

**Parallel Trade, Reference Pricing and Competition
in the Pharmaceutical Market:
Theory and Evidence**

Final Report on Research Project dnr 110/2008

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The main participant in the project was Ph.D. Student Miyase Köksal who defended her thesis in June 2011.

The project created two theoretical paper (one of which has a revise and resubmit to the *Journal of Health Economics*) and two empirical papers co-authored by David Granlund.

Paper I. Reference Pricing: Making Parallel Trade in Pharmaceuticals Work

This paper shows that parallel trade makes pharmaceutical manufacturers reduce their prices in the home (importing) country more when it is combined with the healthcare reimbursement policy of reference pricing, requiring consumers to pay the full extra cost if they don't buy cheaper parallel imported drugs. On the other hand, contrary to intuition, reference pricing leaves price unchanged in the foreign (exporting) country. By and large, a change from coinsurance to reference pricing results in a pure transfer of wealth from the pharmaceutical manufacturers to the insurance providers without affecting consumers' pharmaceutical consumption or their out-of-pocket costs.

Paper II. Compassion and Cost: The Dual Role of Reference Pricing

Providing health insurance involves a trade-off between the benefits from risk spreading and the costs due to moral hazard. Focusing on pharmaceuticals consumption, this paper examines theoretically whether reference pricing, requiring individuals to pay the price difference if, in this case, they don't buy the cheaper parallel imported drug, can ease this trade-off – an issue which has not previously been pointed out in the debate on health insurance. The results

indicate that, if individuals are extremely risk-averse, a policy shift from coinsurance to reference pricing would do this by providing more insurance while decreasing moral hazard.

Paper III. Parallel Imports and Mandatory Substitution Reform: A Kick or A Muff for Price Competition in Pharmaceuticals (with David Granlund)

What has been the effect of competition from parallel imports on prices of locally-sourced on-patent drugs? Did the 2002 Swedish mandatory substitution reform increase this competition? To answer these questions, we carried out difference-in-differences estimation on monthly data for a panel of all on-patent prescription drugs sold in Sweden during the 40 months from January 2001 through April 2004. On average, facing competition from parallel imports caused a 15-17% fall in price. While the reform increased the effect of competition from parallel imports, it was only by 0.9%. The reform, however, did increase the effect of therapeutic competition by 1.6%.

Paper IV. EU Enlargement, Parallel Trade and Price Competition in Pharmaceuticals: What's to Blame? Derogation or Perception? (with David Granlund)

Given the cost of trade and availability of pharmaceuticals, the driving force for parallel trade is the price difference between the source (exporting) and the destination (importing) country. An increase in the price difference or in the availability of pharmaceuticals for parallel trade should increase price competition in the destination country. Using 2003-2007 data from Sweden we investigated whether EU enlargement in 2004, when new countries with low pharmaceutical prices joined the EU, increased competition from parallel imports. Drugs facing competition from parallel imports are found to have on average 17% to 21% lower prices than they would have had if they had never faced such competition. But, contrary to expectation, EU enlargement is not found to have increased this effect, which might be explained by derogations and changes in consumer perceptions of parallel imports.