that provide ideological alternatives (see Ruutiainen et al., 2020, 2021). Therefore, it is possible that especially in the PDA systems, a group of parents

exist who are critical of public ECEC's ability to take children individually into account and who believe that private services can better meet their children's needs. Moreover, in the voucher systems, parents using private services, like municipal decision makers (Ruutiainen et al., 2020), possibly see private provision as a part of the public service network.

In the Nordic context, marketisation and privatisation has rather shaped the already existing ECEC systems than replaced one paradigm with another (Naumann, 2011; author reference). The marketisation of ECEC has proceeded incrementally, and private provision has complemented the municipal preschool network without abolishing the public foundation of ECEC services (Ruutiainen et al., 2020; Westberg & Larsson, 2020). In Finland, the public responsibility of service provision and universalism are still at the core of the ECEC system, which manifests, for example, in children's universal right to ECEC, generous public subsidies and tight regulation. The regulation and subsidies are expected to ensure the selection of public or private ECEC for all families (Ruutiainen et al., 2020, 2021). However, as this research has shown, regardless of the ethos of free choice, service users of public and private ECEC differ as to their SES, attitudes and preferences (see also Sulkanen et al., 2020). The policy implication of this finding is that, as earlier research suggests (Lloyd, 2019), marketisation and privatisation of ECEC is hard to implement without increasing social segregation. Even when financial barriers are mainly removed (Voucher ECEC), increasing parental choice and competition through demand-side subsidies appear drive such segregation. Therefore, if the private sector is involved, it is suggested that, to improve access, rather than providing demand-side subsidies, it may be justified to support supply directly (Lloyd, 2019; Penn & Lloyd, 2014), which means privatisation without marketisation (see Van der Werf et al., 2021). It appears that the differentiation of ECEC service users due to combination of marketisation and privatisation extends processes of educational and social distinction also into early childhood (see Kampichler, 2021; Kosunen, 2014; Dove-mark et al., 2018; Ball et al., 1996; Forsberg, 2018). It is important that the future research turns its gaze to the implications of such distinctions and segregation.

This study has some limitations. First, due to its cross-sectional design, it is not possible to deduce the causality between parents' attitudes and their decision to use a certain form of ECEC. Thus, research with more suitable data is needed on whether parents' differing attitudes preclude and hence shape their ECEC decisions or whether their attitudes develop while the child is already in the private setting. Second, the results concerning household income level appear to be somewhat sensitive to the threshold chosen for the categorisation of high-income households. When analyses were conducted with 130 and 150 percent thresholds (in this study 140%), which were among the options suggested by Eurostat, it was noted that with the 130 percent cutoff value, the results were in line with those presented. However, with the 150 percent threshold, the income related differences between service users of different ECEC forms fell slightly short of statistical significance. Third, earlier research has suggested that the admission policies of private providers potentially exclude children with special educational needs (SEN) (Jones & Jones, 2021; Pihlaja & Neitola, 2017; Ruutiainen et al., 2021). Unfortunately, the data of this study did not allow controlling for SEN. Fourth, the data was somewhat biased: mothers, highly educated parents, employed parents, upper white-collar employees and managers, lower-income households, families living in the capital area and families receiving the PDA were overrepresented and

