The bullwhip effect is a well-known symptom of harmonization troubles in conventional supply chains. The bullwhip effect is the key paradigm for supply chain incompetence. There is always mismatch in the coordination between the supply chain activities.

In this work two supply chain models are considered (1) model without intermediate warehouse and (2) model with Intermediate warehouse, when the lead time of warehouse is equals to that of supplier then both the models under consideration will have the same measure of the Bullwhip effect (BWE). Inventory carrying cost of the supply chain in both the models are computed and compared through simulation using MATLAB.

The thesis is organized in seven chapters.

**Chapter One** is an introduction to supply chain, Bullwhip effect, measuring bullwhip effect, simulation bullwhip effect forecast. The motivation to carry out the research, assumptions, limitations and objectives of this research are presented in section 1.9..

**Chapter Two** is the survey of relevant literature related to the problems and is concerned with the methods and models proposed by different authors. This chapter is presented in this literature on measuring bullwhip effect, and simulation of supply chain in bullwhip effect.

**Chapter Three** is the frame work of aims and objectives of present investigations, and Methodology formulation of the two problems of this thesis. These are shown in section 3.1. and section 3.2 respectively.

**Chapter Four** deals with mathematical formulation in section 4.4, Measurement of bullwhip effect in different forecast techniques and using parameters such as autocorrelation, market share, smoothing constants. Measurement of the bullwhip effect in section 4.5. Sample calculations are also explained in this chapter.

**Chapter Five** This chapter is aimed at the study of the impact of an intermediate warehouse on the bullwhip effect in a supply chain with three stages as one supplier, one intermediate warehouse and two retailers. The influences of an intermediate warehouse on inventory system cost in the supply chain are also taken up. Impact of bullwhip effect
are proposed in section 5.2, section 5.3 and section 5.4. Sample calculations are also explained in this chapter.

Chapter Six presents the results and discussions of two stage supply chain and three stage supply chain, impact of parameters on bullwhip effect, in section 6.4, section 6.1, and section 6.2 and section 6.3.

Chapter Seven includes summary, conclusion of the thesis and scope for future work.