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National Evaluation of Flying Start: Impact Report

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Views expressed in this report are those of the researchers and not necessarily those of the Welsh Government

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Peer review

Peer review is an important process contributing to the maintenance of high standards for research publications. This report has been subject to anonymous peer review, being evaluated for the adequacy and merit of its research by an independent, anonymous peer reviewer who has the appropriate expertise in the academic fields covered by the Evaluation of Flying Start.

Table of contents

Executive summary

Executive summary

Background and methodology

The Flying Start programme aims to improve outcomes for children in some of the most disadvantaged areas across Wales. This is done through providing four key Flying Start entitlements to children under four years old and their families: enhanced health visiting, parenting support, support for early language development (primarily in the form of Language and Play programmes) and free, high quality, part-time childcare for two to three year olds.

This report is part of a series produced by Ipsos MORI and SQW for the national evaluation of Flying Start. It presents the results from the second wave of a longitudinal survey of families with children aged between two and four in Flying Start delivery areas and specially selected comparison areas. Between June 2012 and January 2013 2,116 parents (1,033 in Flying Start areas and 1,083 in selected comparison areas) were surveyed about parenting, the development of their child and any services their family had used whilst bringing up their child. An 'intention to treat' approach was taken meaning that families living in areas receiving Flying start funding were surveyed rather than those who were users of specific Flying Start services.[1]

The survey was designed to examine the difference that Flying Start has made for families i.e. the estimated impact of the programme. This was done by looking at domains where the programme was expected to have an impact (broadly categorised into service use outcomes, parent outcomes and child outcomes) by the time children who have access to Flying Start services reach the age of three.

To estimate the impact of the programme, respondents in Flying Start areas were matched with respondents in the comparison group on a range of factors such as age, family size, education, type of housing, lone parent status and other socio-economic variables. While this method attempts to account for observed differences between the two groups, it cannot overcome all underlying differences. The Flying Start programme was rolled out to the most disadvantaged areas in Wales, which means the comparison areas are relatively less disadvantaged. It is reasonable to assume that the 'starting points' of families in areas before the roll out of Flying start were lower than families in areas which were to become the comparison areas and there is some evidence available to show this. While the analysis shows no difference between the Flying Start and comparison groups for many outcomes, it is possible to conclude that the Flying Start programme has been successful in bringing

[1] This allows the survey to gauge the level of reach of the Flying Start programme, as well as emerging indications of impact.

about parity between families living in the more disadvantaged Flying Start areas and the relatively less disadvantaged comparison areas. It is important that this issue is considered when interpreting the findings presented throughout this report.

Access to and take-up of family services

It is vital that the programme increases the awareness of, referral to and take-up of Flying Start services in order to achieve medium to longer term improvements to child and parent outcomes. In this context, the take-up of key Flying Start entitlements has been considerable.

Parents in Flying Start areas had on average 5.7 more contacts with health visitors or the health visiting team either in or outside of the home since their child's birth (20.5 visits on average overall) than those from the matched comparison sample (either in or outside the home). In addition, parents in Flying Start areas received 4.6 more in-home visits than those from comparison areas.

Looking at parenting programmes[2], 17.9 per cent more families in the Flying Start group were aware of them than the matched comparison sample and 16.6 per cent more reported being referred. Take-up of parenting programmes was also high with 12.5 per cent more of families in the Flying Start group than comparison group reporting that they had attended at least one.

This pattern is also evident when looking at Language and Play (LAP) services[3]. Over a quarter (29.4 per cent) more parents in Flying Start areas were aware of LAP than the matched comparison group, referrals were 24.2 per cent higher and 13.2 per cent more parents reported that they had attended LAP.

Parents were also asked about their awareness of, referral to and attendance at other child services that were available across Flying Start areas (such as Safety Party, Aquatots, parent and toddler groups, playgroups, coffee mornings and shopping trips[4]). Flying Start has had a small but positive impact on increasing awareness of these services (parents were 2.5 per cent more likely to be aware than the matched comparison group but had substantially increased referrals – 19.7 per cent more parents from Flying Start areas reported being

[2] Parenting programmes are a core part of the Flying Start offer and were chosen based on a robust international Randomised Controlled Trial evidence base. During the time of survey fieldwork the level of parenting support was markedly higher in Flying Start than non-Flying start areas, Outside Flying Start areas, access was usually restricted to those families who had been referred by other agencies because of their level of need, rather than parents being able to self-refer as is the case for programmes in some Flying Start areas. This is evidenced in: Welsh Government (2013) 'Area case study synthesis report'.

[3] LAP is a basic skills programme for parents and their children aged 0-3 which helps them learn together through play and fun activities.

[4] Parents were shown a list of eight specific child services available across all Flying Start areas as well as a number of area specific services and asked which they had heard about, been referred to and/or attended.

referred). However, although Flying Start has increased awareness, there was no statistically significant difference in the take-up of these services.

The impact analysis found no difference in parents' referrals to or contact with professionals[5] in relation to their child which means that children in Flying Start areas are no more likely to have been referred to or received help from professionals than those in matched comparison areas.

Perceptions of services

It is expected that targeted investment to improve services in Flying Start areas would result in an improvement to perceptions of local services, which is important for encouraging attendance.

Parents from Flying Start areas are 13.7 per cent more likely than those in the comparison group to rate the quality of childcare available locally as very or fairly good (and their satisfaction is very high with 82.9 per cent of the Flying Start sample saying this overall). In addition, respondents in the Flying Start group were 13.5 per cent more likely to rate childcare as very or fairly good for helping children learn and develop. Parents were also around five per cent more likely than the comparison group to report that they had sufficient advice and support in four aspects of parenting (how to have a good relationship with their child, how to help their child learn and meet their full potential, how to manage their child's behaviour and how to feel confident as a parent).

More generally, parents were asked to rate the facilities, services and support available for families with children under four years old locally. Over seven per cent (7.6 per cent) more parents in Flying Start areas perceived their local area to be a better place to bring up children and 12.1 per cent more parents from Flying Start areas rated the services available to families as very or fairly good than those from the comparison group (70.7 per cent of Flying Start families rated it was very/fairly good overall). Further to this, 17.4 per cent of parents from the Flying Start group perceived these services to have improved over the last two years.

Parent outcomes

A medium to long term aim of the programme is an improvement in parenting behaviour. However, the impact analysis found no statistically significant difference between Flying Start and matched comparison families on immunisation rates (by the time of the survey children should have been vaccinated against a number of diseases and illnesses including

[5] Parents were presented with a list to select professionals from including a dietician/nutritionist, family health worker, family support worker, midwife, midwife support worker, nursery nurse, support worker, play specialist, social worker, and speech and language therapist.

measles, meningitis, polio and diphtheria), though rates were still high at over 87 per cent for the Flying Start group.

Despite more health visitor contacts and a higher take-up of parenting programmes, LAP and other early years services in Flying Start areas, the analysis shows no difference between parents in Flying Start areas and parents in comparison areas on parenting self-confidence, mental health or home environment measures. It is worth noting that in qualitative research conducted among high need families, parents reported that the programme had helped them to become more confident as a parent, manage their child's behaviour and engage more with their educational development[6].

Child outcomes

Improving child outcomes is a key focus of the Flying Start programme and although this is an intermediate outcome as shown in the Flying start model, it is expected that by the age of three children in Flying Start areas should be developing at a faster rate than they would have otherwise.

There was no statistically significant difference between Flying Start and non-Flying Start areas in terms of child cognitive and language skills, their social and emotional development and their independence/self-regulation.

Conclusions

The evidence provided in this report shows that the Flying Start programme has resulted in greater engagement with family services than would have been the case without the programme. For example, those in Flying Start areas had on average 5.7 more visits from the health visiting team than families in non-Flying Start areas. This is vital for the early identification of need and encouraging families to take up other Flying Start entitlements and other early years services. Awareness of, referral to and take-up of parenting programmes and Language and Play was also higher amongst parents in the Flying Start group, demonstrating that the programme has been successful in promoting these services. Greater engagement with early years services is important for building the medium and long term impacts that the programme is expected to deliver in the future.

The report also shows that local family services have a stronger reputation among families in Flying Start areas than in areas where the programme is not operating. For example, families in the Flying Start group were more likely to have noticed an improvement in local services over the last two years. Satisfaction with local childcare provision was also higher amongst Flying Start families in terms of quality and its ability to help children learn and

[6] Welsh Government (2013) 'Flying Start qualitative research with high need families'.

develop. The strong reputation of Flying Start services is important and should act as a catalyst for encouraging parents to take up services in the future.

It is possible that Flying Start *has* had a positive impact on parent and child outcomes. Assuming that families living in Flying Start areas started from a lower 'base' than those in the comparison group before the programme was introduced, the lack of difference between the two groups in this report suggests that Flying Start may have brought about improvements among the families in Flying Start areas (in the most disadvantaged areas in Wales), so their outcomes are now on a par with those in less disadvantaged comparison areas. There is, however, very limited data which provides conclusive evidence that families in Flying Start areas before the programme started from a lower baseline position for the outcomes measured in this evaluation. The data which is available, for example, educational attainment data, suggests that this explanation is plausible.

Further tracking of anticipated family, parent and child outcomes in the future would be very valuable, for example through administrative datasets if possible, such as the National Pupil Database. These datasets could also be used to link administrative data collected before the roll-out of the programme in order to retrospectively create a baseline.

Lessons from the evaluation

Measuring the impact of a social policy on its intended population is complex and challenging. The chosen design of the impact study for this evaluation was influenced by the fact that the evaluation was commissioned after the roll-out of the programme had begun and that Flying Start was rolled out nationally across the most disadvantaged areas in Wales.

This highlights the importance of ensuring that evaluation is central to the development of a policy. Close working between politicians, policy officials and analysts within government, with support from external experts as appropriate, is crucial and the earlier this happens the greater the range of evaluation options that will be available. This will help to ensure that the best possible evaluation design can be employed in order to provide robust evidence on whether, and why, a programme is working or not.

Background and methodology

1. Background and methodology

1.1 The Flying Start programme

The Flying Start programme, launched in 2006/2007, is the Welsh Government's early years flagship programme which in the long-term aims to reduce the size of the population with low skills and thereby ultimately tackle income inequality. It is an area-based programme, geographically targeted to some of the most disadvantaged areas of Wales and is universally available to families with children aged nought to four in those areas.

Flying Start is based on the growing body of evidence that suggests that investing in the early years significantly improves child outcomes and aims 'to make a decisive difference to the life chances of children aged under four in the areas in which it runs'. Flying Start takes a child-centred approach to improve child outcomes through the provision of four key service entitlements, with an additional overarching focus on early identification of additional support needs.

The four key Flying Start entitlements are:

- An enhanced health visiting service, with a target health visitor caseload not exceeding one health visitor to 110 children (a ratio of 1:110) in each Flying Start area.
- Evidence-based parenting support programmes (where experience demonstrates they generate positive outcomes for children) to meet local demand.
- Support for early language development (primarily in the form of Language and Play (LAP) programmes).
- Free, high quality, part-time childcare for two to three year olds and younger where a need is identified. The Flying Start offer is for two and a half hours a day, five days a week for 39 weeks. In addition, there should be at least 15 sessions of provision for the family during the school holidays.

Although some of these services may be available in non-Flying Start areas, Flying Start aims to provide a more intensive level of support and be much more active in promoting these entitlements to parents.

1.2 The Flying start model

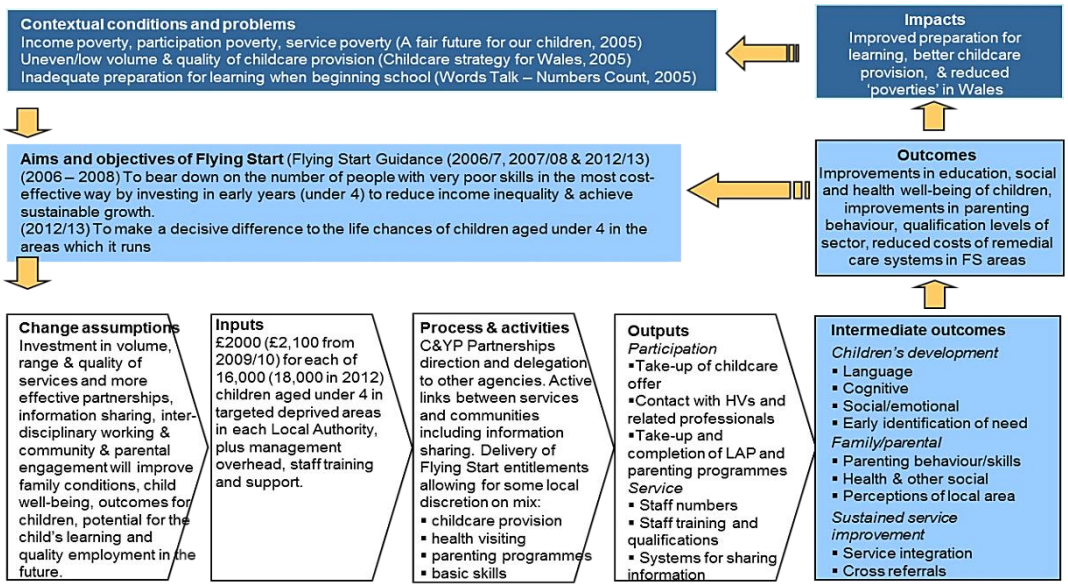
Flying Start, by itself, cannot address (and is not designed to address) all of the elements of disadvantage related to child poverty. Instead it focuses on improving the support available for parents, through enhancing access to health visitors, childcare and parenting support programmes for example, that are associated with enabling improvements in children's development (whether in cognitive, social, behavioural or communication skills), facilitating

the early identification of need and supporting the integration of services (through data sharing, for example). In turn, it is anticipated that these will lead to long-term improvements in educational, social and health outcomes for children.

The rationale and anticipated outcomes of Flying Start are set out in Figure 1 below, which was developed by SQW and Ipsos MORI in consultation with the Welsh Government. The diagram highlights:

- high level **contextual data** (dark blue shaded boxes) relating to the conditions on which Flying Start is expected to have positive impacts over the longer term;
- programme level **aims and objectives** that are expected to be achieved in the form of medium term outcomes (the light blue shaded areas) and
- shorter-term programme **activities** and **outputs** to pave the way for the short-, medium- and longer-term outcomes and impacts.

b) Figure 1: Flying Start rationale and anticipated outcomes



Source: SQW

While it is too early to examine the long term impacts of the programme, this report will add to the evidence on whether Flying Start has led to improvements in short to medium term outcomes.

1.3 The evaluation of the Flying Start programme

Ipsos MORI and SQW were appointed to evaluate the programme in 2007. Several interim reports have been published, looking at the early performance of the programme.[7] This evaluation concludes in 2013.

This report presents findings from the second wave of a longitudinal survey of families with children aged between two and four in Flying Start delivery areas and comparison sample areas. The purpose of the surveys was to estimate the impact that the programme is having by measuring outcomes among Flying Start families against those in comparison areas. The longitudinal design allows a fuller picture of impact to be ascertained.[8]

The survey was carried out as part of the wider evaluation of Flying Start for the Welsh Government, in order to provide robust evidence about the performance of the programme, which will help to inform the rollout plans to double the number of children being helped by Flying Start from 18,000 to 36,000 by 2016. Two other research projects have been carried out by the evaluation team over the course of 2012 and 2013:

- Qualitative research with high-need families in five case-study areas across Wales by Ipsos MORI and published in October 2013.[9]
- Area case studies for each of the 22 Flying Start areas by SQW, detailed in an area case study synthesis report which also considers the value for money of the programme and published in November 2013. [10]

Findings from both studies are drawn on throughout this report and provide useful service delivery context for interpreting findings from this impact study. Evidence from the three research projects will be brought together in an overarching summary report that reflects on the programme performance to date.[11]

1.4 Survey purpose and approach

A large, longitudinal quantitative survey was carried out with parents and children across Flying Start areas twice over the course of the evaluation. The first round of survey fieldwork (Wave 1) was conducted between March and August 2010. In total 3,591

[7] For full list of Flying Start Evaluation publications, please see http://wales.gov.uk/statistics-and-research/national-evaluation-flying-start/?lang=en

[8] For example, a longitudinal design allows data from the first and second waves of the survey to be combined (for example data on use of Flying Start services) providing a fuller picture of usage to be obtained. Also variables used for matching in the first wave of the survey can be used again in the second wave meaning the two samples are better matched.

