Table 1.11: Graph Distances for the Florentine Marriage Tie

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Acciaiuoli	1	0															
Albizzi	2	2	0														
Babadori	3	2	2	0													
Bischeri	4	4	2	3	0												
Castellani	5	3	3	1	2	0											
Ginori	6	3	1	3	3	4	0										
Guadagni	7	3	1	3	1	3	2	0									
Lamberteschi	8	4	2	4	2	4	3	1	0								
Medici	9	1	1	1	3	2	2	2	3	0							
Pazzi	10	3	3	3	5	4	4	4	5	2	0						
Peruzzi	11	4	3	2	1	1	4	2	3	3	5	0					
Pucci	12	.	.	.	.	.	.	.	.	.	.	.	0				
Ridolfi	13	2	2	2	2	2	3	2	3	1	3	2	.	0			
Salviati	14	2	2	2	4	3	3	3	4	1	1	4	.	2	0		
Strozzi	15	3	3	2	1	1	4	2	3	2	4	1	.	1	3	0	
Tornabuoni	16	2	2	2	2	3	3	1	2	1	3	3	.	1	2	2	0

only a single marriage tie to the remaining families.

Table 1.11 gives the graph distance measures for this network. As the Pucci family is an isolate it cannot be reached from other families. It follows that no distances can be computed for this unit.[22] As a result, there are no closeness centrality scores in Table 1.10. We note that whenever a graph is disconnected, closeness centrality cannot be computed. For digraphs, closeness centrality scores can be computed only those that are strongly connected.

The betweenness centrality scores[23] for these families are given in Table 1.10. Notice that the relative orderings of the families differ for the two measures. The Strozzi and the Guadagni families were tied as the second most central families with degree centrality. Using betweenness centrality, the Guadagni family ranks second with a score of 23 while the Strozzi family is far from being a central family with a score of 3. Four other families are

[22]There is a convention to make such distances infinite in the graph theory literature. We ignore this convention here and say, simply, one vertex cannot be reached from the other.

[23]As proportions are being added, this leads to decimal places in the measures. These have been rounded for Table 1.10 and in the text.