**Table 7** EFA solution based on 13 items of parental attitudes towards provision and quality of ECEC (N= 1401)

Items	Loadings				Residual variance
	Factor 1 Preference for municipal ECEC	Factor 2 Cost-free ECEC	Factor 3 Individual attention	Factor 4 Individual utility	
Cronbach's alpha	0.71	0.78	0.75	0.61	
1.2. Municipal ECEC is of higher quality than private provision	<b>0.76</b>	0.00	− 0.05	− 0.10	0.45
1.3. Private ECEC services should be more readily available	− <b>0.44</b>	0.19	− 0.10	− 0.10	0.74
1.4. Private ECEC offers a more diverse range of activities than municipal services	− <b>0.51</b>	0.05	0.04	− 0.11	0.69
1.5. Municipalities should invest more in municipal ECEC provision than in subsidising private service	<b>0.46</b>	0.03	0.23	0.09	0.72
1.6. Municipal ECEC providers are better in meeting children's special needs than private providers	<b>0.68</b>	0.04	− 0.01	− 0.15	0.57
1.7. ECEC should be free of charge for all children	− 0.00	<b>0.82</b>	− 0.02	− 0.02	0.32
1.8. ECEC should be free for a 5-year-old	0.01	<b>0.77</b>	0.04	0.06	0.39
2.1. Children do not receive sufficient individual attention in ECEC	− 0.04	0.04	<b>0.67</b>	− 0.13	0.46
2.2. The child's need for support is adequately considered in ECEC	0.07	− 0.00	− <b>0.46</b>	0.17	0.70
2.3. Day care group sizes are too large	0.07	− 0.01	<b>0.58</b>	0.17	0.70
2.5. ECEC is unable to secure lasting relationships	− 0.04	− 0.01	<b>0.56</b>	− 0.08	0.65
2.8. Adults cannot spend enough time with children and/or listen to them in the ECEC	0.04	− 0.03	<b>0.74</b>	0.01	0.46
2.4. ECEC provides the stimulation that children need	− 0.03	− 0.010	− 0.07	<b>0.65</b>	0.55
2.6. Children learn necessary social skills in ECEC	0.01	0.07	− 0.02	<b>0.60</b>	0.62

**Table 7** (continued)

Factor correlations	F1	F2	F3	F4
F1 Preference for municipal ECEC	1			
F2 Cost-free ECEC	− 0.03	1		
F3 Individual attention	− 0.04	0.03	1	
F4 Individual utility	0.25*	− 0.00	− 0.32*	1

Statistically significant results are bolded

among the participants. Therefore, it is possible that the results are not completely conclusive, and a fully representative sample would have produced results somewhat different from those produced with this data.

**Appendix 1: The structure of parental attitudes towards ECEC and its provision**

The structure of parental attitudes towards ECEC and its provision was examined using explorative factor analysis (EFA). The initial results of EFA showed poor fit and some very low factor loadings in different factor solutions. The analysis proceeded iteratively so that items with the lowest factor loading were removed one by one. This procedure was repeated twice until all factor loadings were sufficient in every estimated factor solution. As a result, items 1.1 and 2.7 (see Table 2) were removed from the final analysis. After these modifications, the Kaiser criterion suggested a four-factor solution. The model fit for the solution was mostly acceptable:  $\chi^2(41) = 272.26, p < 0.001, CFI = 0.93, TLI = 0.85, RMSEA = 0.06$  [90% CI 0.06; 0.07], SRMR = 0.03. Since this solution was reasonable with regard to the content, and all items loaded statistically significantly to one factor only, this was selected as the final solution.

The four-factor solution is presented in Table 7. Items 1.2–1.6 loaded on factor 1, which was labelled *Preference for municipal ECEC*. Items 1.2 and 1.6 reflected this dimension most strongly. Items (1.3, 1.4) that expressed preference towards private provision loaded negatively on this dimension and thus indicated the preference towards municipal ECEC.

As shown in Table 7, only items 1.7 and 1.8 loaded on factor 2. The loadings were positive and somewhat equal. The second dimension was labelled *Cost-free ECEC*. Factor 3, related to items 2.1–2.3, 2.5, 2.8, was named *Individual attention*. Items 2.1 and 2.8 reflected the third dimension most strongly. Item 2.2, that was the only item expressing positive attitude towards the quality of ECEC loaded negatively on the dimension of *Individual attention*. Therefore, this dimension expresses a critical stance on ECEC’s ability to take children individually into account. Factor 4 was labelled *Individual utility* and items 2.4 and 2.6, which formed it, reflected it somewhat equally.

Correlations between the attitude dimensions were mainly weak (Table 7). Only *Individual utility* had moderate positive relationships with *Preference for municipal ECEC* and *Individual attention*. The reliability of attitude dimensions *Preference for municipal ECEC*, *Cost-free ECEC* and *Individual attention* can be considered adequate (Barret, 2001; Nunnally, 1978), while reliability of the fourth dimension, *Individual utility*, can be considered good (Cicchetti & Sparrow, 1981) to inadequate (Barret, 2001).