[9] Welsh Government (2013) 'Flying Start qualitative research with high need families'

[10] Welsh Government (2013) 'Area case study synthesis report'

[11] Forthcoming, Welsh Government

interviews were completed with the main carer of a child aged under 2 (1,776 in Flying Start areas and 1,815 in comparison areas.)

The second round of survey fieldwork (Wave 2) was conducted between June 2012 and January 2013 and resulted in interviews with 2,116 families. All of the families who had taken part in the first wave of fieldwork were re-contacted and asked to take part; by this point the children in the sample were aged between two and four and so many of the families should have received or be receiving the childcare element of the programme. The response rate was 72.8 per cent, 1,033 families were interviewed in Flying Start areas and 1,083 interviews were completed in comparison areas.

Wave 2 of the survey was designed to examine the difference that Flying Start has made for families and parents i.e. the estimated impact of the programme, whereas the Wave 1 survey was designed to measure very early impacts. For example, at Wave 1 we measured breastfeeding rates but this was not asked at Wave 2 given the children were older. In order to do this, we measured a number of areas where the programme was expected to have had an impact by the time a child who has had access to Flying Start services reaches the age of three. These were based on the Flying Start model and decided on at the questionnaire design stage in conjunction with the Welsh Government.

The domains and indicators measured and the rationale for measuring and analysing them are detailed overleaf in Table 1, and were linked to the Flying Start model described above. Each is split into three categories: service use, parent outcome and child outcome measures and are described in greater detail in the chapters that follow:

Table 1: Expectations and indicators of impact

Domain	Rationale for expecting impact	Indicator
Service use outcomes		
Health visiting	Lower health visitor caseload should lead to increased numbers of visits experienced by parents in Flying Start areas	Number of home visits since birth Number of visits outside home since birth Overall number of visits since birth
Use of services as part of the wider HV offer	Greater funding should lead to greater availability of services, while contact with health visitors and work across Flying Start teams should lead to parents being better informed about them.	% Aware of at least one service % Referred to at least one service % Attended at least one service Services include: Safety Party, Aquatots, parent and toddler group, playgroup, coffee mornings, shopping trips as well as many other area-specific initiatives
Contact with other professionals	Information sharing and referral between all practitioners in Flying Start areas, to support early identification of need or risk should lead to increased contact with other professionals (e.g. dieticians, family support workers)	% Who have had contact with other professionals % Who have been referred to other professionals by health visitor, childcare or nursery worker
Parenting services	Greater provision and effective referral and publicity should lead to greater parent usage of parenting programmes	% Aware of parenting service % Referred to parenting service % Attended parenting services
LAP services	Greater provision and effective referral and publicity should lead to greater parent usage of Language and Play services	% Aware of LAP % Referred to LAP % Attended LAP
Immunisation	Enhanced health visitor offer should lead to better take up of immunisations	% Saying health visitor always reminds parent of immunisation % Child immunisations up to date
Childcare	Greater provision should lead to wider take up of childcare, and specifically of take up of childcare 39 weeks a year and 5 days a week during term time, with 15 additional sessions in the holidays. More focus on quality and staff training in Flying Start settings should lead to better parental perceptions than in other areas.	% Used childcare when their child was aged between 2 and 3 % Used childcare at least five hours a week and 39 weeks a year % rating facilities service support good or very good % saying quality of local childcare is good % saying quality of local childcare is good in helping children learn
Parent outcomes		
Feeling supported	The provision of Flying Start services, and in particular the enhanced health	Number of types of people seen monthly (i.e. friends, family)

Domain	Rationale for expecting impact	Indicator
	visitor offer, should help parents to feel supported in different aspects of parenting. Attendance at Flying Start services should also help parents to make connections in the community and feel more supported overall.	% who say they have enough support % Who agree they have had: • Enough support overall • Enough support help good relationship with child • Enough support to help child learn meet full potential • Enough support talking and speaking • Enough support managing behaviour Enough support confident as a parent
Parenting	The provision of Flying Start services is designed to lead to improvements in parenting behaviour and confidence in the medium term.	Home chaos score Home learning score TOPSE scores, measuring parenting behaviour in 9 areas: • Play and enjoyment • Empathy and understanding • Learning and knowledge • Discipline and setting Boundaries • Emotion and affection • Self acceptance • Control • Pressures
Views of local area	Better access to early years' services and support could lead to improvements in parents' view of the local area and local services.	% who feel the area has got better as a place to bring up children
Child outcomes		
Child development	The childcare offer, language and play classes and the early intervention offered by the Flying Start programme all aim at improving child outcomes and improvement is expected across several different areas.	<u>Physical</u> Child can walk on ground with no difficulty Child can walk up steps (including with help) <u>Language</u> British Ability Scales Naming Vocabulary score <u>Cognitive</u> British Ability Scales Picture Similarities score <u>Social/emotional</u>

Domain	Rationale for expecting impact	Indicator
		Child independence score Strengths and difficulties scores, overall and in 5 areas: • Emotional symptoms • Conduct score • Hyperactivity score • Peer Problems score • Pro-social score

1.5 Impact analysis

1.5.1 Comparison through matching

To estimate the impact of Flying Start it is not sufficient to observe the outcomes among Flying Start respondents. It is also necessary to estimate the counterfactual - what would have happened if Flying Start had not been implemented. We do this by comparing the group of Flying Start respondents with a comparison group of similar people in non-Flying Start areas.

The comparison group needs to be constructed so it is as similar as possible to the Flying Start group. The method used for this evaluation involves matching each respondent in Flying Start areas to a number of respondents in comparison areas who have similar characteristics using Propensity Score Matching.[12] This aims to ensure that the comparison group matches the Flying Start group on variables such as age, family size, education, type of housing, lone-parent status and other socio-demographic variables which are shown to be associated with differences between the two groups prior to matching.

Whilst this method can account for observed demographic differences between the Flying Start and comparison group, it cannot overcome all underlying differences. The Flying Start sample of families is drawn from the most disadvantaged areas in Wales, as this is where the programme operates, and therefore families in the comparison sample are relatively less disadvantaged. Technical information on the approach used for matching is provided in the appendices; and please see section 1.6 for further information on the limitations of the analysis approach.

1.5.2 Estimating impact

Once Flying Start respondents have been matched with respondents from comparison areas, impact can then be estimated as the proportion (or mean) in the Flying Start group minus the proportion (or mean) in the comparison group. For example, the estimate of the proportion of respondents who attended a Language and Play session is 25.6 per cent in the Flying Start group and 12.4 per cent in the matched comparison group, so the difference (13.2 percentage points) can reasonably be attributed to the impact of Flying Start as the matching is designed to have accounted for differences between the two groups.

Throughout the report, these figures are reported in tables as in Table 2 below. The first column describes the indicator for which we are estimating impact, the second column the figures for parents/children in Flying Start areas, the third column the figure for matched parents/children in comparison areas, and the final figure shows the difference between the

[12] Columbia University (2002), Rajeev H Dehejia, Sodek Wahba, 'Propensity Score Matching Methods for Non-Experimental Causal Studies'.

figures for the two areas. Finally, the base (unweighted) gives the figure for the number of parents in Flying start and comparison areas that the figures are based on.

Table 2: Impact analysis – example table

Indicator	**Flying Start group**	**Comparison**	**Difference**
	%	**%**	**%**
Attended LAP	25.6	12.4	13.2*
Base (unweighted)	*1,030*	*1,054*	

This method of estimating impact is slightly different to that used in the Wave 1 report, as discussed in the appendices.

1.6 Methodological challenges and interpreting impact

The evaluation was commissioned after the roll-out of the Flying Start programme to all families with a child under four in specific areas across Wales had begun. This means that a true pre-Flying Start baseline survey or a randomised controlled trial (RCT) was not possible. There were also significant delays getting the address details from Her Majesty's Revenue and Customs (HMRC) outside the control of the Evaluation team and the Welsh Government. In addition, the Flying Start programme was rolled out in the most disadvantaged areas in Wales, meaning that identifying a suitable comparison group was a challenge.

Within these constraints, the design and methods adopted were the most effective available. They are useful in allowing us to build a broad picture of the influence of the programme, but some issues need to be borne in mind.

1.6.1 Lack of baseline data and limitations when matching the samples

The comparison group was designed to be as similar as possible to the Flying Start group. However, the overall Welsh Index of Multiple Deprivation (WIMD) score shows the higher levels of disadvantage in Flying Start areas than in comparison areas (the WIMD score for Flying Start areas is 43.0 compared with 27.2 in non-Flying Start areas). Indeed, the rationale for Flying Start is that it is being delivered in disadvantaged areas to address the poorer outcomes among this section of the population. Furthermore, in 2008, SQW prepared a report on the differences between Flying start and comparison areas before the programme was rolled out. There was limited baseline data available on the indicators that Flying Start is

designed to effect, but the report did show that on some aspects Flying Start areas are more disadvantaged than comparison areas, for example[13]:

- Skill levels were lower in Flying Start areas; 43 per cent of adults had no qualifications, compared to 38 per cent of adults in the comparison areas.
- The proportion of children receiving free school meals, which in 2006/2007 was 31 per cent in Flying Start areas and 25 per cent in comparison areas.

Our matching model controls for as many differences as possible with regard to parent or family characteristics/predictors of disadvantage. However, overall differences in area-level disadvantage and unobserved differences could not be controlled for, and it is possible that these area differences would have an effect on outcomes, over and above household disadvantage.[14] Lack of baseline data on the outcomes being measured in this survey and the impossibility of ensuring a 100 per cent matched comparison group means that we cannot be totally confident about the extent to which differences or lack of differences between areas simply reflect differing starting points between the two samples and the limitations of the matching.[15] However, given the higher levels of disadvantage observed in Flying Start areas, it is reasonable to assume that starting points pre-Flying Start were lower in Flying Start areas than in comparison sample areas for many outcomes measured. Consequently, it is therefore more likely that estimates under-estimate the impact of Flying Start on many outcome measures. In particular, while we have not found any differences between Flying Start and comparison areas on indicators relating to parent and child outcomes, our interpretation is that the analysis method we have chosen was the most robust method available and it is possible that there has been an improvement in outcomes among the Flying Start group bringing 'parity' with the less disadvantaged comparison group.

We have drawn on baseline data where available to aid interpretation of survey findings. However, there is only very limited baseline data available on the pre-Flying Start position of families living in Flying Start and non-Flying Start areas which can be reliably used. Therefore, although it is plausible that Flying Start families started from a lower base than non-Flying Start families, there is not sufficient evidence to prove this is the case for all outcomes measured through the survey.

[13] The baseline report can be found here: http://wales.gov.uk/statistics-and-research/national-evaluation-flying-start/?lang=en. In order to provide data on baseline differences between the Flying Start and comparison sample, further investigation of survey datasets which cover similar outcomes to the Flying Start evaluation and have sufficiently large datasets may be useful. However, an initial assessment of the feasibility of this has shown that the data that could be provided by other surveys is limited.

[14] Comparison sample areas were drawn from those that were as similar as possible to Flying Start areas (e.g. from among the next most disadvantaged) and differences between the samples were minimised via comprehensive use of propensity score matching and regression analysis techniques.

[15] As is the case for many quasi-experimental design studies.

1.6.2 The service delivery context

There is limited information available on the services available to families in the comparison areas. This report compares a group of families in areas where Flying Start is available with areas where it is not available. However, families in comparison areas will still be receiving general services rather than no support at all. The rationale for Flying Start is that it will improve support available to parents, facilitate the early identification of need and support the integration of services.

However, the report on the service delivery context highlights significant challenges implementing the Flying Start programme.[16] Data suggests that the programme was not fully operational in all Flying Start areas at the time of the second wave of interviews with families and that there was some variability in the reach and quality of the four key entitlements (enhanced health visiting, free, high quality childcare for 2-3 year olds, parenting programmes and LAP programmes, see Appendix A), though all were being offered at the time of the survey. Some local authorities had not yet achieved the target Flying Start health visiting caseload of 1:100, had childcare settings that were not operating at full capacity or with high attendance, and in six areas the LAP offering was reported as being the same as that for non-Flying Start areas. Therefore, this may have affected the extent to which the programme has generated positive outcomes. Interpretations of the impact analysis in this report are contextualised using the Flying Start service delivery context as provided in the case study synthesis report developed by SQW.

1.6.3 Timing of the evaluation

Finally, a key issue is that evidence from other evaluations of early years programmes shows that the biggest effects may only materialise in later years.[17] As such, these estimations of impact must be seen as an interim evaluation of the programme. Tracking the health, educational and employment outcomes of Flying Start and comparison children as they grow up will be essential in measuring the full impact of the programme.

Further detail on sampling, the matching method and overall analytical approach are provided in the technical annex.

[16] Welsh Government (2013) 'Area case study synthesis report'
[17] Heckman J et al (2010) 'A new cost-benefit and rate of return analysis for the Perry Preschool Program: A summary' NBER Working Paper No. 16180.

1.7 Report outline

The contents of this report are outlined below:

Chapter 2. Estimated impact of Flying Start on access to and take up of family services

This chapter looks at the estimated impact on awareness of, referral to and take-up of Flying Start services.

Chapter 3. Estimated impact of Flying Start on perceptions of services

This chapter explores the estimated impact of the Flying Start programme on parents' satisfaction with local services, perceptions of service improvement and perceptions of sufficiency of support available.

Chapter 4. Estimated impact of Flying Start on parents

This chapter explores the estimated impact of the Flying Start programme on family/parents under the three broad headings:

- *Parenting behaviour/skills*
- *Mental health and social support*
- *Perceptions of the local area*

Chapter 5. Estimated impact of Flying Start on children

This chapter explores the estimated impact of the Flying Start programme on the key aspects of child development:

- *Language*
- *Cognitive*
- *Social/emotional*
- *Physical*

Chapter 6. Conclusions

This chapter brings together findings from across all chapters placing them in context.

Estimated impact of Flying Start on access to and take-up of family services

2. Estimated impact of Flying Start on access to and take-up of family services

Summary

- Increasing awareness of, referral to and take up of Flying Start and other early years services for families provides the platform needed for medium to longer term improvements to child and parent outcomes. The analysis suggests that Flying Start has been successful in this regard.
- The number of home visits since birth was 4.6 higher among the Flying Start group than the matched comparison group. When looking at visits outside the home we found no significant difference. Findings from the qualitative research with 'high need' families show that in-home visits are essential for building relationships, addressing problems and encouraging families to use other services. Although there were issues implementing the required ratio, all Flying Start areas were in agreement the visits with families in Flying Start areas were longer and more intensive and it was this rather than (necessarily) an increased number of visits that was key to better provision.
- Awareness and use of approved parenting programmes and Language and Play services were considerably higher in the Flying Start group than in the matched comparison group, with approximately 12.5 per cent more Flying Start respondents attending parenting programmes and 13.2 per cent more attended LAP than respondents in the matched comparison group. Parents in Flying Start areas were slightly more likely to be aware of other child services such as Safety Party, Aquatots etc (2.5 per cent more parents in Flying start areas reported being aware of these services than parents in the comparison group), but substantially more likely to have been referred to these services (19.7 per cent more parents in Flying start areas reported being referred). The analysis found no difference in parents' take up of these services.
- There was no evidence that the Flying Start programme impacted on the amount of contact families have with professionals outside of the Flying Start team.

One of the most important outputs of the Flying Start programme is the delivery of four main services; an enhanced health visitor offer, increased access to language and play

services, parenting programmes and high-quality childcare for children aged 2-3[18]. Cross referrals between these services are crucial in this model, while interactions with these services are also used to promote early intervention by increasing the number of referrals to other professionals – including those funded and not funded by Flying Start.

This chapter will look at the estimated impact on awareness of, referral to and take-up of the four main services, referrals between these services and to other professionals in the context of Flying Start service delivery at the time the survey took place. Respondents' answers about parenting programmes, LAP and other child services were merged with the responses they provided at the first wave of the survey in 2010 in order to give a full picture of their usage of Flying Start services and help overcome issues with recall.

