

## Chapter 2

# Aggregate Production Planning in a Reverse Logistics Context Under Uncertainty of Demand and Service Level



Héctor Rivera-Gomez , Irma Delia Rojas Cuevas , Ciro Alberto Amaya Guio , Lorena Andrea Bearzotti Pilomeno , and Marco Antonio Montufar Benitez 

## 2.1 Introduction

In response to rapidly changing market dynamics and evolving consumer preferences, organizations are increasingly acknowledging the importance of implementing robust production planning strategies to maintain a competitive edge. Recent research has significantly focused on aggregate production planning (APP) to address this need. For example, Galankashi et al. [1] developed a comprehensive mathematical model to optimize multi-period aggregate production planning for multi-product firms. Their approach integrates lean manufacturing principles with APP, including an in-depth analysis of market winners, qualifiers, and waste. Similarly, Krishnan et al. [2] explored the integration of advanced manufacturing technologies and their implications for aggregate production planning and scheduling. Their discussion highlighted the challenges and future prospects, with a partic-

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H. Rivera-Gomez (✉) · M. A. Montufar Benitez  
Area Académica de Ingeniería y Arquitectura, AAIyA, Universidad Autónoma del Estado de Hidalgo, Pachuca de Soto, Hidalgo, Mexico  
e-mail: [hector\\_rivera@uaeh.edu.mx](mailto:hector_rivera@uaeh.edu.mx); [montufar@uaeh.edu.mx](mailto:montufar@uaeh.edu.mx)

I. D. Rojas Cuevas  
Departamento de ingenierías, TECNMI/Instituto Tecnológico de Puebla, Puebla, Mexico  
e-mail: [irma.rojas@puebla.tecnm.mx](mailto:irma.rojas@puebla.tecnm.mx)

C. A. Amaya Guio  
Departamento de Ingeniería Industrial, Universidad de los Andes, Bogotá, Colombia  
e-mail: [ca.amaya@uniandes.edu.co](mailto:ca.amaya@uniandes.edu.co)

L. A. Bearzotti Pilomeno  
Escuela de Ingeniería de Construcción y Transporte, Facultad de Ingeniería, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile  
e-mail: [lorena.bearzotti@pucv.cl](mailto:lorena.bearzotti@pucv.cl)