**Table 8** Invariance tests of the dimensions of attitudes towards ECEC and its provision

Invariance step	$\chi^2$ value	df	Scaling correction	$\chi^2$ difference test <sup>a</sup>	CFI	$\Delta$ CFI	TLI	$\Delta$ TLI	RMSEA (90% CI)	$\Delta$ RMSEA	SRMR	$\Delta$ SRMR
1 Weak invariance (loadings)	468.41	203	1.06	–	0.925	–	0.899	–	0.053 (0.047–0.059)	–	0.047	–
2 Strong invariance (loadings, intercepts)	506.94	223	1.06	Model 2 vs. 1 $\Delta\chi^2 = 38.70^{**}$	0.92	0.005	0.902	– 0.003	0.052 (0.046–0.058)	0.001	0.05	– 0.003
3 Strict Invariance (loadings, intercepts, residual variances)	595.42	251	1.08	Model 3 vs. 2 $\Delta\chi^2 = 86.39^{***}$	0.903	0.017	0.894	0.008	0.054 (0.049–0.06)	– 0.002	0.069	– 0.019
3p <i>P</i> -strict variance (loadings, intercepts, residual variances)	561.85	249	1.08	Model 3p vs. 2 $\Delta\chi^2 = 55.23^{***}$	0.911	0.009	0.903	– 0.001	0.052 (0.046–0.058)	0	0.06	– 0.01
4 Loadings, intercepts, residual variances ( <i>p</i> ), factor variances and covariances	620.81	269	1.08	Model 4 vs. 3p $\Delta\chi^2 = 58.16^{***}$	0.9	0.011	0.899	0.004	0.053 (0.047–0.058)	– 0.001	0.09	– 0.03

*p* partial invariance

<sup>a</sup> A stricter model fits the data better if  $p < 0.05$ , if  $\Delta$ CFI  $\leq 0.01$ ,  $\Delta$ TLI  $\leq 0.01$  and  $\Delta$ RMSEA  $\leq 0.015$ .  $^{**}p < 0.01$ ,  $^{***}p < 0.001$ .  $\Delta$  = change

## Appendix 2: Measurement invariance examination

The measurement invariance of parents' attitudes towards ECEC and its provision was examined across the three service user groups (Milfont & Ficher, 2010; Table 8). Strong invariance was obtained, suggesting that the groups exhibited the same meaning attribution regarding the ECEC attitude dimensions and that the response style between the groups was similar. This justified the comparison of the means of the attitude dimensions across the service user groups.

However, complete strict invariance was not obtained (Table 8). Residual variance of item 2.2 contributed the most to the misfit (modification index = 41.29 in private ECEC + PDA group). After freeing this parameter, partial strict invariance was obtained, suggesting that the measurement errors did not differ substantially between the groups. Finally, invariance comparison of factor variances/covariances revealed that  $\Delta CFI$  slightly exceeded the cutoff. However, since the usefulness of TLI and RMSEA have been emphasised in previous ESEM studies (e.g. Marsh et al., 2009), and their changes did not exceed their cutoffs, the invariance of factor variances/covariances was accepted. This is important, given that in the analyses related to our second and third research questions, the attitude dimensions were regressed on the control variables.

### Abbreviations

ECEC	Early childhood education and care
PDA	Private day care allowance
MS	Municipal supplement for the private day care allowance
Voucher ECEC	Private early childhood education and care subsidised with vouchers
PDA ECEC	Private early childhood education and care subsidised with private day care allowance

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### Author contributions

VR was mainly responsible for research design and writing the manuscript. VR and ER were responsible for the data analysis. MA performed the writing, data analysis and research design. All authors read and approved the final manuscript.

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### Availability of data and materials

The dataset of this study is governed by CHILDCARE-project. The requests should be directed to MA.

## Declarations

### Ethics approval and consent to participate

This research is part of a larger CHILDCARE-project. The project and the survey used in this study were approved by the Ethical Committee of University of Jyväskylä. All respondents have given their consent to the use of the responses in the study.

### Consent for publication

All respondents have given their consent to the use of the publication of the results. There are no other issues preventing the publication of the study.

### Competing interests

There are no competing interests.

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