2.1 Health visitor services

Health visitors are a core part of the Flying Start offer. Increased contact with the health visitor serves many purposes, including early identification of need, encouraging the use of other elements of the Flying Start offer, and signposting to other appropriate early years services, all of which are discussed in subsequent sections of this report. Evidence on the importance of health visiting is provided by the National Evaluation of Sure Start which indicated that Sure Start local programmes with health leadership had more success. It was believed that this is because health visitors are a trusted service amongst disadvantaged communities and have perhaps the best chance of engaging those families that are in the most difficult circumstances and are more likely to disengage from local services.[19] Similarly, findings from the qualitative research with high need families showed that where health visitors had frequent contact and strong relationships with high-need families, they were instrumental in helping these families access other Flying Start services and the wider services the family may need. They do this by providing information but also motivating parents to take up services where otherwise they would not.[20]

The target caseload for health visitors in Flying Start areas is 1:110, which is markedly lower than in non-Flying start areas, where a typical health visitor caseload ranges between 1:300 and 1:400. The number of health visitor visits that families in Flying Start areas receive will depend on their individual needs, meaning that not every family will necessarily receive significantly more visits from their health visitor than they would if they lived in a different area. However, given the lower caseload, it is to be expected that the *mean* number of visits would be higher in Flying Start areas.

[18] Parents were interviewed about their children who were aged between two and four years old at the time of the survey.
[19] Department for Education (2005) 'Early impacts of Sure Start local programmes on children and families'
[20] Welsh Government (2013) 'Flying Start qualitative research with high need families'

The majority of Flying Start areas reported that by 2012 (the time of survey fieldwork), children and families in Flying Start areas benefitted from a higher level of health visitor intervention, and in some areas from a higher quality intervention. In 13 of the 22 local authorities participating in the Flying Start programme, the target caseload for health visitors had been met.[21] However, in the remaining local authorities where the health visitor ratio had not been met, families may have received less intensive intervention, though the case load ratio was still lower than that for non-Flying Start areas.

Parents were asked to estimate the number of in-home and outside home contacts they had had with the health visitor or another member of the health visiting team since their child was born (Table 3).[22] Parents in the Flying Start sample had on average 5.7 more contacts (either in or outside the home) than those in the matched comparison sample over the course of their child's lives to date. They received 4.6 more in-home visits and there is no statistically significant difference in the number of outside home contacts between Flying Start respondents and those in the matched comparison group. This suggests that not only are parents experiencing an enhanced health visiting offer in terms of number of visits, but the proportion of visits is skewed towards in-home visits over contact in other settings such as clinics i.e. the service is not only more plentiful but more accessible. Qualitative work with high need families in Flying Start areas found that in-home visits were particularly important in building up good relationships between the health visitor and parents with complex needs or low self-confidence, and were essential to providing a good health visiting service to physically disabled parents, and those who suffer from mental ill-health.

Table 3: Indication of impact of Flying Start on health visitor contact

Indicator	**Flying Start group**	**Comparison group**	**Difference (*indicates statistically significant)**
Number of in-home visits since birth	15.1	10.5	4.6*
Number of outside home contacts since birth	5.4	4.3	1.2
Overall number of visits since birth	20.5	14.8	5.7*
Base (unweighted)	*1,030*	*1,054*	

[21] See Welsh Government (2013) ' Area case studies synthesis report'

[22] All further references to health visitor or member of the health visiting team will be shortened to health visitor for the ease of the reader. Please note, parents were asked for this information in time 'chunks' to improve accuracy of recall.

It is important to bear in mind that during the period that parents were answering about, i.e. since their child was born, there is evidence that Flying Start health visiting services were facing implementation challenges.[23] By 2012 the majority of Flying Start areas said they offered the full entitlement in terms of one to one family contact and regular follow-up visits with fully trained staff, who could call on a wide variety of additional services and support. However, during the time since their child was born, only 13 out of 22 areas had achieved and were maintaining the Flying Start target caseload of 1:110.

However, all areas were in agreement that the visits with families in Flying Start areas were longer and more intensive and it was this rather than (necessarily) an increased number of visits that was key to better provision.

2.2 Parenting programmes

Greater access to approved parenting programmes is another core element of the Flying Start offer. Prior to the roll-out of the programme, a literature review was commissioned to review parenting programmes in use within Wales and more widely, examining specifically whether there is evidence of improved outcomes for children when the programmes are used with children aged 0-4 based on randomised controlled trials (RCTs).[24] On the basis of this, programmes were either eligible for funding through Flying Start, or funding with particular conditions attached. The purpose of these restrictions on funding was to ensure access to high-quality programmes that would lead to better outcomes for children in Flying Start areas, and build the evidence base around the efficacy of these programmes in doing this.[25] While some of these programmes are available outside of Flying Start areas, their number and accessibility may be lower, for example, they may be limited only to parents with particular needs.

Indeed, during the time of survey fieldwork the level of parenting support available in Flying Start areas was markedly greater than outside Flying Start areas. Outside Flying Start areas,

[23] See Welsh Government (2013) 'Area case study synthesis report'

[24] The findings from this review can be found here: http://wales.gov.uk/topics/childrenyoungpeople/publications/guidance0910/?lang=en

[25] Programmes in Group A are eligible for funding from the Flying Start funding stream. Group B programmes are eligible for funding if they fill a gap in current service delivery and there are no local examples of programmes in Group A to build upon. Group C, eligible for Flying Start Funding if they are part of a jointly-funded research programme, in which academic partners work with local practitioners to evaluate their effectiveness. The programmes are:
Group A: Handling Children's Behaviour, The Incredible Years, Parenting Positively or Parent Plus
Group B: Triple P – The Positive Parenting Programme, The Neonatal Behavioural Assessment Scale/NBAS/Brazleton/New Baby Assessment
Group C: PIPPIN, Stepping Stones, Coping with Young Children, The Healthy Child, The Family Links Nurturing Programme, Nurture Group, Nurturing Programme, Fun and Families, High Scope – Caring Start and Hand in Hand Programmes, Steps to Excellence, You Make the Difference.
Prior to the start of Wave 2 fieldwork, Ipsos MORI administered a short questionnaire to Flying Start coordinators in every Flying Start area to find out how these courses are described locally as this varies widely from area to area. This information helped to ensure that parents were asked about each programme correctly using its local name. This is important for ensuring accurate recall and therefore reliable data.

access to most parent support programmes was still restricted to those families who had been referred by other agencies because of their level of need, rather than parents being able to self-refer, as is the case for some programmes in Flying Start areas.[26] Parenting support for Flying Start was also reviewed and a report published in 2013. [27]

Parenting programmes aim to improve parenting behaviours, and by extension the home environment and child educational and social development. Evidence from SQW's report suggests that since 2009, in Flying Start areas, there appears to have been a greater emphasis on developing parenting skills and not simply on establishing activities in which parents could get involved with their children and/or other parents.[28] These outcomes are explored in later chapters although any impact on these outcomes may be medium to long term.

An immediate goal of the Flying Start programme is to increase knowledge of, referrals to and take-up of parenting programmes, often in a context of barriers to take-up that are difficult to overcome. Qualitative work with high need families found that for some, there were cultural barriers to attending parenting programmes, such as the belief that parenting is not something that can be learned or improved. Other parents in Flying Start areas face a wide range of other difficulties taking up such programmes including limited access to transport or childcare for other children, disability, mental ill health, and lack of confidence.[29]

In this context, the estimated impact on take-up of parenting programmes in Flying Start areas has been considerable, and suggests that the work of health visitors and other early years workers in publicising these programmes and encouraging attendance has been successful. Our analysis estimates that 17.9 per cent more families in the Flying Start sample were aware of the existence of those parenting programmes than those in the matched comparison sample (see Table 4). The findings indicate that families are also being referred to these programmes; 16.6 per cent more families in the Flying Start group reported being referred than in the matched comparison group.

There is not only a greater level of awareness and referral but the analysis indicates that take up of these programmes is also statistically significantly higher; 12.5 per cent more Flying Start than matched comparison respondents attended at least one of these programmes.

[26] Welsh Government (2013) 'Area case study synthesis report'
[27] http://wales.gov.uk/statistics-and-research/parenting-support-for-flying-start/?lang=en
[28] As above.
[29] http://wales.gov.uk/statistics-and-research/parenting-support-for-flying-start/?lang=en

It is likely that the impact of attendance at these programmes on child development and parenting may not be evident for a number of years beyond the timeframes for this evaluation.[30]

That said, it is encouraging that Flying Start has resulted in greater provision and uptake of these programmes. Indeed, reported impacts of attendance at these parenting programmes were evident in the qualitative work with high need families. This work suggests that the impacts of such programmes are many and diffuse and not just limited to children aged 0-3; often the parents perceived a much greater impact on the whole family and the home environment than on their child of Flying Start age.

Table 4: Indication of impact of Flying Start on awareness of, referral to and take up of parenting programmes (including data from wave 1)

Indicator	**Flying Start group**	**Comparison group**	**Impact (*indicates statistically significant)**
	%	**%**	**%**
Aware of at least one approved parenting programme	47.7	29.8	17.9*
Referred to at least one approved parenting programme	24.0	7.4	16.6*
Attended at least one approved parenting programme	17.7	5.2	12.5*
Base (unweighted)	*1,030*	*1,054*	

2.3 Language and Play

Language and Play (LAP) is a basic skills programme for parents and their children aged 0-3 which helps them learn together through play and fun activities. It is available across Wales but funding was put in place to try to make the LAP programme accessible to every parent in Flying Start areas where possible. It is provided in many different guises across the areas, sometimes in-home by a Play Support worker, and more often in a group setting, either in a

[30] Heckman J et al (2010) ' A new cost-benefit and rate of return analysis for the Perry Preschool Program: A summary' NBER Working Paper No. 16180.

community setting or at a Flying Start childcare setting. Some areas have expanded the offer to also include number development (Numbers and Play).

It is important to note that at the time of the second wave of the survey, six out of 22 local authorities delivering the Flying Start programme reported that the LAP offer was the same as in non-Flying Start areas.[31] However, most Flying Start areas reported in 2012 that LAP provision is 'enhanced' in Flying Start areas with a higher number of settings and classes and a greater focus on cross-referrals. As a result, it is to be expected that awareness, referral and uptake of this programme should be higher among the Flying Start group than the matched comparison group in these areas.

Findings from the analysis indicate Flying Start has had a considerable impact. The analysis estimates that 29.4 per cent more respondents in the Flying Start group are aware of LAP than in the matched comparison group. Referrals are also higher with an estimated 24.2 per cent more respondents in the Flying Start group reporting being referred to LAP and 13.2 per cent more reporting they have attended LAP (Table 5).

Table 5: Indication of impact of Flying Start on awareness of, referral to and take up of LAP (including data from wave 1)

Indicator	**Flying Start group**	**Comparison group**	**Difference (*indicates statistically significant)**
	%	**%**	**%**
Aware of LAP	58.4	29.0	29.4*
Referred to LAP	38.7	14.5	24.2*
Attended LAP	25.6	12.4	13.2*
Base (unweighted)	*1,030*	*1,054*	

It is important to bear in mind that findings from the qualitative research suggest that the analysis above may underestimate the impact on access to and take-up of LAP/NAP, not least because very few users in Flying Start areas identify it by this particular name. While parents who took part in the survey were read aloud a card that explained the terms, qualitative interviews with high-need users of LAP/NAP services in Flying Start areas found

[31] Welsh Government (2013) 'Area case study synthesis report'.

that where the classes were well-integrated with childcare, parents who attended them found it difficult to identify LAP/NAP as a separate course.

2.4 Childcare

The fourth key Flying Start service is the provision of free, high quality childcare for 2-3 year olds for 12.5 hours each week, 39 weeks a year delivered in either a group setting or approved childminder. Figures from the Welsh Government suggest that in the majority of local authorities the take up of childcare between 2012 and 2013 was at least 90 per cent.[32]

2.5 Other early years services

Referrals between elements of the Flying Start offer have been discussed above. However, increased contact with early years workers at any of the Flying Start services should also lead to referral to other early years services. Health visitors, childcare workers and other health professionals may encourage attendance at services such as parent and toddler groups, with a view to encouraging parent and child bonding, child learning and play and creating better social outcomes for parents. It would be expected that parents in Flying Start areas would be more likely to have heard of, be referred to and attended one of these wider services.

In both waves of the survey, parents were asked about knowledge of, referral to and attendance at six specific child services that were available across all Flying Start areas, namely: Safety Party; Aquatots; parent and toddler group; playgroup; coffee mornings; and shopping trips, as well as a number of area-specific services. In the context of very high awareness across areas, parents in the Flying Start group are slightly more likely to be aware of at least one service (2.5 per cent more parents in the Flying Start group report being aware of these groups than in the matched comparison group). They are considerably (19.7 per cent) more likely to have been referred to at least one service by a health visitor, a childcare or nursery worker or another health worker or professional. However, there was no statistically significant impact on likeliness of having taken up one of these services, within the context of relatively high attendance overall (see Table 6).

It is important to consider that while formal parenting support (as discussed in the previous section) was often provided by a fully-Flying Start funded team (and the evaluation provides evidence of higher take up rates of these services among Flying Start respondents), the provision of informal Flying Start support was often provided by the voluntary and

[32] Measuring take up of the Flying Start childcare offer through the survey is difficult as parents may not always know they are using the Flying Start offer and not just the generic childcare services. Therefore we feel it is more reliable to report on the Welsh Government statistics, see http://wales.gov.uk/topics/statistics/headlines/health2013/flying-start-summary-statistics-2012-13/?lang=en].

community sector. Reliance on this sector to provide these wider services may therefore affect availability and take up.

Table 6: Indication of impact of Flying Start on awareness of, referral to and take up of other child services (including data from Wave 1)

Indicator	**Flying Start group**	**Comparison group**	**Difference** **(*indicates statistically significant)**
	%	**%**	**%**
Aware of at least one service	96.8	94.2	2.5*
Referred to at least one service	81.6	61.9	19.7*
Attended at least one service	73.5	68.4	5.1
Base (unweighted)	*1,030*	*1,054*	

2.6 Contact with and referral to other professionals

The final core element of the Flying Start programme is information sharing and referral between all practitioners in Flying Start areas, to support early identification of need and action to provide higher levels of support where there is evidence of a higher need or risk. Health visitors are expected to play a key role in this process.

Where Flying Start services are not sufficient to help the parent of a child in question, the early identification of need should then lead to referral to other appropriate professionals. Parents in Flying Start and comparison areas were asked whether they had had contact with or been referred to a number of professionals in relation to their child, namely dietician/nutritionist, family health worker, family support worker, midwife, midwife support worker, nursery nurse, support worker, play specialist, social worker, and speech and language therapist. Table 7 shows that there was no statistically significant impact on either of these indicators, which means that children in Flying Start areas are no more likely to have been referred to or received help from these professionals than those in comparison areas.

Table 7: Indication of impact of Flying Start on referrals to and contact with professionals

Indicator	Flying Start group	Comparison group	Difference (*indicates statistically significant)
	%	%	%
Contact with professionals	76.1	76.4	-0.3
Referred to professionals	26.9	23.2	3.7
Base (unweighted)	*1,030*	*1,054*	

2.7 Conclusion

Though Flying Start services were still not fully operational in some local authorities when the survey took place (see section 1.6.2), the impact estimates suggest that Flying Start has been successful in increasing the number of health visitor contacts parents receive and raising awareness of and encouraging attendance at two of the other core elements of the offer, namely LAP and parenting programmes. This suggests that health visitors and early years workers have been successful at publicising and encouraging attendance at these services. This success should not be underestimated as it is the platform needed for building the medium and long term impacts that the programme is expected to deliver.

Lack of evidence of impact on attendance at wider services and contact with other professionals may be due to the availability of these services, which are not directly funded by Flying Start, rather than a failure of the programme. However, further research on this topic may be warranted, perhaps through an analysis of secondary health data in Flying Start and comparison areas.

Estimated impact of Flying Start on perceptions of services

3. Estimated impact of Flying Start on perceptions of services

Summary

- The perception that the overall quality of childcare available locally for children under three is very or fairly good was 13.7 per cent higher among the Flying Start group at just under 83 per cent.
- Satisfaction with childcare in terms of helping children learn and develop was also 13.5 per cent higher than in the matched comparison group.
- Flying Start parents are 7.6 per cent more likely to think that the area has become a better place to bring up children than the comparison group.
- Parents from Flying Start areas were around 5 per cent more likely than those from the comparison group to perceive that the local services they have used have provided sufficient advice and support in four parenting areas: how to have a good relationship with their child; how to help their child learn and meet their full potential; how to manage their child's behaviour; and how to help them feel confident as a parent.
- Parents in Flying Start areas rated the local facilities, services and support available for families with children aged between 0-3 years as very or fairly good; this is 12.1 per cent higher than the parents from the matched comparison group.
- The Flying Start group was also 17.4 per cent more likely to report that the services and support available for families had improved in the last two years (39.8 per cent compared to 22.3 per cent of the comparison group).

