Labor offshoring is the process in which US companies set up production (service) outfits abroad where they employ local workers; some US facilities are closed or curbed and US workers are laid off. This process is followed by (combined with) a second stage in which a part of the laid-off workers are rehired and production is expanded. In this rehiring stage, several strategies are possible, including expanded domestic consumption of services, expanded exports or a coordinated growth.

In the ongoing political discussion, it is generally accepted that the immediate effect of offshoring, losing US jobs, is negative. Proponents of the process argue, though, that more is gained then by the availability of the laid-off workers for rehiring in the service industries and that moving production and/or services overseas opens up the local markets for US goods and services. A further argument is that offshoring helps keep down the price of goods and services, resulting in accelerated development of the entire economy and improving the competitiveness of US products abroad.

We have built an input-output macro-model of the national economy, consisting of four sectors: manufacturing, service, government and personal. The model relies on US government data, published by the Bureau of Economic Analysis (BEA), US Department of Commerce. The extensive data-sets of BEA have been condensed into a relatively compact model suitable for this study (the condensed model contains about 55 parameters). The model describes a reference situation; our analysis then involves linear extrapolation from this situation.

As economic indicators, we investigated four balances (defined as income minus expenditures), namely the personal, corporate, government and international balance. We looked upon the behavior of these balances in various scenarios (offshoring, rehiring for expanded domestic consumption, for expanded export and for balanced growth), in terms of a number of control parameters, such as the labor outsourcing ratio, the foreign-to-domestic wage ratio, the welfare-to-wage ratio and the rehiring ratio. The investigation implied a combination of analytical and computational effort.

The main findings of the analysis have been:

1. Under offshoring, the foreign trade deficit and the government deficit grow; the personal balance may decline while the corporate balance is improving; and there is an income shift from wage earners to share holders.

2. Any rehiring improves the government balance.
3. Rehiring done to increase production for domestic consumption further increases the foreign trade deficit and erodes the personal balance.

4. Rehiring done to increase production for export improves all four balances but, just to break even, the export increment has to exceed the total wages paid to foreign workers.

5. An ideal scenario is expanding production so that increased domestic consumption and export are coordinated to maintain a zero foreign trade balance – but achieving this requires active incentives on the part of the government.

This work has been presented as a plenary lecture at the IFAC (International Federation of Automatic Control) Symposium on Computational Economics in Istanbul, Turkey, in October 2007. It will also be presented at a special session of the American Control Conference in Seattle in June 2008.

More work is needed to incorporate into the investigation the effect of the reduction (or stabilization) of the price of products and, to some extent, services, arising from offshoring. Also, a further extension of this study might involve the analysis of how various taxation and regulatory strategies would affect the offshoring and rehiring process.