EKR sets for large $n$ and $r$.

Let $\mathcal{A} \subset \binom{[n]}{r}$ be a compressed, intersecting family and let $X \subset [n]$. Let $\mathcal{A}(X) = \{A \in \mathcal{A} : A \cap X \neq \emptyset \}$ and $S_{n,r} = \binom{[n]}{r} \setminus \{\{1\}\}$. Motivated by the Erdős-Ko-Rado theorem, Borg asked for which $X \subset [2, n]$ do we have $|\mathcal{A}(X)| \leq |S_{n,r}(X)|$ for all compressed, intersecting families $\mathcal{A}$? We call $X$ that satisfy this property EKR. Borg classified EKR sets $X$ such that $|X| \geq r$. Barber classified $X$, with $|X| \leq r$, such that $X$ is EKR for sufficiently large $n$, and asked how large $n$ must be. We prove $n$ is sufficiently large when $n$ grows quadratically in $r$. In the case where $\mathcal{A}$ has a maximal element, we are able to sharpen this bound to $n > \varphi^2 r$ implies $|\mathcal{A}(X)| \leq |S_{n,r}(X)|$. (Received September 18, 2012)