Flying Start intends to produce high quality services that address a number of different family needs, and as it is rolled out is expected to improve the overall quality of service provision through targeted investment. It is expected that these improvements will result in more positive perceptions of local services which will in turn encourage families to take up these services.

This chapter explores parents' perceptions of local Flying Start services in the following three areas:

- The quality of Flying Start childcare.
- The sufficiency of parenting support.
- The perceptions of service provision generally and whether services have improved in the local area.

Please note that the data in this chapter is based on reported perceptions of the services available to parents rather than measured outcomes.

3.1 Quality of childcare provision

As highlighted in Chapter 2, free part-time Flying Start childcare for two to three year olds is a key entitlement of the programme and is often the service that parents associate most with Flying Start.[33] Research shows that early years intervention is important for child development, particularly amongst children from a disadvantaged home environment and can be successful in fostering social and language skills.[34] Such skills are likely to have an impact on later child outcomes relating to education and employment and therefore a high quality of childcare is necessary to achieve the long-term aims of the programme.

The programme requires the level of training of staff in Flying Start settings to exceed the level of training provided to staff in non-Flying Start settings. All staff at childcare settings are required to have at least a level 3 qualification in childcare, though Flying Start guidelines aimed to exceed this by encouraging leaders or managers of settings to become qualified to level 4 by 2010[35] and training is necessary for unqualified support staff who must achieve at least level 3 in childcare or equivalent. Whilst research highlights that the level 4 target is yet to be met, there have been significant improvements over the last few years in the number of staff achieving these qualifications.[36]

In addition, the Flying Start Learning Framework[37] specifies that the learning programme should be broad and encompass personal and social, linguistic, physical, intellectual, emotional, moral and spiritual development. Unlike generic childcare settings, there is also an emphasis that all settings should provide children with an opportunity to be involved in a

[33] Welsh Government (2013) 'Flying Start qualitative research with high need families'
[34] Melhuish, E.(2004)'A Literature Review of the Impact of Early Years Provision on Young Children, with Emphasis given to Children from Disadvantaged Backgrounds' National Audit Office
[35] *Flying Start guidance, Annex B*. Quality Childcare, Welsh Government http://wales.gov.uk/topics/childrenyoungpeople/publications/fstart/?lang=en
[36] By 2011/2012 over half of Flying Start areas had met the minimum training requirements for childcare and managerial staff, Welsh Government (2013) 'Area case study synthesis report'
[37] *Flying Start guidance Annex B*. Quality Childcare, Welsh Government http://wales.gov.uk/docs/dsjlg/publications/130926fsannex2en.pdf

variety of activities including being creative, learning about a healthy lifestyle and spending time both indoors and outdoors. The guidelines should mean that Flying Start childcare is of a recognisably high quality and have real benefits for early years' education.

Findings from the impact analysis estimate that the proportion of respondents in the Flying Start group who perceived that the quality of childcare available is very or fairly good was 13.7 per cent higher than among respondents in the comparison group (Table 8). Overall 82.9 per cent of parents in the Flying Start group reported that the quality of the childcare they had used was very/fairly good which is higher than measures of the quality of childcare from research carried out in England.[38] The educational aspect of childcare was also 13.5 per cent more likely to be perceived positively by parents from the Flying Start group than those from the comparison group. Over 84 per cent of parents said that it was very or fairly good at helping children learn and develop compared to 71.1 per cent from the comparison group.

Similarly, in the qualitative research with families, childcare was viewed favourably by parents across areas, and perceived to be of a notably higher quality compared to private childcare or nurseries that families had also used. Many appreciated that the setting had taken time to help their child settle and develop a close bond with staff. Settings were generally perceived as providing a positive child experience due to the wide range of activities on offer and due to the provision of one-to-one time with a key worker. Furthermore many parents attributed improvements to their child's development specifically to Flying Start childcare. These included children being more independent and learning to share, talking more clearly and more often, learning Welsh, how to count and name colours and becoming toilet trained very quickly.

[38] For instance, in the 2011 Childcare and Early Years Survey of Parents, 60 per cent of parents rated the quality of the childcare they were using as good, see Department for Education (2012) 'Childcare and Early Years Survey of Parents 2011'. Please note, this research was carried out in England.

Table 8: Indication of impact of Flying Start on parents' perceptions of local childcare provision

Indicator	Flying Start group	Comparison group	Difference (*indicates statistically significant)
	%	%	%
Rating of the overall quality of childcare available locally for children aged 0-3 as very/fairly good	82.9	69.2	13.7*
Base (unweighted)	993	974	
Rating of the childcare locally in terms of helping children learn and develop as very/fairly good	84.7	71.1	13.5*
Base (unweighted)	*986*	*948*	

3.2 Perceptions of the local area

An expected medium term outcome of the programme is improving perceptions of the local area. The effect of an increased number of services and increased socialisation between parents of young children, should in theory mean that parents are more positive about bringing their children up in the area and, therefore, in turn are more likely to use local services.

Looking at the net score for perceptions of the local area (this is based on the proportion of families who believe their area has got better minus those who say it has got worse) the analysis suggests there has been an impact as the net score in Flying Start areas is 7.6 per cent higher than in comparison areas (see Table 9).

Table 9: Indication of impact of Flying Start on parents' perceptions of the local area

Indicator	Flying Start group	Comparison group	Difference (*indicates statistically significant)
	%	%	%
Net perceive local area better to bring up children	26.9	19.3	7.6*
Base (unweighted)	*1,022*	*1,047*	

This reflects findings from the qualitative research, where many parents reported that they had noticed a positive change in the services, facilities and activities available for parents and young people in recent years, which enhanced their views of the neighbourhood. Some parents also made the connection between Flying Start and the possibility that as their children grew up it would lead to positive social change in the future.

3.3 Levels of service support for aspects of parenting

Flying Start services increase support available to parents in order to improve child outcomes relating to health, education and social development. Consequently, a variety of interventions such as frequent health visitor contact and the provision of parenting programmes or Language and Play programmes (which often encompass more intensive support in-home) aim to improve parenting behaviour and skills.

Parents were asked whether they had sufficient advice and support in relation to six different aspects of parenting. Impact analysis shows that in the following four areas, parents from the Flying Start group were statistically significantly more likely to feel they had enough support compared with the comparison group:

- How to have a good relationship with their child (an impact of 4.7 per cent)
- How to help their child learn and meet their full potential (an impact of 5.5 per cent)
- How to manage their child's behaviour (an impact of 5.1 per cent)
- How to feel confident as a parent (an impact of 5.8 per cent)

While there is no statistically significant difference between the Flying Start and comparison groups on other measures in Table 10 below, it is worth noting that the proportion of

parents reporting that they had received enough advice was still high. Just under 90 per cent of parents from the Flying Start group felt they had enough support on how to keep their child happy and healthy, and received enough speech and language support for their child.

Table 10: Indication of impact of Flying Start on parents' perceptions of support received for six aspects of parenting

Indicator[39]	**Flying Start group**	**Comparison group**	**Difference** (*indicates statistically significant)
	%	**%**	**%**
Proportion saying they received enough advice and support on how to look after their child to keep to keep them happy and healthy	88.9	85.5	3.4
Proportion saying they received enough advice and support on how to have a good relationship with their child	92.2	87.5	4.7*
Proportion saying they received enough advice and support on how to help their child learn and meet their full potential	87.5	82.0	5.5*
Proportion saying they received enough speech and language support for their child	89.5	86.7	2.8
Proportion saying they received enough advice and support on how to manage their child's behaviour	85.3	80.3	5.1*
Proportion saying they received enough advice and support on helping them to feel confident as a parent	89.2	83.3	5.8*
Base (unweighted)	*1,030*	*1,054*	

[39] Please note that caution should be applied when interpreting the outcomes of these six indicators. This is because robustness checks on the method used to estimate impact show that they may be sensitive to the matching method used (see Robustness checks in Appendix B).

3.4 Facilities, services and support available for families

The Welsh Government annually invests approximately £2,000 per child under four years old in Flying Start areas to facilitate the provision of four key family services which should work closely together to deliver a rounded package for families. It would therefore be expected that those in Flying Start areas would have more positive views about the services available to them locally, than families who are not eligible for Flying Start.

Parents were asked to rate the facilities, services and support available for families with children aged 0 to 3 years. Table 11 demonstrates that over 70 per cent of parents from the Flying Start group rated the local services available as very or fairly good, which is 12.1 per cent higher than parents in the comparison group (58.5 per cent).

The analysis also indicates that 17.4 per cent more parents from the Flying Start group believed that local services for families with young children had improved in the last two years. However, the fact that, overall, fewer than two fifths of the Flying Start group had noticed an improvement may be explained by the already high satisfaction with local services for families (70.7 per cent think that they are very/fairly good), and how noticeable the change was. All interviews were conducted with parents of 2-4 year olds, most of whom had been receiving Flying Start services for a number of years and therefore may have noticed an improvement to service provision *more than* two years ago.

The impact analysis results reflect the findings of Ipsos MORI's qualitative research with families where the majority of parents were very satisfied with the Flying Start services they had used and, in many cases, had taken up a number of services as a result of a positive experience at the first one they attended. This was often because they built up trust with Flying Start professionals, became more comfortable with the idea of using family services and because they were previously unaware that they could be supported to develop their parenting skills (many parents initially felt this was something that could not be taught). In addition, parents with multiple children noted a difference between the services available for their younger children, compared with those they received for their older children before Flying Start was available.[40]

[40] Welsh Government (2013) 'Flying Start qualitative research with high need families'

Table 11: Indication of impact of Flying Start on parents' perceptions of facilities, services and support available for families and children locally

Indicator	Flying Start group	Comparison group	Difference (*indicates statistically significant)
	%	%	%
Rating of the facilities, services and support available for families as very/fairly good	70.7	58.5	12.1*
Base (unweighted)	1,030	1,054	
Proportion reporting that the facilities, services and support available for families has got better in the past two years	39.8	22.3	17.4*
Base (unweighted)	*939*	*975*	

3.5 Conclusion

Analysis shows that investment in Flying Start areas has created well-regarded services for families and services which meet parents' needs. Parents in the Flying Start group were more likely to be satisfied with the services available than those in the comparison group. There has been a positive impact on perceptions of the quality of childcare, the rating of childcare in helping children learn and develop and parents' general perceptions of the local area. Services also appear to be addressing parenting support needs in four key areas: child-parent relationship, child learning, child behaviour, and parental confidence.

Estimated impact of Flying Start on parents

4. Estimated impact of Flying Start on parents

Summary

- There is no evidence from the survey that the programme has had an impact on immunisation rates, which is consistent with other research using linked data undertaken by Swansea University. Given that baseline rates were similar between Flying Start and comparison areas this may be a cause for concern, though it is worth noting that immunisation rates were high overall at over 85 per cent.
- Despite higher take-up of parenting programmes, LAP and access to an enhanced health visiting service, levels of parenting self-confidence are similar among Flying Start and matched comparison parents.
- The analysis also found no difference between Flying Start and matched comparison families on home environment measures.
- As noted in Chapter 1, although there is no difference between parents in the Flying Start group and those in the matched comparison group, it is important to consider the possibility that these two groups had different 'starting points' and therefore outcomes may have improved among Flying Start respondents to reach 'parity' with relatively less deprived respondents in comparison areas. However, the limited baseline data means we are unable to conclude that this was definitely the case.

The Flying Start programme was originally conceived as a child-centred programme, and focussed on improving outcomes for children. However, the Flying Start model outlines how support for parents and the community needs to be in place in order to achieve these outcomes. Many of the longer term changes the programme aims to make rely on better outcomes for parents over the short and medium term.

If parents are experiencing the full Flying Start offer, it is to be expected that there would be positive impacts on how supported they feel, their behaviours and confidence as parents, and their views of the area as a good place to bring up a child. These outcomes should be achieved through extra support and advice from the health visitor, advice from staff in Flying Start childcare settings, and lessons learned through LAP and parenting programmes. According to the Flying Start model, the higher take up of LAP and parenting programmes in Flying Start areas should lead to better outcomes for Flying Start parents than for those in

matched comparison areas (please note that in all areas attendance at these services is voluntary.) This chapter looks at parents' self-reported behaviours, skills and confidence, the mental health of parents and parents' overall perceptions of the social support that they have available and their views of the local area.

4.1 Parenting behaviour, skills and confidence

4.1.1 Immunisation

One of the key aims of the enhanced health visiting offer is to change some of the parent behaviours in the early years; specifically breast-feeding, weaning at the advised age and keeping child immunisations up to date. At Wave 1, we found no evidence of impact on take-up of breastfeeding or numbers of parents weaning their children at the advised age. We also found no evidence of impact on take-up rates for immunisations.[41]

The baseline study carried out in 2008 by SQW found that immunisation take-up rates prior to Flying Start delivery were similar in Flying Start and comparison areas. By the age at which they were surveyed for the second time, parents across areas should have been encouraged to vaccinate their children against a number of preventable diseases and illnesses including measles, meningitis, polio and diphtheria, among others. [42]

Table 12 below shows that immunisation rates are slightly higher for Flying Start parents than matched parents in comparison areas, but this difference is not statistically significant. It is worth noting that this is in the context of a high rate overall.[43]

[41] Welsh Government (2011) 'Evaluation of Flying Start: Findings from the baseline survey of families - mapping needs and measuring early influence among families with babies aged 7-20 months,'

[42]The UK Childhood immunisation schedule is here: http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=54151 (accessed 14/08/2013). During cognitive testing for the Wave 2 survey, we found that parents did not always remember the exact names of the various immunisations their children had had, so instead an overall question about whether all child immunisations are 'up to date' was added, and interviewers were instructed on how to talk parents through their child health record book (the 'Red Book') to ensure this question was answered accurately.

[43]It is not possible to find national comparison data, as statistics are produced on a vaccine-by-vaccine case, rather than a child-by-child case. The latest quarterly Coverage of Vaccination Evaluated Rapidly (COVER) report does state that vaccination rates for all vaccinations that should be received before children are aged 5 are above 90 per cent http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=54144 (accessed 14/08/2013).

Table 12: Indication of impact of Flying Start on immunisation rates

Indicator	Flying Start group	Comparison group	Impact (*indicates statistically significant)
	%	%	%
Immunisations up to date	87.8	85.6	2.2
Base (unweighted)	*1,030*	*1,054*	

Take up of vaccinations is complex and multi-faceted. The slightly higher levels of population mobility in Flying Start areas relative to comparison areas, may mean it is relatively more challenging to ensure parents stay up to date with their immunisations. In addition, further research by Swansea University has found that immunisation rates do not differ between children from families accessing Flying Start services and families from a comparison group from similarly disadvantaged areas.[44]

It may be that, in some areas, there are issues affecting take-up of immunisations that cannot be solved through the four main Flying Start services, which can only seek to break down parental barriers by providing information and helping to motivate parents to immunise their children. Qualitative research in Cardiff on parents' views of childhood immunisations found that systems barriers and health care provider barriers may also be at play.[45] Further research may be needed into the drivers of lack of impact on immunisation rates in Flying Start areas overall, and the differences across areas.

4.1.2. Parenting self-efficacy

One of the key aims of the parenting programmes offered as part of the Flying Start programme is increasing parental confidence. Evidence suggests that since 2009 there has been a greater emphasis on developing parenting skills by these Flying Start programmes and not just establishing activities in which parents can interact more with their children.[46] In some cases, advice and support from the health visitor and attendance at LAP classes or less formal drop in parenting support services (such as mother and toddler groups) also serve this purpose.

[44] Swansea University (forthcoming), Flying Start Data Linkage Demonstration Project. Funded by the ESRC and Welsh Government.

[45] A paper presenting findings from this research was presented at the Honor Society of Nursing 42nd Biennial Convention, Indiana, USA 16-20 November 2013. This was presented by Joy Merrell and the conference abstract was called 'Time to Talk Immunisations: Parents' Views of Childhood Immunisations in Wales, UK'.

[46] Welsh Government (2013) 'Area case study synthesis report'.

We have measured the programme's impact on parental confidence using the TOPSE tool.[47] Unlike many other evaluation tools, it has been found that the results from TOPSE's self-reported measures are good indicators of actual parental behaviour.[48] As Table 13 below indicates, there are no statistically significant differences on TOPSE scores between parents in the Flying Start group and those in the matched comparison group.

