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Scandinavian Forest Economics
No. 44, 2012



Proceedings of the Biennial Meeting of the
Scandinavian Society of Forest Economics
Hyytiälä, Finland, May 2012

Anne Toppinen, Heimo Karppinen & Kati Kleemola (eds.)

Faustmann formula before Faustmann

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A common perception in forest economics is that the celebrated 'Faustmann formula' was discovered in 1849 and that the 'Faustmann rule' or Faustmann-Pressler solution to the optimal rotation age was derived from it a decade later by Pressler. Recent research has significantly extended this view by showing that the economic ideas behind these innovations were presented already in the end of the seventeenth century in England during so-called financial revolution. In his remarkable writings in 1683 and 1701, John Houghton, a London-based editor and fellow of the Royal Society, explicitly recognized the opportunity cost of forest capital and compared forestry with other forms of land use employing calculations that are in line with modern capital and investment theory. In 1730, a competent land surveyor and accountant John Richards from Essex contributed to the development of this type of forest economic thought by calculating forest value under both intermittent and sustained yield management using discounted cash flow to infinity, and thus discovering the Faustmann formula over 100 years before Faustmann.

It took quite a long time before the modern principles of forest and natural resource economics were rediscovered in the 'scientific forestry' that emerged in the German territorial states in the latter part of the eighteenth century. This delay was at least partially due to the fact that the development of economic thought followed quite different course in Central Europe than it did in England where extensive political and institutional changes led to the establishment of relatively modern financial and commercial markets already at the turn of the eighteenth century.

This paper explores the early development of forest economic thought under the German 'scientific forestry' more closely than has been done previously and shows that a modern analytical perspective to the valuation of forests was presented also in the German discipline well before Faustmann. Moreover, there is evidence that a competent German forest mathematician, Johann Hossfeld, used differential calculus to produce the optimal cutting or rotation age almost 60 years before Pressler who in the natural resource economic literature has been regarded to anticipate marginal analysis.