

sumption sets [see for instance Aumann (1966) or Schmeidler (1969)]. However, since Fatou's Lemma fails in infinite dimensional spaces [see for instance Rustichini (1989) or Yannelis (1990a)] a similar argument with that of Aumann or Schmeidler cannot be adopted. At this point we should mention that the coalitional approach adopted by Zame does not require the bound or the consumption set. In particular in this approach each allocation is always in an order internal which is compact typically in the topology that the commodity space is endowed with. However, as it was noted by Zame (1987) the existence of a competitive equilibrium for the conditional approach does not imply the existence of a competitive equilibrium for the Aumann individualistic approach adopted in this paper, *unless* the consumption sets are bounded. A more elaborate discussion of the connection of the two approaches can be found in Zame.

We now briefly discuss the assumption of convexity of preferences. One may wonder why the convexity assumption on preferences is needed. In particular, one of the nice features of the Aumann economy is that one can dispense with the assumption of convexity of preferences. In fact as Aumann (1966) showed, the Lyapunov Theorem will enable us to convexify the aggregate demand set and this makes applicable the standard fixed point argument. However, in infinite dimensional spaces Lyapunov's Theorem fails [see Diestel-Uhl (1977)] and consequently without convexity of preferences the aggregate demand set need not be convex. Hence, again if positive results need to be obtained the assumption of convexity of preferences must be imposed. [For further remarks on this issue see Rustichini-Yannelis (1990).]

## 4. An Auxiliary Theorem

As in Aumann (1966) in order to prove our Main Theorem, we first establish an auxiliary result. Recall that Aumann compactifies the economy and he proves a result for compact consumption sets [a similar auxiliary result was proved by Schmeidler (1969), as well]. Then using his auxiliary result (which is indeed the heart of the proof) he is able to complete the proof of his main theorem. A similar idea will be adopted here. In particular, we first establish an Auxiliary Theorem where consumption