Table 13: Indication of impact of Flying Start on parental confidence

Indicator	**Flying Start group**	**Comparison group**	**Difference** **(*indicates statistically significant)**
	Score	**Score**	**Score**
Play and enjoyment	57.0	56.4	0.5
Emotion and affection	57.1	57.0	0.1
Self-acceptance	54.3	53.7	0.6
Empathy and understanding	54.8	54.6	0.2
Learning and knowledge	52.7	52.8	-0.1
Discipline and setting boundaries	48.4	48.7	-0.3
Control	46.7	46.5	0.2
Pressures	44.9	44.3	0.6
Base (unweighted)	*988*	*1,026*	

[47] As a result of the need to evaluate parenting programmes effectively, Linda Bloomfield and Sally Kendall at the University of Hertfordshire developed this Tool to Measure Parenting Self-Efficacy. This tool is also used locally by Flying Start providers to measure the impact of parenting programmes.

[48] TOPSE questions aim to understand parents' confidence in their parenting ability. They consist of a mix of positive and negative questions, and responses are given on a scale of nought to 10, where nought is completely disagree and 10 is completely agree. Parents are asked to rate themselves on a scale of 0-10 on a range of statements such as "When my child is sad I understand why" and "I can remain calm when facing difficulties". Scores for the 48 statements are then are used to generate aggregate scores which give an indication of parents' confidence in each of the following eight areas: emotion and affection, play and enjoyment, empathy and understanding, control, discipline and setting boundaries, pressure, self-acceptance, and learning and knowledge. Due to the sensitive nature of some of the questions, and the need to keep this section of the study as similar as possible to other research projects in which TOPSE has been used, these questions were asked around halfway through the interview as part of a self-completion section. Parents were offered the chance to complete the section themselves, have the interviewer complete the section for them or refuse to answer the section completely.

It is important to consider that the qualitative research showed that high need parents in Flying Start areas who have attended parenting programmes reported not only learning specific techniques to help them deal with their children's behaviour and guide development, but also that they had become more confident overall as parents. Many also noted that their relationship with their health visitor had helped them feel more self-assured in their parenting. Additionally, all Flying Start areas have reported at least some positive changes in parental behaviour as a result of their programmes, using their own methods of evaluation.[49] Systematic use of the TOPSE tool at the start and end of parenting programmes, with follow ups six months to a year after attendance, may help better pinpoint whether these courses are having impact and which are having the greatest or least impact.

4.1.3 Home environment

The assumption behind the Flying Start model is that when parents are better supported through Flying Start services, they should then be able to put in place a home environment that is conducive to early child development and learning. This is important to long term child outcomes, as the home environment has been linked to behaviour problems, poor attention and cognitive development problems in children.[50] This outcome was measured via the following sets of questions: [51]

- Early Home Learning Environment Index (EHLEI): This measures early home learning activities known to be strongly linked to later educational outcomes, such as reading to a child, playing with numbers and letters, drawing and going to the library.
- Confusion, Hubbub and Order Scale (CHAOS): This 15-item scale is an instrument designed to assess the degree of disorder in a child's home.

As Table 14 shows, there are no statistically significant differences between parents in Flying Start areas and those in the matched comparison group on either of these measures.

[49] Welsh Government (2013) 'Area case study synthesis report'
[50] See, for example, Deater-Deckard, K et al (2009) 'Anger 'frustration, task persistence, and conduct problems in childhood: a behavioural genetic analysis' Journal of Child Psychology and Psychiatry [online]. Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2659560/>.
[51] The Early Home Learning Environment Index (EHLEI): This measures early home learning activities known to be strongly linked to later educational outcomes, such as reading to a child, playing with numbers and letters, drawing and going to the library. The Confusion, Hubbub and Order Scale (CHAOS): This 15-item scale is an instrument designed to assess the degree of disorder in a child's home.

Table 14: Indication of impact of Flying Start on the home environment

Indicator	Flying Start group	Comparison group	Difference (*indicates statistically significant)
Home learning score (0-42) (High implies Learning)	22.5	22.2	0.3
Base (unweighted)	988	1,026	
Home chaos score (1-5) (High implies chaotic)	4.7	4.8	-0.1
Base (unweighted)	*1,030*	*1,054*	

Qualitative evidence found that high need parents in Flying Start areas who had numerous health visitor contacts and had attended parenting programmes and LAP (i.e. heavy service users) reported that they thought that they were now more likely to engage in educational activities with their children. Some also said that their home was much calmer and well-ordered than before taking up Flying Start services. These impacts were by no means universal, but it is important to bear in mind when interpreting these figures, that as reported by some parents, they perceive that access to Flying Start services has led to a positive change in the home environment.

4.2 Social support and mental health

4.2.1 Social support

Taking up Flying Start services and meeting other parents who do the same should in theory lead to parents having more social contacts. Qualitative research with high need families highlighted that isolation had a deep effect on families' lives in Flying Start areas. It found that the programme's success in helping parents with mental health issues to leave the house and make new connections had led to improvements in quality of life for many parents. This in turn gave them more confidence in their parenting, and more motivation to do educational and social activities with their children.

One measure of social connection is the percentage of parents in Flying Start areas saying that they 'have enough support from family and friends when they are worried or stressed about something to do with caring for their child'. The findings from the analysis show that

this is slightly higher among the Flying Start than comparison group, although the difference is not statistically significant (see Table 15).

Table 15: Indication of impact of Flying Start on parents' self-reported level of support

Indicator	Flying Start group	Comparison group	Difference (*indicates statistically significant)
	%	%	%
Parent has enough support	82.6	78.8	3.8
Base (unweighted)	*1,030*	*1,054*	

4.2.2 Mental health

An anticipated outcome shown in the Flying Start model is improvements to parental health. Related to this the Flying Start health visitor offer may provide parents with greater access to support for mental health issues, which could lead to lower levels of parental depression in Flying Start areas.

While those in Flying Start areas may have better access to mental health support, as shown in Table 16 below, there is no evidence that this has yet led to statistically significantly lower levels of depression, when measured against comparison groups.[52]

[52] Parental depression was measured using the Malaise Inventory, which asks about nine common indicators of adult depression. The figures below are based on the numbers of parents saying yes to at least four of these statements.

Table 16: Indication of impact of Flying Start on parental depression

Indicator	Flying Start group	Comparison group	Difference (*indicates statistically significant)
	%	%	%
Parental depression indicator	18.3	17.4	0.9
Base (unweighted)	*1,030*	*1,054*	

It may be that any effect on reducing rates of depression will only materialise in the medium to long term. On the other hand, it may not be realistic to expect the Flying Start programme to have an impact on this issue. While the programme aims to improve short to medium term outcomes for parents, the lack of difference must be interpreted in the context of the wider problems that are prevalent in disadvantaged areas which are strongly correlated with high rates of mental ill health, such as financial poverty, high rates of unemployment, and substance abuse which were very apparent among high need families interviewed as part of the qualitative research. Flying Start is not designed to tackle these wider problems and, as such, its impact on depression rates may be limited.

4.3 Conclusion

While the survey provides evidence that the Flying Start programme has been successful in increasing access to early years services among parents and children, the evidence that the programme has resulted in improvements to parent outcomes is less clear.

Though there were no statistically significant differences found in immunisation rates, parental confidence, the home environment, levels of parental support and depression, this could be interpreted as a positive outcome. As noted in the section on methodological challenges (1.5), it is possible that for some parental outcomes, starting points pre-Flying Start were lower among parents in Flying Start areas than among parents in comparison sample areas, and therefore no statistically significant differences between the two may be an indication of improvements in Flying Start areas. This is because of the higher levels of disadvantage in these areas which the matching method could not control for. In this context it could be argued that Flying Start services have potentially achieved parity between both groups, though without baseline data it is not possible to confirm this.

Findings from other strands of the evaluation, in particular the qualitative research with high need families, also show that the parents report that Flying Start has influenced their parenting behaviour and skills and therefore supports the suggestion that the programme has generated positive impacts.

Estimated impact of Flying Start on children

5. Estimated impact of Flying Start on children

Summary

- Findings from the analysis show that there are no statistically significant differences between Flying Start and non-Flying Start areas in terms of child outcomes i.e. cognitive or language skills or their social or emotional development.
- As discussed in the previous chapter, it is possible that the lack of statistically significant difference between children in Flying Start and comparison areas could be due to pre-Flying Start differences; given the greater levels of deprivation in Flying Start areas it is possible that outcomes among Flying Start families started from a lower base. This is supported by further research undertaken by Swansea University using data linking on Key Stage 1 attainment levels before the introduction of the programme.
- It is also possible that child language and cognitive outcomes need to be evaluated over a longer period of time than the timeframes of this evaluation. Therefore tracking educational attainment scores in the future will be important.

The families that were surveyed in 2012 and early 2013 should have had access to the full Flying Start offer. As outlined in Chapter 2, they had more health visitor contacts on average than comparison parents, and had higher attendance rates at parenting programmes and Language and Play. In addition, by 2012, childcare provision was at a level of 'steady state' delivery with most Flying Start areas reporting that they deliver the full childcare service offer (2.5 hours a day, five days a week for 39 weeks a year) for all children aged 2 to 3, with appropriately qualified staff and one to one provision for those with additional needs.

Improving child outcomes is the key aim of the Flying Start programme. Many of those outcomes will only be apparent when the children enter school (at the time of the survey children were aged between two and four years old) and as such it is vital that their key stage records are tracked in future. By the age of three however, the Flying Start model assumes that children in Flying Start areas should be developing at a faster rate than they would have otherwise.

This chapter looks at impact in three key areas of child development:

- Language and cognitive development.
- Social and emotional development.

- Physical development.

5.1 Language and cognitive development

Access to high-quality childcare should help children develop their language and cognitive skills before they reach nursery age. In order to measure this, children in Flying Start areas whose parents participated in the study were assessed using the following British Ability Scales (BAS):

- Naming Vocabulary: The test items consist of a booklet of coloured pictures of objects which the child is shown one at a time and asked to name. The scale measures expressive language ability, and successful performance depends on the child's previous development of a vocabulary of nouns.
- Picture Similarities: Children are shown a row of four pictures on a page and asked to place a card with a fifth picture under the picture most similar to it. This assessment measures children's problem solving abilities.

Table 17 below shows the average percentile score for Flying Start and comparison children.[53] There are no statistically significant differences in the scores achieved by both groups for either assessment. However, data linkage work covering the period 2004 to 2008 has shown that a smaller proportion of children in what are now Flying Start areas attained Key Stage 1 at the expected level compared to those from the next most disadvantaged areas.[54] This provides some evidence that there may be underlying differences between children in the Flying Start group and those in the comparison group at baseline which could not be accounted for in the matching method used for this analysis. Therefore, the fact that the analysis for this evaluation shows there are no statistically significant differences between children in Flying Start areas and those in comparison areas may indicate that Flying Start has led to improved outcomes among children in the Flying Start group if they started from a lower baseline position. However, there is no evidence to prove this conclusively.

[53] Each completed test was assigned a raw score. Each raw score was then computed into a normed T-score, which was derived from the standard BAS II norm tables and defined with reference to the standardisation samples used in developing the assessments. As there are separate standardisation samples for each three-month age band from the age of 2 years 6 months to 7 years 11 months, each child's T-scores was computed based on the standardisation score of his or her age band at the time of the interview. These T-scores were then be assigned to a percentile.

[54] These next most disadvantaged areas do not exactly match the control areas in which fieldwork was conducted for this survey, but were selected using similar principles. Welsh Government, Economic and Social Research Council (ESRC), Swansea University (forthcoming), 'Flying Start Data Linkage Demonstration Project'.

Table 17: Indication of impact of Flying Start on children's language and cognitive development

Indicator	Flying Start group	Comparison	Difference (*indicates statistically significant)
British Ability Scales naming vocabulary percentile- top 25 pct	29.1	34.9	-5.8
British Ability Scales naming vocabulary percentile- top 50 pct	55.2	55.8	-0.6
British Ability Scales naming vocabulary percentile- top 75 pct	72.4	70.1	2.4
British Ability Scales picture similarities percentile – top 25 pct	23.9	26.0	-2.0
British Ability Scales picture similarities percentile- top 50 pct	46.3	45.8	0.5
British Ability Scales picture similarities percentile- top 75 pct	72.1	68.9	3.3
Base (unweighted)	*1,030*	*1,054*	

Moreover, the high need parents interviewed as part of the evaluation frequently reported improvements in child speech and language development, literacy and numeracy skills as a result of Flying Start childcare. Parents thought that their children were more prepared for nursery and school as a result of Flying Start and that they had a head start in their educational development.

5.2 Social and emotional development

The Flying Start model hypothesises that access to Flying Start childcare, along with improved parenting as a result of health visitor interventions and parenting programmes, should lead to improvements in children's social and emotional development.

To estimate impact, we used the measures in the 'Strengths and Difficulties' scale, which is a brief behavioural screening questionnaire and widely used to assess child mental health.[55] It asks about 25 attributes, some positive and others negative. These 25 items are divided between 5 scales below. Parents were asked to answer questions about their children in relation to these topics.

- Emotional symptoms (5 items).
- Conduct problems (5 items).
- Hyperactivity/inattention (5 items).
- Peer relationship problems (5 items).
- Prosocial behaviour (5 items)

There are no statistically significant differences between Flying Start and comparison children on these indicators (see Table 18). All scores fall within the 'normal' range.[56]

Table 18: Indication of impact of Flying Start on children's social and emotional development

Indicator	**Flying Start group**	**Comparison**	**Impact (*indicates statistically significant)**
	Average scores		
Emotional symptoms score	1.2	1.2	0.0
Conduct problems score	2.7	2.8	0.0
Hyperactivity score	4.1	4.2	-0.1
Peer problems score	1.5	1.6	-0.1
Prosocial score	7.9	7.7	0.2
Total difficulties score	9.5	9.8	-0.2
Base (unweighted)	*988*	*1,026*	

The survey also included the independence/self-regulation score used in the National Evaluation of Sure Start. This is a composite of answers to the following statements that parents answered about their child:

- Likes to work things out for self.
- Does not need much help with doing things or playing games.

[55] Please see http://www.sdqinfo.com/ for further information

[56] Normal scores for the conduct problems and peer problems questions are 0-3 and 0-5 for the emotional and hyperactivity questions, The normal prosocial score is between 6 and10, and the total difficulties normal range is 0-15.

- Chooses games on their own.
- Keeps trying even when something is difficult.
- Can move to a new game after playing with another toy or game.

Table 19 shows that there are no statistically significant differences between Flying Start and comparison children on this indicator.

Table 19: Indication of impact of Flying Start on children's independence/self-regulation

Indicator	**Flying Start group**	**Comparison**	**Impact (*indicates statistically significant)**
	Average scores		
Child independence/self-regulation score	6.4	6.2	0.2
Base (unweighted)	*988*	*1,026*	

5.3 Conclusion

There is no evidence of a statistically significant difference between the Flying Start and comparison groups on any of the child outcomes detailed in this chapter. However, as noted throughout this report, it is feasible that the lack of difference between the Flying Start and comparison groups may indicate an improvement in outcomes among Flying Start respondents, assuming they started from a lower base than respondents in the comparison group. The analysis of Key Stage 1 attainment data pre-Flying Start suggests that this may be the case.

Other sources of information suggest that the programme has led to positive child outcomes. The Flying Start summary statistics for 2012/2013 contained measurements of developmental milestones, based on a Welsh Government approved developmental assessment tool used by Flying Start health visitors at the 2 year and 3 year scheduled development check that they carry out with all children. This tool assesses a child's development across key areas, including physical, cognitive, speech and language, and social interaction, comparing the child's progress with a norm derived from a standard reference group of children of a similar age.

According to these statistics:

- At age 2: 55 per cent of children in the Flying Start programme reached or exceeded their developmental milestones; a further 27 per cent were within 1 standard deviation of developmental norms.
- At age 3: 64 per cent of children in the Flying Start programme reached or exceeded their developmental milestones; a further 22 per cent were within 1 standard deviation of developmental norms.

Although these data are not based on children included in the survey and are based on separate cohorts of children at age 2 and age 3, it suggests that Flying Start children may be making improvements between the ages of 2 and 3, during which they have access to the free, high-quality childcare offer. In order to provide conclusive evidence about the impact of the Flying Start programme on child outcomes, further monitoring is necessary (see section 6.3). It is also possible that child language and cognitive development are longer term outcomes that go beyond the timeframes for this evaluation and that the impact will not, therefore, be observable until Flying Start children enter education.

