My dissertation focuses on the role of the state in technological change and the conditions under which technological change can lead to falling employment. It contributes to Social Structure of Accumulation (SSA) theory by extending it with a new institutional component, productive state apparatus that develops major inventions. It then uses SSA theory to explain the differential technological performance of the long periods of the US economy. A brief description of each essay is provided below.

**Technological Change, Productive State Apparatus, and Social Structure of Accumulation Theory**

This paper makes a case for a new institutional component for Social Structure of Accumulation (SSA) theory that is called productive state apparatus (PSA). SSA theory explains the long swings in capital accumulation by the multidimensional institutional framework called social structure of accumulation. Each SSA provides high profitability, generates sufficient aggregate demand, and brings about stability and predictability to induce long-run investments. However, SSA theory has missed the important supportive role of PSA in the working of each SSA and their differential performance. PSA refers to a subsection of state apparatus that creates and maintains a research and education infrastructure, finances and conducts research and development activities. PSA in the US primarily includes universities/colleges that receive public funds and research grants, the National Science Foundation, the Department of Defense, the National Institutes of Health, the National Aeronautics and Space Administration, the Department of Energy, the Department of Commerce, and the Department of Agriculture. We also argue that profitability that keeps capital accumulation in motion is also the reason why for-profit enterprises fail to generate those major inventions that PSA has been largely responsible for in the US. In its interaction with other components of an SSA, the effectiveness of PSA declines when a liberal SSA replaces a regulated SSA (as occurred around 1980). It is shown that PSA's total resources grew more slowly in neoliberal SSA than in the previous regulated era, which limited its potential contribution to capital accumulation. This partly explains the poorer technological performance of the neoliberal regime of accumulation measured both by growth in labor productivity and occupational churn rates.

**The Past and Future of Employment in the Face of Relentless Technical Progress**

This paper considers the effect of the pace of labor-saving technical progress (TP) on employment and distribution in a cyclical growth framework pioneered by Goodwin (1967). The paper also uses the insights of Verdoorn and Kaldor about the relation between growth and labor productivity. In economic growth context, the rate of growth is given by the rate of accumulation. Therefore, the fate of employment is determined by the rate of accumulation in relation to the growth rate of labor productivity. If the sensitivity of the growth rate of labor productivity with respect to the rate of accumulation is below one, a purely capitalist economy features fluctuations in the employment rate and labor share, i.e., growth cycles. This allows workers to receive, on average, real wages that rise in the same proportion as labor productivity. Workers' bargaining strength affects the speed and amplitude of a typical cycle. Acceleration in TP allows for a lower unemployment rate. On the other hand, when the sensitivity of the growth rate of labor productivity with respect to the rate of accumulation reaches unity, employment remains unchanged but, in the presence of expansion in the labor force, the employment rate and labor share fall. If the sensitivity is above one, then rapid TP will reduce employment. Both the employment rate and labor share fall unambiguously, which sooner or later slows down accumulation and the pace of TP. Unless TP occurs very fast, the tendential motion of income distribution is determined by class-institutional factors. A fall in the labor share in the absence of any acceleration in TP can be explained by these factors. A consideration of the relative speed of TP in relation to rate of accumulation is used as a macroeconomic tool to make a prediction about the future of employment. The empirical evidence for the US economy does not lend support for the existence
of either such fast TP or acceleration in TP.

The Effect of Neoliberalism on Technological Change

This paper provides a detailed analysis of the effect of neoliberal social structure of accumulation (SSA) on technological change. The increasing degree of inter-firm competition, shortening of investment horizon, commercialization of research as well as the restraint of productive state apparatus (PSA) since the 1980s created a less suitable environment for technological change. Corporate sector became less interested in devoting resources to research and in sharing research outcomes. Similarly, neoliberal SSA curbed the potential positive impact of PSA on research and development. As a result, the growth in the number of science and engineering articles originating from the US, especially from the corporate sector, stagnated indicating that the channel from research and development to technological change became less effective. This suggests that neoliberal SSA slowed down technological change indirectly as well in addition to its direct restraining effect on total investment in the economy and on PSA’s contribution to technological change.