is large. In case of small arrival rates SYN-MAC will also achieve as good performance as G-McMAC in terms of throughput if the number of channels is increased enough, even though average access delays of SYN-MAC are significantly higher as discussed previously.

On the other hand, with high arrival rates the situation is different as shown in Figure 13. In this case, the throughputs of SYN-MAC and G-McMAC grow linearly as the number of available channels is increased while MMAC gives constant throughput regardless of the amount of channels. However, now SYN-MAC outperforms G-McMAC especially when the number of channels is large. The results imply that with these parameters the negotiation process of G-McMAC restricts the performance of the protocol since similar throughputs are achieved with different packet sizes. That is to say, with high packet arrival rates the common control channel will be occupied all the time which causes the performance to saturate. Since the negotiation process of SYN-MAC is shorter and carried out on each channel in turn, the performance continues to improve and the capacity of multi-channel systems can be fully exploited in case of high arrival rates and small packets.

We also studied the impact of different packet sizes on the throughputs and the results are presented in Figures 14 and 15 for $g = 0.04$ and $g = 0.2$, respectively. In general, the throughput of MMAC grows as a function of packet size due to the assumption of fixed and optimal packet sizes. Regardless of this fact SYN-MAC and G-McMAC outperform MMAC in case of small packets and small or moderate arrival rates. On the other hand, MMAC will eventually surpass other protocols since the performances of G-McMAC and SYN-MAC saturate at some point as the packet size is increased. Furthermore, G-McMAC gives better throughput than SYN-MAC with low packet arrival rates whereas SYN-MAC achieves similar performance with higher arrival rates. We can also see the impact of $P_{\text{block}}$ in Figure 15 since the performance of MMAC is constant when $N = 10$ while it continues to improve when $N = 16$. Nevertheless, it should be noted that in practice it may not be possible to predetermine optimal cycle structures for MMAC since packet sizes may be variable. This would naturally deteriorate the performance of MMAC. Moreover, average access delays of MMAC are many times worse than that of G-McMAC and the difference grows as the packet size increases.