Conclusions

6. Conclusions

6.1 Has Flying Start had an impact?

The evidence provided in this report shows the Flying Start programme has resulted in greater engagement with family services than would have been the case without the programme. For example, those in Flying Start areas had on average 5.7 more visits from the health visiting team than families in non-Flying Start areas. This is vital for the early identification of need and encouraging families to take up other Flying Start entitlements and other early years services. Awareness of, referral to and take-up of parenting programmes and Language and Play was also higher amongst parents in the Flying Start group, demonstrating that the programme has been successful in promoting these services. Greater engagement with early years services is important for building the medium and long term impacts that the programme is expected to deliver in the future.

The report also shows that local family services have a stronger reputation among families in Flying Start areas than in areas where the programme is not operating. For example, families in the Flying Start group were more likely to have noticed an improvement in local services over the last two years. Satisfaction with local childcare provision was also higher amongst Flying Start families in terms of quality and its ability to help children learn and develop. The strong reputation of Flying Start services is important and should act as a catalyst for encouraging parents to take up services in the future.

No statistically significant differences were found between respondents in Flying Start and those in comparison areas on outcomes relating to parenting or child development. Parents certainly had positive *perceptions* of the extent to which Flying Start had provided support and advice that helped them improve as parents and helped their child learn and develop. There are a number of possible explanations for this. It is possible that Flying Start has not had the anticipated impact because the programme had not been fully embedded in all local authorities by the time of the survey, meaning that families were not experiencing a high level of intervention. Although the programme was launched in 2006/2007, it was not fully rolled out until 2009 and there remained implementation issues across many areas which have been noted throughout this report. Another explanation is that Flying Start has not had the anticipated impact because of external factors i.e. it may be that not all aims of the programme are possible within the remit of Flying Start services themselves. This can be demonstrated by the similarity in immunisation rates between Flying Start and comparison areas which suggests that there are additional barriers to take up which the programme may not be able to fully address.

However, it is possible that Flying Start *has* had a positive impact on parenting and child development. Assuming that families living in Flying Start areas started from a lower 'base' than those in the comparison group before the programme was introduced, the lack of difference between the two groups in this report suggests that Flying Start may have brought about improvements among the families in Flying Start areas, so their outcomes are now on a par with those in less disadvantaged comparison areas. It may be that bringing about 'parity' reflects what it is hoped Flying Start would achieve.

There is very limited data which provides conclusive evidence that families in Flying Start areas started from a lower baseline position before the programme for the outcomes measured in this evaluation. However, the data which is available, for example, educational attainment data, suggests that this explanation is plausible.

6.2 Further monitoring of impact

In order to ascertain that Flying Start is contributing to the anticipated family, parent and child outcomes, it would be helpful to track the development of Flying Start families in the future through administrative datasets if possible, for example, through education records such as the National Pupil Database. These datasets could also be used to link administrative data collected before the roll-out of the programme in order to retrospectively create a baseline.

The Flying Start surveys have generated a rich data resource with detailed information on families living in Flying Start and comparison areas. In order to inform the roll-out of the programme it may be useful to conduct further analysis of this data to examine impact among different groups of the population. It may also be interesting to examine how impact differs depending on receipt of different programme packages. The potential for further analysis would, however, depend on the sample sizes available.

It may also be beneficial to conduct further qualitative research with particular groups. This would provide rich insight into how families experience the programme and which aspects of the programme are working well, providing useful data for informing the future development of the programme.

6.3 Lessons from the evaluation

Measuring the impact of a social policy on its intended population is complex and challenging. The chosen design of the impact study for this evaluation was influenced by the fact that the evaluation was commissioned after the roll-out of the programme had begun and that Flying Start was rolled out nationally across the most disadvantaged areas in Wales.

This highlights the importance of ensuring that evaluation is central to the development of a policy. Close working between politicians, policy officials and analysts within government, with support from external experts as appropriate, is crucial and the earlier this happens the greater the range of evaluation options that will be available. This will help to ensure that the best possible evaluation design can be employed in order to provide robust evidence on whether, and why, a programme is working or not.

Appendices

Appendix A. Additional information about Flying Start entitlements

A.1 Enhanced health visitor offer

Health visitors are a key service offered to all parents across Wales. Their role is to work with midwives and other healthcare professionals to help new parents prepare for birth and the early years of their child's life. The help and support they offer generally includes antenatal visits, support to prepare for parenthood, parenting tips, a health programme and development checks. The advice and support is likely to be offered via a combination of ways, both with individual families and in a group setting and delivered in a variety of locations including in-home, in-clinic and parenting groups. Health visitors are often the first Flying Start professional that parents meet and their relationship often drives a family's engagement with the programme.[57]

As part of the Flying Start offer, an enhanced health visitor service is provided to families which consists of a defined maximum caseload per health visitor set at one health visitor per 110 children, well below the average caseload level of around 300 per health visitor.[58] In addition, health visitors in Flying Start areas also have access to additional management and administrative support above that offered under existing core services.[59]

It is intended that the reduced caseload and additional management and administrative support provided under the enhanced health visitor offer in Flying Start areas will enable the following:

- More health visitor time with families – more frequent contact visits and longer contact visits.
- A greater averageumber of outreach/in-home visits.
- More health visitor time spent running or engaging in groups/activities.
- Families to have contact with health visitors who have received increased access to training and development opportunities.
- Health visitors' increased ability to draw on the 'toolbox' of additional services and support often provided by Flying Start such as speech and language therapists, but

[57] Welsh Government (2013) 'Flying Start qualitative research with families'
[58] A factsheet produced by the Unite/Community Practitioners' and health visitors' Association (CPHVA) Union in 2007, based on a survey of health visitors and Trusts in England, Scotland and Wales, found that the majority (54 per cent) of full-time health visitors are holding caseloads of 200-300 families, with 26 per cent being responsible for over 400 families. See http://www.unitetheunion.com/docs/RD674%20Fact%20Sheet%20-%20Determining%20optimum%20caseload%20sizes.doc
[59] Flying Start All Wales Health Visiting Core Programme http://wales.gov.uk/docs/dsjlg/publications/130926healthvisitoren.pdf

also other specific health and education services not funded under Flying Start such as dieticians, specialist support for domestic violence etc.

In addition to the direct services and support provided by the health visitor themselves (such as parenting advice and implementation of a health programme etc.), in many cases they also act as a gateway to use of other Flying Start and non-Flying Start services, such as parenting courses. As part of their role they are charged with identifying any potential need at an early stage in the child's development, and, if required, they will inform and refer families to the necessary additional support offered in the local area. As part of the joined-up partnership provision of services and support under Flying Start this may include attending courses run by the health visitor themselves, or if not then the health visitor may attend the first few sessions with the family.

A.2 Flying Start childcare

Childcare is a key entitlement of the programme given the focus on generating child outcomes. Flying Start funds childcare places for all children aged between 2 and 3 years old living in Flying Start areas. Free places are offered at group childcare settings or child minders for 2.5 hours a day (12.5 hours a week) at a choice of morning or afternoon sessions for 39 weeks per year, with, in addition, at least 15 sessions during school holidays. Most places are offered at settings established specifically for the programme, although a small number of places have also been purchased from private, non-Flying Start settings.

A.3 Parenting programmes

A range of parenting courses are offered and funded under Flying Start, and the extent and type of courses on offer may vary by area, depending on the level of particular need in the specific area, as well as the extent of courses that are already available locally. Flying Start courses are generally split into three areas of focus which are:

- Informal support – generally encompasses a range of drop-in groups and sessions, often led by a mix of professionals.
- Formal support – consists mainly of the courses approved by the Welsh Government guidance as having proven evidenced based approaches to improve parenting (e.g. Incredible Years; Family Links Parent Nurturing Programme etc.)
- Intensive support – in general intensive support is provided to families in the form of one-to-one support offered by health visitors, parenting workers, social workers and family support workers. This takes the form of confidence building activities working up to encouraging and sometimes accompanying parents to attend informal support groups and ultimately moving on to the more formal programmes.

A.4 Language and Play (LAP)

A full course of LAP sessions usually consists of a six week programme (although some are longer) for parents/carers and their children aged nought to three. The key feature which underpins LAP is that parents and children learn together through play and fun activities. Sessions last about an hour and a half to two hours per week, and may be offered in non-Flying Start areas as well as Flying Start areas. Courses are delivered in a range of community settings within Flying Start areas including, Integrated Children's Centres, libraries, community centres, schools and playgroups and in some cases childcare settings. Most areas offer a rolling programme of LAP courses and parents are encouraged to repeat attendance for the full course.

Access to LAP should be offered in all Flying Start areas and as with parenting courses, sessions are open to all parents in theory, while in practice they are again targeted towards need and in many cases they are linked to other services such as clinics, parenting courses and childcare. Attendance is voluntary, but when a referral has been made based on need, attendance is strongly encouraged. Local services are offered based on need and provision of wider parenting services already on offer. Health visitors again play a central role in the targeting and referral of families to LAP, based on their early assessment of need.

Appendix B. Survey implementation, methodology and administration

This appendix describes the research methodology used in Wave 2 of the longitudinal survey of families as part of the evaluation of Flying Start conducted by Ipsos MORI and SQW Consulting on behalf of the Welsh Government. This is the second wave of a longitudinal survey to assess the impact of the Flying Start programme following-up those families contacted in Wave 1. Both surveys form part of a wider evaluation of the Flying Start programme in Wales.

B.1 Scope of the survey

Ipsos MORI interviewed a total of 2,116 parents and carried out British Ability Scales (BAS) child assessments with 2,010 children aged 2-4 years old between June 2012 and January 2013. Interviews were conducted face-to-face in parents' homes using Computer Assisted Personal Interviewing (CAPI). The main carer interview was designed to last 50 minutes, with the child assessments taking a further 20 minutes. All parents were main carers of a child aged between two and four years old and lived in Flying Start, or specially selected comparison areas.

The overall aim of the survey was to evaluate the impact of the Flying Start programme on service use, parents and child outcomes. The survey was therefore carried out in areas where Flying Start is available to residents (target areas), and in areas where Flying start is not available, though parents may have access to similar parenting services (comparison areas). This allows the final results to be subjected to impact analysis in order to estimate differences between the outcomes measured as part of the evaluation of the Flying Start programme.[60] In total, 1,033 interviews were completed in the Flying Start areas and 1,083 interviews in comparison areas. A copy of the questionnaire will be available separately to this report.

B.2 Sample

At Wave 1, the sample for the survey was taken from Child Benefit Records (CBR). These records include addresses and adult and child names for those households which contained a child born on or after 1 October 2008 in Flying Start and comparison areas. The sample universe was provided to Ipsos MORI by Her Majesty's Revenue and Customs (HMRC) in

[60] A more detailed discussion of the analysis approach can be found in the Propensity Score Matching Analysis in Appendix C (section C3.1).

December 2009 subject to a Data Processor Agreement and for use for the evaluation only. A total of 7,905 addresses for both Flying Start and control areas were contained in the initial sample universe. There were significant delays getting the address details from HMRC outside the control of the Evaluation team and the Welsh Government.

Each sample was ordered by postcode before a random 1 in n sample was drawn independently in both Flying Start and comparison areas. A total of 5,456 addresses were initially drawn of which 2,660 were in Flying Start areas and 2,796 were in comparison areas. Where a household was selected that contained more than one child within the target age, an additional random selection was made to select the reference child within that household. This happened in 63 households in Flying Start areas and 46 households in comparison areas. The sample was then batched into approximately 329 sample points across the Flying Start and comparison areas. The batch size varied between urban and rural areas but contained an average of approximately 20 addresses. Once the main sample had been drawn, the remainder was designated reserve sample and was treated in the same way as the main sample.

At the end of the Wave 1 interview, parents were explained the longitudinal nature of the study and asked to provide telephone and email contact details to be re-contacted at Wave 2. The interviewer checked whether they had any intentions to move house within the next six months and families were also asked to provide the contact details for close family members, such as their parents, in addition to their own. These additional contact details were collected as it is known that the relocation rate of families with young children tends to be higher than that of the general population. It was hoped that collecting the details of these more stable individuals would provide another means by which parents could be reliably tracked between the two waves of fieldwork (see section B.7)

Of the 3,591 successful interviews at Wave 1, 93 respondents refused to be re-contacted and were therefore removed from the sample. The remaining 3,498 parents therefore formed the basis of the Wave 2 sample. Before Wave 2, HMRC re-scanned the CBRs that had been provided to Ipsos MORI at Wave 1 to check for any child deaths or change of addresses to ensure that the sample records were up-to-date. Between waves of the survey Ipsos MORI also kept in touch with families to ensure that the contact information was correct.

B.3 Pilot

Prior to the Wave 2 main survey, a pilot was completed to test the survey materials, methodology and child assessments (which were being carried out for the first time in the second wave). The pilot consisted of 33 standard interviews and 31 child assessments across both Flying Start and comparison areas and used reserve sample drawn for Wave 1 which

was not used. These interviews were conducted in two local authorities (LAs)[61] between 27 February and 16 March 2012. The interviews were carried out in the same way as the main stage interviews[62] and conducted by experienced Ipsos MORI interviewers who were involved in the Wave 1 fieldwork. As in the main stage survey, the main carer of the child named at the address was the respondent for the interview. All pilot interviews were conducted with the biological mother.

Ipsos MORI also conducted cognitive interviews to test new sections which had been added to the questionnaire between waves. A member of the research team completed interviews with three parents living in Flying Start areas using a paper copy of the questionnaire. After respondents were asked each survey question they were probed with qualitative questions to check their understanding and interpretation.

The pilot and cognitive testing highlighted a number of issues with question wording and how to measure service take up that needed to be resolved and, as a result, appropriate changes were made prior to the main stage of the survey.

B.4 Questionnaire design

The main carer questionnaire for Wave 2 of the survey remained largely the same as that used for Wave 1. The questionnaire was designed by Ipsos MORI in collaboration with the Welsh Government, SQW and an Advisory Group. Where standard questions existed these were taken from tried and tested sources including the Millennium Cohort Study, the National Evaluation of Sure Start (NESS) and the Avon Longitudinal Study of Parents and Children (ALSPAC). The child assessments (Picture Similarities and Naming Vocabulary) were taken from the British Ability Scales as they have been successfully used in similar projects such as the Millennium Cohort Study.

Prior to the start of Wave 2 fieldwork, Ipsos MORI re-contacted the Flying Start partnerships in all 22 local authorities who supplied details and names of the specific Flying Start services being offered in their area to ensure that any changes in service delivery since Wave 1 were accounted for.

The questionnaire for Wave 2 of the longitudinal survey of parents covered the following areas:

- Local conditions
- Household and family relationships
- Child development
- Parent health

[61] The LAs where the pilot survey was conducted were Cardiff and Rhondda Cynon Taff.
[62] That is, face-to-face in parents' homes using CAPI.

- View of services in general and awareness of Flying Start
- Health visiting
- Support networks, including involvement of partner
- Childcare provision
- Main carer's family and background
- Absent parent
- Childcare provision
- Self-completion section
    - Home learning environment
    - Mental health/malaise
    - Parenting
- Home chaos
- Parenting programmes
- Language and Play
- Use of other Flying Start and non-Flying Start services
- Skills, employment and household resources
- Basic skills
- Housing
- Re-contact
- Interviewer self-completion section

The main changes to the questionnaire between Waves 1 and 2 were the inclusion of a larger number of service use questions to reflect that parents were likely to have used more services as their children were older (by the second wave children had turned two years old and therefore become eligible for Flying Start childcare). The focus of parent health questions was also shifted from pregnancy and birth related issues to disability and depression.

As with Wave 1, due to the sensitivity of some of the questions around mental health and how respondents feel about being a parent, it was decided that these would be better asked as part of a respondent self-completion section. It was felt that parents might be less willing to answer these questions, or that their answer would be influenced if they were posed by the interviewer. As a result parents were offered the opportunity to complete these sections of the questionnaire themselves. This involved the CAPI machine being passed to the respondent for them to complete the answers directly, without the interviewer being able to see their responses. In total nearly all parents (97 per cent) competed the self-completion section with most doing so themselves (89 per cent). A further eight per cent were happy for the interviewer to continue asking the questions in this section, while a few parents refused to answer the section completely (3 per cent).

B.5 Interviewer briefings

Prior to the main stage, four day-long briefings were held with interviewers working on the survey. Two of these were held in Newport, one in Cardiff and one in Chester. At these events 58 interviewers were briefed face-to-face by the Project Director and the Project Manager. The briefings included an introduction to the Flying Start programme, the evaluation, the questionnaire, how to conduct the child assessments and gaining consent for data linking. Interviewers were also given tips on maximising participation and there was a discussion of confidentiality and child protection. Explicit mention was also made of the need for interviewers to ensure that they did not mention Flying Start during the interview to avoid adding bias to the results.

