**Table 1** Relevant studies of warehouse-supply chain design and distribution-inventory planning problems

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Authors** | **Supply Chain Structure** | **Problem Classifications** | | | | **Uncertainty** | **Problem Specifications** | | | | **Solution Methodologies** |
| **IPP** | **WDP** | **DPP** | **SCDP** | **D** | **R** | **V** | **RM** |
| Melachrinoudis and Min (2007) | TS |  | **\*** |  | **\*** | Deterministic | **\*** |  |  |  | Optimization model |
| Önüt et al. (2008) | - |  | **\*** |  |  | Deterministic |  |  |  |  | Particle swarm optimization |
| Tuzkaya and Önüt (2009) | MS+MP+MPE |  |  | **\*** | **\*** | Deterministic |  |  |  | **\*** | Optimization model |
| Strack and Pochet (2010) | - | **\*** | **\*** |  |  | Deterministic |  |  |  |  | Optimization model and heuristic |
| Tsao et al. (2012) | MS | **\*** |  |  | **\*** | Deterministic |  |  |  | **\*** | Two-phase approximation model |
| Cardoso et al. (2013) | MPE+MS |  |  | **\*** | **\*** | Known-Unknown |  |  |  |  | Optimization model |
| Davis et al. (2013) | - | \* |  | \* |  | Known-Unknown | \* |  |  |  | Two-stage stochastic optimization |
| Sainathuni et al. (2014) | - | \* |  | \* |  | Deterministic |  |  |  |  | Optimization model and ILSA |
| Askin et al. (2014) | TS+MP | \* |  | \* | \* | Known-Unknown |  |  |  | \* | Genetic Algorithm |
| Farahani et al. (2015) | MS | \* |  |  | \* | Deterministic |  |  |  | \* | Optimization model |
| Zhao et al. (2016) | MPE+MS | \* |  |  | \* | Deterministic |  |  |  |  | Optimization model |
| Puga and Tancrez (2017) | TS | \* |  |  | \* | Known-Known |  |  |  | \* | Heuristic algorithm |
| Vahdani et al. (2018) | TS+MPE | \* |  | \* | \* | Known-Unknown | \* |  |  |  | Robust optimization and heuristic |
| Thi et al. (2020) | - | \* | \* |  |  | Known-Known |  |  |  | \* | Stochastic optimization |
| Khalilabadi et al. (2020) | - |  |  | \* |  | Known-Unknown | \* |  |  | \* | MSP and PHA |
| Arias-Vargas et al. (2022) | - | \* |  | \* |  | Deterministic | \* | \* |  |  | Optimization model |
| Liu et al. (2022) | MS |  |  |  | \* | Deterministic | \* |  | \* | \* | Causal Bayesian Network |
| Kahr (2022) | TS+MPE |  |  |  | \* | Known-Unknown | \* |  | \* |  | Bender’s decomposition |
| Qiu et al. (2022) | - | \* |  | \* |  | Known-Unknown |  |  |  | \* | Robust optimization approach |
| Lotfi et al. (2023) | MS+MPE |  |  |  | \* | Known-Unknown | \* | \* | \* | \* | Robust stochastic optimization |
| Colabianchi et al. (2023) | - |  | \* |  |  | Deterministic | \* | \* |  | \* | MARLIN method |
| Liu et al. (2023) | MS |  |  | \* |  | Known-Unknown | \* | \* | \* | \* | Robust optimization approach |
| Aghajani et al. (2023) | MPE+MS | \* |  | \* |  | Known-Known | \* | \* |  | \* | Two-stage stochastic optimization |
| Huang et al. (2023) | - | \* |  |  |  | Known-Unknown |  |  |  |  | Particle swarm optimization |
| Lotfi et al. (2024a) | MS+MP+MPE |  |  |  | \* | Unknown-Unknown | \* | \* | \* | \* | Robust stochastic optimization |
| Lotfi et al. (2024b) | TS+MPE | \* |  |  | \* | Unknown-Unknown | \* | \* | \* | \* | Robust stochastic optimization |
| Luo et al. (2024) | - |  |  | \* |  | Deterministic | \* | \* |  |  | Optimization model and NSA |
| Lee et al. (2024) | TS+MP+MPE | \* |  | \* | \* | Known-Unknown |  |  |  | \* | Stochastic programming approach |
| **This Study** | **TS+MP** | **\*** | **\*** | **\*** | **\*** | **Known-Unknown Unknown-Unknown** | **\*** | **\*** | **\*** | **\*** | **URSP, ABC, and MLA** |
| MPE: Multi-period, MS: Multi-stage, TS: Two-stage, MP: Multi-product, IPP: Inventory planning problem, WDP: Warehouse design problem, DPP: Distribution planning problem, SCDP: Supply chain design problem, D: Disruption, R: Resilience, V: Viability RM: Risk management, MSP: Multi-stage stochastic programming, ILSA: Iterative local search algorithm, PHA: Progressive hedging algorithm, NSA: Neighborhood search algorithm, URSP: Unified Robust Stochastic Programming, ABC: Artificial Bee Colony, MLA: Machine learning algorithms | | | | | | | | | | | |