Technological change has an enormous impact on every aspect of our lives, including how we work. The prominent framework to understand the effects states that computers can be programmed to perform some of the tasks that were carried by workers, but not all of them. Workers still have a comparative advantage on tasks that require creativity, interpersonal skills and motor abilities. The adoption of new technologies not only shifted the demand for workers from some routine intensive occupations to nonroutine; but also it might have affected the task composition within occupations.

In this research project, we will study how new technologies affected wage inequality within-occupations. By doing so, we attempt to contribute to the literature on skill-biased technological change in two ways: first, we attempt to incorporate a dynamic dimension to it. We will focus not only on the levels of tasks, but also on the scope and pace of those changes. Second, we shift our interest from differences across occupations, which are usually the center of the literature, to inequality within occupations.

Both changes are relevant from a policy perspective. Analyzing dynamics could help us to understand how occupations change, and how workers cope with those changes. Focusing on inequality within occupations, we can understand better who were the winners and losers from the adoption of new technologies, and possibly consider what policy instruments would be more effective to ameliorate the negative consequences of technological progress.

In particular, we want to test two hypothesis. First, we test whether changes in the task composition towards more complex tasks were followed by increases in relative wages. This hypothesis is driven both by considerations on changes in relative productivity, inasmuch as changes in the demand for workers. Our second hypothesis states that occupations that experienced larger changes in their tasks contents present higher wage inequalities. The hypothesis is driven by considerations on worker and firm heterogeneity.

In order to test these hypotheses, we need first to characterize the changes on the task component of different jobs and verify that in fact the share of complex tasks increased over the last twenty years. For this, we will employ the O*NET database and its predecessor the DOT. This analysis requires that we go beyond a simple description and provide a measure of the size and scope of the changes. Such index is currently lacking in the literature and its construction is one valuable contribution of our research as it might become an input for future development of the discipline.

Our analysis then provides three valuable innovations. First, an innovation in the approach to technological change, as we take into consideration the dynamic aspects of technological progress and the (in)ability of workers and firms to keep pace with those advances. Second, we innovate with the method, as there are no available, synthetic measures of changes in the task content of occupations. Third, we produce our analysis in a new set of countries, transition and developed countries, who have not yet received the attention they deserve.

As stated before, our research has important policy implications, especially in the field of active labor market policies. A confirmation of our research hypotheses would indicate that workers had difficulties in acquiring the necessary skills to profit from technological change, and will provide further arguments for the development of lifelong learning programs. At the same time, our proposed index of task change could help to identify those occupations, and consequently those individuals who are at higher risks of falling behind due to fast technological change.