Interviewers were given briefing and fieldwork packs which included the following materials.

- Main interview instructions
- Child activities interviewer instructions
- Child activities FAQs
- Child assessments pack - 2 books and a set of cards
- Advance letters and Q&A leaflets to be posted to each address before making contact with parents
- Laminated advance letter and information leaflet in English
- Contact sheets for each address
- Interviewer calling cards
- Tracing letters (occupier, tracing, stable contact)
- Paper copies of the main interview and child activities questionnaires
- Showcards (one set for comparison areas, one set per local authority for Flying Start areas).
- Blank envelopes, return business reply envelopes and 2nd class stamps for tracing letters
- Data linking showcard, leaflet and flowchart.
- Helpline cards

- Child activities stickers, crayons and colouring sheets
- Child activities video on CD
- Laminated calendar
- Laminated TOPSE definitions
- Laminated self-completion user guide

B.6 Welsh language interviews

Ipsos MORI made provision for interviews to be conducted in Welsh if the respondent preferred this to an interview in English. All materials sent to households were translated into Welsh and clearly stated that Welsh language interviews were available on request.

The questionnaire was translated into Welsh in-house by an Ipsos MORI translator and checked by a Welsh-speaking Flying Start interviewer. A Welsh version of the CAPI script was then created and administered by Ipsos MORI's fluent Welsh speaking interviewers.

In total 12 Welsh interviews were requested, and all were completed in Welsh using the Welsh CAPI script.

B.7 Fieldwork

Between waves of the survey Ipsos MORI kept in touch with the remaining 3,498 families in the sample to keep them engaged in the research and remind them that they would be visited for a second time from June 2012. In April 2012 families were sent a newsletter detailing the main findings of the first wave of research which also enclosed a change of address card and business reply envelope in order to notify the research team if they had moved. Prior to making calls at each household, interviewers were also required to post each family an advance letter and information leaflet about what Wave 2 of the survey would involve. All materials were provided in both English and Welsh.

All addresses received a minimum of six visits to achieve an interview or until an alternative final outcome was reached (e.g. refused). These visits were spread across a minimum of three weeks between the first and last call at an address, and across various times and days of the week including evenings and weekends. In practice, some addresses received more visits when contact sheets initially returned as 'no contact' or 'soft refusals'[63] were reissued to a different interviewer who visited the address at least a further two times to try to achieve an interview.

Interviews were required to be conducted in households before the selected child started attending school to ensure that any impacts could be attributed to the Flying Start programme rather than primary education. Consequently, interviews with 17 children approaching their fourth birthdays were prioritised at the beginning of the fieldwork period.

Parents were not given incentives for completing the interview at Wave 1 but received a £10 high street voucher upon completing their second interview. Children who completed the child assessments were also given stickers to thank them for taking part.

[63] That is if a respondent refused at a particular time as they were too busy etc.

The work of at least 10 per cent of all interviewers on the survey was back-checked with a telephone call to the respondent by Ipsos MORI's quality control team. This was to ensure that the interview was carried out correctly and appropriately.

Mover tracing and eligibility

As it was vital to re-contact as many families as possible in the second wave, interviewers were also required to undertake mover tracing where the selected child was no longer residing at the address provided. Interviewers were requested to make a minimum of 6 face-to-face visits to the address to find out from current occupiers where the family had moved to, contact neighbours and nominated stable contacts provided at Wave 1 or finally contact the 2010 respondent by phone. In line with the Market Research Society Code of Conduct, interviewers were instructed to establish that they were speaking to someone from the same family before revealing the name of the selected child.

In order to ensure that any impact found in the analysis was a result of the Flying Start programme, where the selected child had moved address, families were only eligible to take part in the research if they met the criteria below. Interviews were not conducted with families who had moved outside of Wales.

Eligibility in target (Flying Start) areas:

- If the selected child had moved from a target area to another target area
- If the selected child had moved out of target area in the last 6 months

Eligibility in control (comparison) areas:

- If the selected child had moved from a control area to a control area
- If the selected child had moved from a control area in the last 6 months
- If the selected child had moved from a control area to another eligible area (i.e. an area that is similar to the original control area, but excluding those who had moved to a target area).

This ensured that members of the Flying Start group have remained eligible for all services until the selected child was aged three years old, and that members of the control group had not moved into Flying Start areas and therefore been able to take parenting services up.

B.8 Response rates

B8.1 Main carer interviews

The overall unadjusted response rate was 59 per cent, while the adjusted response rate (taking account of the ineligible addresses) was 73 per cent. Tables B1 and B2 below include a breakdown for both Flying Start and comparison areas separately.

The incidence of invalid addresses (19 per cent of the overall sample) is largely due to the eligibility criteria introduced at Wave 2, as mentioned in the previous section. Furthermore, 20 respondents from the control sample (accounting for 1 per cent of the total control sample) were withdrawn and therefore not interviewed, as their demographic details meant that they could not be suitably matched to members of the target population during the Wave 1 analysis.

Table B1: Main carer interview response rates in Flying Start areas

Detailed outcome for target sample (Flying Start areas)	Total number n	% of addresses issued	% eligible addresses
Issued sample	**1,776**	**100.0**	**n/a**
Invalid addresses	**335**	**18.9**	**n/a**
Named child moved, address not known/tracing unsuccessful	75	4.2	n/a
Named child moved/traced to ineligible address	250	14.1	n/a
Named child deceased	2	0.1	n/a
Property not found	6	0.3	n/a
Other ineligible	2	0.1	n/a
Valid addresses	**1441**	**81.1**	**100.0**
Non contact	**157**	**8.8**	**10.9**
Screening complete, but no contact with main carer	23	1.3	1.6
Occupied, but no contact	46	2.6	3.2
Some contact but no interview	88	5.0	6.1
Refusals	**158**	**8.9**	**11.0**
Refused before screening	8	0.5	0.6
Screening complete but proxy refusal before speaking to main carer	10	0.6	0.7
Screening complete - refusal by main carer	97	5.5	6.7
Refused recontact at Wave 1 of the survey	43	2.4	3.0
Other	**93**	**5.2**	**6.5**
Too ill to participate	3	0.2	0.2
Away during fieldwork	3	0.2	0.2
Broken appointment	43	2.4	3.0
Unable to speak English/Welsh	3	0.2	0.2
Contact made	5	0.3	0.3
Other unproductive	36	2.0	2.5
Successful interviews	**1033**	**58.2**	**71.7**

Table B2: Main carer interview response rates in comparison areas

Detailed outcome for control sample (comparison areas)	Total number n	% of addresses issued	% eligible addresses
Issued sample	**1,815**	**100.0**	**n/a**
Invalid addresses	**351**	**19.3**	**n/a**
Named child moved, address not known/tracing unsuccessful	72	4.0	n/a
Named child moved/traced to ineligible address	251	13.8	n/a
Named child deceased	2	0.1	n/a
Property not found	5	0.3	n/a
Withdrawn, point not allocated	20	1.1	n/a
Other ineligible	1	0.1	n/a
Valid addresses	**1464**	**80.7**	**100.0**
Non contact	**136**	**7.5**	**9.3**
Screening complete, but no contact with main carer	30	1.7	2.0
Occupied, but no contact	40	2.2	2.7
Some contact but no interview	66	3.6	4.5
Refusals	**154**	**8.5**	**10.5**
Refused before screening	12	0.7	0.8
Screening complete but proxy refusal before speaking to main carer	6	0.3	0.4
Screening complete - refusal by main carer	86	4.7	5.9
Refused recontact at Wave 1 of the survey	50	2.8	3.4
Other	**91**	**5.0**	**6.2**
Too ill to participate	1	0.1	0.1
Away during fieldwork	2	0.1	0.1
Broken appointment	40	2.2	2.7
Unable to speak English/Welsh	1	0.1	0.1
Contact made	17	0.9	1.2
Other unproductive	30	1.7	2.0
Successful interviews	**1083**	**59.7**	**74.0**

B8.2 Child assessments

The overall unadjusted response rate for the child assessments was 56 per cent, while the adjusted response rate (taking account of the ineligible addresses) was 69 per cent (see Tables B3 and B4).

Table B3: Child assessment response rate in Flying Start areas

Detailed outcome for target sample (Flying Start areas)	Total number n	% of addresses issued	% of eligible addresses
Issued sample	**1776**	**100.0**	**n/a**
Invalid addresses	**330**	**18.6**	**n/a**
Named child moved, address not known/tracing unsuccessful	76	4.3	n/a
Named child moved/traced to ineligible address	244	13.7	n/a
Named child deceased	2	0.1	n/a
Property not found	6	0.3	n/a
Other ineligible	2	0.1	n/a
Valid addresses	**1446**	**81.4**	**100.0**
Non contact	**156**	**8.8**	**10.8**
Screening complete, but no contact with main carer	25	1.4	1.7
Occupied, but no contact	46	2.6	3.2
Some contact but no interview	85	4.8	5.9
Refusals	**172**	**9.7**	**11.9**
Refused before screening	9	0.5	0.6
Screening complete but proxy refusal before speaking to main carer	12	0.7	0.8
Screening complete - refusal by main carer	108	6.1	7.5
Refused recontact at Wave 1 of the survey	43	2.4	3.0
Other	**137**	**7.7**	**9.5**
Too ill to participate	4	0.2	0.3
Away during fieldwork	5	0.3	0.3
Broken appointment	44	2.5	3.0
Unable to speak English/Welsh	13	0.7	0.9
Child unwilling/unable to participate	4	0.2	0.3
Contact made	5	0.3	0.3
Other unproductive	62	3.5	4.3
Successful	**981**	**55.2**	**67.8**

Table B4: Child assessment response rate in comparison areas

Detailed outcome for control sample (comparison areas)	Total number n	% of addresses issued	% of eligible addresses
Issued sample	**1815**	**100.0**	**n/a**
Invalid addresses	**341**	**18.8**	**n/a**
Named child moved, address not known/tracing unsuccessful	72	4.0	n/a
Named child moved/traced to ineligible address	241	13.3	n/a
Named child deceased	2	0.1	n/a
Property not found	5	0.3	n/a
Withdrawn, point not allocated	20	1.1	n/a
Other ineligible	1	0.1	n/a
Valid addresses	**1474**	**81.2**	**100.0**
Non contact	**137**	**7.5**	**9.3**
Screening complete, but no contact with main carer	30	1.7	2.0
Occupied, but no contact	40	2.2	2.7
Some contact but no interview	67	3.7	4.5
Refused	**167**	**9.2**	**11.3**
Refused before screening	12	0.7	0.8
Screening complete but proxy refusal before speaking to main carer	7	0.4	0.5
Screening complete - refusal by main carer	97	5.3	6.6
Refused recontact at Wave 1 of the survey	50	2.8	3.4
Child refused	1	0.1	0.1
Other	**141**	**7.8**	**9.6**
Too ill to participate	3	0.2	0.2
Away during fieldwork	6	0.3	0.4
Broken appointment	42	2.3	2.8
Unable to speak English/Welsh	13	0.7	0.9
Child unwilling/unable to participate	7	0.4	0.5
Contact made	17	0.9	1.2
Other unproductive	53	2.9	3.6
Successful	**1029**	**56.7**	**69.8**

B.9 Data editing

At the data processing stage a number of checks were undertaken for logic, valid ranges and filtering. During fieldwork interviewers could add notes to responses at any point throughout the CAPI interview. These were checked at the end of fieldwork and any necessary amendments made.

At the end of fieldwork the data was subjected to a number of hard edit checks. This involved identifying and amending any impossible values recorded in the data between Q1 and Q9 where the date of move to local area could not be earlier than parents' date of birth.

Where impossible differences existed between the date parents said that they moved to the area and their date of birth (i.e. where the parents' year of birth was later than the year they reported moving to the local area), edits to the data were made. In such cases edits were made to the answers for Q1 to make them consistent with the year of birth of the respondent. In total across the 2,116 completed interviews, four of these edits were made.

Child ages in months were also checked against the interview date and child's date of birth. There were 103 cases where these ages did not match and therefore data edits were made to change the age in months to the median of the reported age and calculated age using date of birth and date of interview.

B.9.1 Coding

All 'other (specify)' responses recorded in the questionnaire were checked and (back)coded for the following questions:

- Q20. What languages do you regularly speak at home?
- Q21. And which country were you born in?
- Q39. What sort(s) of accident(s) or injury(ies) was/were it/they? Please just read out the letters that apply.
- Q41. Since [DATE OF PREVIOUS INTERVIEW when [BABY NAME] was aged [AGE OF CHILD AT WAVE 1] have you had any concerns there might be a problem with [BABY NAME'S]…
- Q42f. Has he/she been referred to a specialist for any other problems?
- Q71c. Why have you not been able to get the support you would like from your health visitor or other members of the health visiting team?
- Q72. This card shows a number of groups, activities or initiatives to support parents that are offered in some local areas. Please tell me which, as far as you are aware, are on offer to parents living in your neighbourhood if any?
- Q74c. You mentioned you were asked to attend [PARENTING GROUP]. Please tell me which of the following reasons for not attending the group(s) apply to you?

- Q105b. Apart from yourself, which friends or relatives looked after [BABY NAME] on a regular basis since he/she turned one year old/ up until now? Please tell me about all the people who have looked after him/her on a regular basis for at least part of the time since then.
- Q105c. Which of these ever looked after [BABY NAME] when he/she was aged between two and three years of age?
- Q105f. Can I just check which of these have ever looked after [BABY NAME] since he/she turned three years of age?
- Q106. Did you use your free hours of childcare or nursery education for [BABY NAME] when he/she was aged 2 to 3 at any of these registered childminders?
- Q107. Did you use your free hours of childcare or nursery education for [BABY NAME] when he/she was aged 2 to 3 at any of these places?
- Q108g. And did the childcare or nursery education for 2-3s provider(s) encourage [BABYNAME] to learn and develop skills in any of the areas shown on this card? IF YES: Which ones?
- Q108n: Which of the activities on this card were you usually doing whilst [BABY NAME] was using the free hours of childcare or nursery education when he/she was aged 2 to 3?
- Q108o. For what reasons did [BABY NAME] not receive all the available/any of the free hours of childcare or nursery education when they were aged 2 to 3?
- Q134. You mentioned you had heard of [PARENTING SERVICE]. Please tell me which of the following reasons for not taking up this/these parenting course(s) or groups apply to you?
- Q142. What change in the behaviour of [BABY NAME] have you noticed?
- Q146c. How were the LAP sessions you attended mainly delivered?
- Q150. Please tell me which of the following reasons for not attending Language and Play (LAP) apply to you?
- Q156. Other than the services we have already talked about, have you used any other facilities, or received any help or support from any other groups or professionals since [date of last interview] when [baby name] was [baby age]?
- Q111. And why you don't you use the [childcare] arrangements you want at the moment?
- Q131b. Where did you first learn about these parenting course(s)?
- Q144a. Where did you first learn about Language and Play?
- Q158. And how did you first learn about the [SUPPORT/GROUP]?
- Q.159. Thinking about all the services discussed today, in general, how do you prefer to find out about the facilities, services and support available for families with children aged nought to three in the local area?

- Q162/Q163. Which statement on this card applies to you/your partner? Please just read out the letters that apply.
- Q179. At present, are you [or your partner] receiving …(list on benefits)
- X2. INTERVIEWER: CODE REASON(S) WHY RESPONDENT REFUSED SELF-COMPLETION

B.10 Non-response modelling (Flying Start areas only)

A total of 1,776 Wave 1 respondents in Flying Start areas were followed up in Wave 2. This resulted in 1,033 productive Wave 2 interviews (328 were ineligible and 415 were non-responders).

It is likely that the characteristics of respondents in Flying Start areas agreeing to take part in Wave 2 of the survey are different from those that refuse, so the data from respondents in Flying Start areas were weighted for non-response.[64]

Logistic regression was used to investigate the propensity to respond and to weight Wave 2 responders to the profile of the eligible sample from Wave 1. Variables considered for inclusion in the model were geographical variables such as an urban/rural identifier, the Welsh Index of Multiple Deprivation, and variables on the Output Area such as the proportion of owner-occupiers, the proportion of adults with no qualifications, and the proportion of unemployed adults. The model also considered several variables from Wave 1 of the survey.

The analysis showed that respondents who stated in the Wave 1 interview that their partner was regularly involved in caring for the child, that they or their partner had been asked to attend a parenting programme, that they were able to breastfeed, or that they were educated to degree-level were more likely to respond to Wave 2. Other variables associated with response at Wave 2 included smoking status just before pregnancy, whether the respondent was born in Wales, the number of children under 4 years old, and the number of rooms in the house.

The final model, which was used to predict the probability of response, included the variables below. Variables were included in the model if they were associated with the propensity to respond, or if the Wave 1 analysis had shown they were likely to be associated with outcomes.

[64] Given the main purpose of the comparison respondents is to provide matches for Flying Start respondents in the impact analysis, non-response modelling was not required for the comparison group.

Geographical variables

- Infant mortality rate in the output area.
- Proportion of unemployed adults in the output area.

Family variables

- Household composition.
- Indicator of whether respondent was a first-time parent.
- Age of respondent (grouped).
- Number of children in the household under 4 years old.
- Whether the respondent owned their house.
- Number of rooms in the house.

Variables about respondent

- Smoking status just before pregnancy.
- Whether the respondent had a degree-level qualification.
- Whether the respondent was born in Wales.

Indicators created by responses to Wave 1 variables

- Whether respondent/partner had been asked to attend a parenting programme.
- Anyone else in the household regularly involved in caring for the child.
- Whether mother was able to breastfeed.

The non-response weight was then taken as the reciprocal of the predicted probability of response.

B.11 Missing values

Like most surveys there were some missing values. Sixty-eight individuals (40 in Flying Start areas and 28 in comparison areas) refused the self-completion section. However, because the refusal rate for the self-completion was so low (just 3 per cent of respondents) this section was not re-weighted for analysis. Other variables had missing values where, for example, an answer was not recorded or where a respondent answered "don't know" to a question. These were imputed using mi impute in Stata[65]. Most of these had only a few missing values. The only exceptions were the child assessments BAS Naming Vocabulary (139 missing respondents) and Picture Similarities (121 missing respondents).

[65] Stata is a data analysis and statistical software programme.

Appendix C. Impact assessment sample matching design and statistical analysis methodology

C.1 Evaluation design

Flying Start is a community based initiative, where all families with children aged nought to four living in local authorities where the programme is being delivered are potentially a beneficiary of the programme. Hence an 'intention to treat' design was adopted in the evaluation of the impact of Flying Start. Such an approach does not focus on those children and families that have taken advantage of specific services in the Flying Start areas, but rather studies children and families living in these areas that, in theory, should be exposed to such services.

The evaluation was commissioned after the roll-out of the Flying Start programme had begun. This means that a true pre-Flying Start baseline survey was not possible. Furthermore, as the Flying Start programme was rolled out nationally in the most disadvantaged areas in Wales and there was no random allocation to the programme (and therefore no control group from the same areas with which to contrast the experiences of families on the programme), a randomised controlled trial (RCT) was not possible.

The evaluation team therefore used a quasi-experimental design to measure early impact by comparing the difference in outcomes between the Flying Start sample and a comparison group *after* programme delivery had begun. The technical appendix from the Wave 1 report discusses much of this technical information in greater detail.[66]

C.2 Area matching at the sample selection stage

The impact assessment analysis compares the outcomes of the target population for the survey (all households with children of target age living in areas where the Flying Start programme is operating) with a group of similar households outside the target area. In order to do this, a comparison sample of households with children of the target age living in Wales but outside of the areas where the Flying Start programme is operating was constructed in order for the Wave 1 survey to take place.

As the Flying Start programme was targeted at families living in the most disadvantaged areas of Wales, the first stage in the process of evaluating Flying Start involved identifying

[66] Please see the appendices from the Wave 1 report for a detailed discussion of the matching approach used: Welsh Government (2011) 'Findings from the baseline survey of families- mapping needs and measuring early influence among families with babies aged seven to 20 months appendices'

'control' areas in Wales that had levels of deprivation that were as close as possible to those in Flying Start programme areas (although by definition they would be on average less disadvantaged). The overall Indices of Deprivation score was used as a proxy for area level deprivation.

The control areas were identified by SQW in the following manner:

- All Lower Super Output Areas (LSOAs) which had an exact match on the Index of Multiple Deprivation with an LSOA in which the Flying Start Programme is being implemented were kept, the rest were dropped.
- For each matched control and Flying Start LSOA an estimate of the number of nought to three year olds present was made. If the difference in the nought to three year old count between the two LSOAs was less than or equal to 50 then the control LSOA was retained, those greater than 50 were rejected.
- A final sample of 195 control LSOAs were selected from the total eligible set of control LSOAs found. Selection of households for the control sample was restricted to those that resided in this set of LSOAs.

Table C1 shows the mean WIMD score and the frequency distribution for the WIMD ranking by the Flying Start and matched comparison areas. As shown by the area level matching process, the control areas tend to be far less disadvantaged than the Flying Start areas, symptomatic of the targeted nature of the programme.

Table C1: Comparing the Welsh Index of Multiple Deprivation Score (WIMD) profile of the Flying Start and comparison areas[67]

	Flying Start	Comparison	Difference
WIMD score			
Mean WIMD score	43.0	27.2	-14.9
WIMD rank (based on all of Wales)			
<500	80.0	38.4	-39.1
500-999	12.8	45.5	35.8
1,000+	7.2	16.1	3.3

[67] All Lower Super Output Areas (LSOAs) are ranked with 1 being the most disadvantaged and 1,000+ the least disadvantaged.

C.3 Matching method

Although these comparison areas were chosen based on their similarity to the Flying Start areas (they are the next most disadvantaged areas), there were some noticeable differences (as shown in Tables C2 and C3). To address these, propensity score matching was used to weight the comparison group so that it matched the Flying Start group as closely as possible.

Propensity score matching is an approach which matches respondents in the Flying Start group with those who have similar characteristics in the comparison group. The variables chosen for the matching are those which account for differences between the Flying Start and comparison areas but would not be influenced by the Flying Start programme. The matching method used at Wave 2 was discussed with the Welsh Government and it was decided that we would use a different approach to Wave 1 as detailed below.[68]

The variables used for matching in Wave 1 included family-level variables and area-level variables (such as measures of deprivation like the Welsh Index of Multiple Deprivation (WIMD), unemployment data etc.). After re-analysing the Wave 1 results we decided not to use the area level variables such as WIMD in the matching (apart from the rural/urban identifier) as this would have led to very large and variable weights because the two areas were very dissimilar on these aspects. Consequently, the standard errors of the resulting estimates would have been very large meaning less reliable results.

It should be noted that a result of this decision is that the matching has not fully compensated for differences between the two types of area in terms of area level variables such as WIMD scores. We have controlled for differences in deprivation levels between the two area types as far as possible by including family-level variables used for matching. These include aspects associated with deprivation such as tenure and qualifications. However, it is not possible for the matching to fully overcome the built-in bias in the sample caused by Flying Start areas being more disadvantaged than the comparison areas.

A second difference is that in Wave 1 a different set of matching variables was used for each analysis. For Wave 2 a single set has been used and a single matching weight is derived. We analysed the Wave 1 data using the single weight approach and the results showed that although the impact estimates varied slightly, this did not change the overall findings. Using a single weight is preferable because it is more efficient while having no adverse effect on the impact estimates.

The Wave 1 analysis estimated impact by using a regression-based analysis method. A regression model was fitted to each outcome and the final estimate for the average Flying

[68] Welsh Government (2011) 'Findings from the baseline survey of families -mapping needs and measuring early influence among families with babies aged seven to 20 months appendices'

Start treatment effect was obtained by comparing the modelled estimate in the Flying Start group with the equivalent estimate in the comparison group. For Wave 2 we are estimating impact by looking at the difference in means. This method has the advantage that the estimated impact figure is easier to understand for policy makers.

C.3.1 Details of the matching

Matching was performed in Stata 12 using the programme psmatch2.[69] A logistic regression model was fitted, with the dependent variable being the binary indicator of whether the respondent was in the Flying Start group; the explanatory variables are listed below. The data were matched on the log-odds of the predicted probability of being in the Flying Start group and kernel matching with a bandwidth of 0.12 was used.[70] An exact match was forced on lone-parent status to ensure the matched samples did not differ on this variable.

Propensity score matching can fail to match some respondents in the treatment group who are very different from the comparison group (the *lack of common support* problem). When this occurs it is usual to omit these individuals from the analysis. Only three of the Flying Start respondents were dropped because they were outside the area of common support, and these have been omitted.

C.3.2 Variables used in matching

Geographical variables

- Whether area was urban or rural.

Family variables

- Renting status at baseline (four categories).
- Whether a lone parent.
- Number of rooms in the house.

Variables about respondent

- Smoking status at baseline.
- Whether parent had a degree.
- Whether Welsh was spoken at home.
- Parent's skills at reading.

[69] Leuven, E and B Sianesi, B (2003). "PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing" http://ideas.repec.org/c/boc/bocode/s432001.html This version 4.0.5

[70] Several other bandwidths were examined, and checks for robustness were performed. See section C3.4 for details of robustness checks.

- Whether parent had a long-term illness.

Variables about the child

- Age of child at Wave 2 interview.

The tables below show the success of the matching. For several categorical variables measured at baseline, Table C2 displays:

- The un-weighted proportion of Flying Start respondents in each category.
- The weighted proportion of comparison group respondents in each category.
- The difference in proportions.

The unweighted proportion of comparison group respondents is also included to illustrate the effects of the matching.

Table C3 shows the equivalent information for binary and numerical variables (means rather than proportions, are displayed for numerical variables).

The tables show that the matching has improved the match on the variables. The most noticeable improvements are on:

- the age distribution of the respondents (younger parents were under-represented in the comparison group).
- their smoking status before pregnancy (heavy smokers were under-represented).
- their educational qualifications (degree holders were over-represented).
- the household composition (lone parents were under-represented).
- tenure (home-owners were over-represented in the comparison areas and people renting from the local authority were under-represented).
- access to a car or van (people having access were over-represented).

Table C2: Success of matching for categorical variables

Variable name	Description	Category	FS group – unweighted	Comparison group – weighted	Difference	Comparison group – unweighted
Xhhsize	Household size	2	10.6	9.6	1	5.5
		3	29.7	31.7	-2	36.2
		4	31	32.7	-1.7	34.6
		5+	28.7	26	2.7	23.6
XNCU16	Number of children in household under 16	1	38.3	37.7	0.6	42.8
		2	34	37.3	-3.3	36.3
		3	16.9	14.1	2.8	13.2
		4+	10.9	11	-0.1	7.8
XNCU4	Number of children aged under 4 in household	1	59.1	60	-0.8	62.1
		2	35.7	34.2	1.5	33.6
		3+	5.1	5.8	-0.7	4.2
Xage	Age group	16 - 20	10.5	9.3	1.2	5
		21 - 25	30.7	28.6	2.1	18.4
		26 - 30	28.7	29.8	-1	30.3
		31 - 35	18	19.8	-1.9	26.8
		36 - 40	12.1	12.5	-0.4	19.6
skills_ reading	Can usually read and fill out forms	yes, easily	89.7	90	-0.2	95.3
		yes, with difficulty	6	6.2	-0.2	2.5
		no	4.3	3.8	0.5	2.2
skills_ numeracy	Can usually tell if has correct change when respondent buys things	yes, easily	94.8	95.5	-0.8	97.7
		yes, with difficulty	2.1	2	0.1	0.8
		no	3.1	2.4	0.7	1.5
smoked	Number of cigarettes a day respondent was smoking just before pregnancy	0	49	50.4	-1.4	69.3
		0-10	28	28.8	-0.9	15.1
		10-60	18.2	16.5	1.7	11.3
		not applicable	4.9	4.3	0.5	4.4
hhcomp	Household composition	couple – one child	12.4	12.8	-0.4	24.6

Variable	Description	Category	FS group –	Comparison	Difference	Comparison
		couple - two children	16.3	17.6	-1.3	24.9
		couple – 3+ children	14.9	13.2	1.7	15
		lone parent	56.4	56.4	0	35.5
rent_type	Type of rented accommodation if rented	local authority/ council	36.8	35.3	1.5	12.1
		housing association/ organisation	11.9	13.5	-1.5	6.8
		private landlord	18.9	19.6	-0.7	19.9
		not applicable	32.3	31.7	0.7	61.2

Table C3: Success of matching for binary and numerical variables

Variable name	Description	FS group – unweighted	Comparison group – weighted	Difference	Comparison group – unweighted
lang_english	Proportion who regularly speak English at home	95.2	96.3	-1.1	93.3
lang_welsh	Proportion who regularly speak Welsh at home	4.3	3.7	0.6	13.5
born_wales	Proportion born in Wales	77.3	78.3	-1.0	72.2
ever_rel	Proportion who were ever in a relationship with baby's other parent	95.3	95.2	0.1	97.8
urban	Proportion of urban household	78.4	78.6	-0.2	62.4
childhood_ live_par	Proportion of respondents who did not spend any time living away from both of their parents as a child	89.5	89.3	0.2	92.8
lonep	Proportion of lone parents	56.4	56.4	0.0	35.5
car	Proportion having regular use of a car or van	66.9	66.6	0.3	84.3
higher_ed	Proportion who have a degree	15.8	15.4	0.5	39.7
Longtill	Proportion with a long-term illness	2.7	2.7	0.0	2.8
birthwt	Mean birth-weight (kgs)	3.3	3.3	0.0	3.4
num_rooms	Mean number of rooms in the house	5.1	5.1	0.0	5.5
W2c_age	Mean age of child (months)	42.5	42.4	0.1	42.3

C3.3 Estimation of impact

The impacts were estimated in Stata 12 using the programme psmatch2.[71] The impact on any *single* respondent in the Flying Start group is estimated by the difference between that individual's score and the weighted score of the group they were matched with. The impact of Flying Start on the Flying Start group is simply the mean of the individual impacts weighted by the non-response weights.

Calculation of standard errors is not straightforward and several methods have been suggested in the literature. Just as in Wave 1, the standard errors quoted here were obtained by bootstrapping. Bootstrapping is a computationally intensive method that involves analysing a number of random resamples of the data, each of which is obtained by randomly resampling from the original dataset. It is a straightforward method of estimating standard errors of complex estimators when exact formulae are not available.

[71] E. Leuven and B. Sianesi. (2003). "PSMATCH2: Stata module to perform full and propensity score matching, common support graphing, and covariate imbalance testing". http://ideas.repec.org/c/boc/bocode/s432001.html. This version 4.0.5

C3.4 Robustness checks

The impact estimates produced are possibly sensitive to the choice of matching method used. In order to check for robustness, the matching was redone using different kernels, varying the bandwidth and changing the matching variables. Thirteen different combinations of kernel, bandwidth and matching variables were used. For most of the 52 variables analysed, the conclusions of our analyses were not affected by the choice of method: either there was little change in the magnitude of the estimate, or, where the change was larger, it did not affect the conclusion of the significance test.

However, a few of the results might be sensitive to choice of method. Tables C4 and C5 below show the highest and lowest estimate on the variables most likely to be sensitive to the choice of matching method. These are variables where the difference between the quoted estimate and the highest or lowest from the range of 13 estimates is relatively high. For example, our impact estimate of the proportion of Flying Start respondents referred to professionals is 3.7 per cent, but other plausible models could have resulted in an estimate of up to 5.6 per cent. Some care must be taken therefore when interpreting these results.

Table C4: Variables sensitive to the choice of matching method

Variable name	Description
y_prof_ref	Whether referred to professionals
y_sup_overall	Respondent stated they had enough support to keep their child happy and healthy
y_sup_learn	Respondent stated they had enough support to help the child learn to meet their potential
y_sup_speech	Respondent stated their child had enough support in talking and speaking
y_sup_bhavor	Respondent stated they had enough support in managing their child's behaviour
y_sup_conf	Respondent stated they had enough support to make them confident as a parent
y_frnds_understd	Friends and family can understand child

Table C5: Lowest and highest estimates of the variables sensitive to the choice of matching method

Variable name	Lowest Estimate	Estimate	Highest Estimate
y_prof_ref	3.0%	3.7%	5.6%
y_sup_overall	2.9%	3.4%	5.0%
y_sup_learn	5.5%	5.5%	6.3%
y_sup_speech	2.7%	2.8%	3.7%
y_sup_bhavor	4.9%	5.1%	6.1%
y_sup_conf	5.6%	5.8%	7.2%
y_frnds_understd	0.9%	4.1%	4.4%