

SOCIAL PROTECTION AND JOBS

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# UPGRADING APPRENTICESHIPS IN AFRICA: THE CASE OF DUAL APPRENTICESHIPS IN COTE D'IVOIRE

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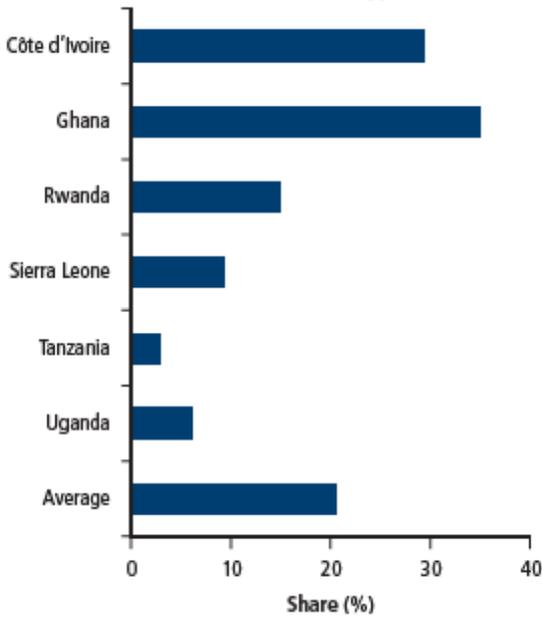
World Bank (DEC/DIME and SPJ)

Jobs, Labor & Migration Course

# APPRENTICESHIPS ARE COMMON IN LOW-INCOME/LOWER MIDDLE INCOME COUNTRIES

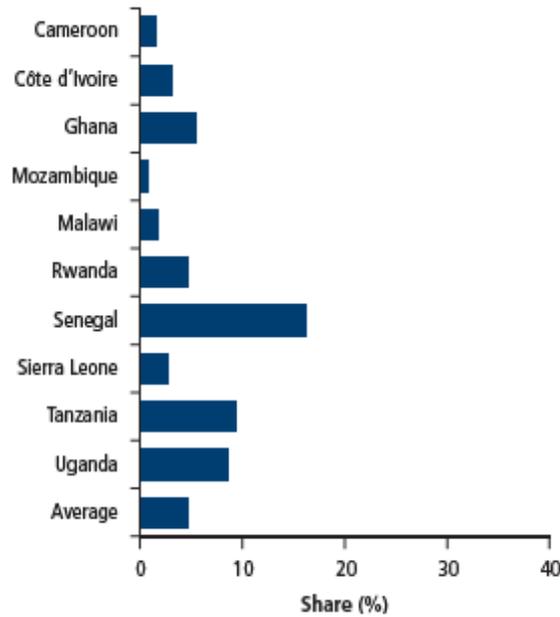
Ever been an apprentice

a. Ever been an apprentice



Ever attended TVET

b. Ever attended a TVET institute



- Apprenticeship is one of the most common sources of training in Africa
  - Particularly for low-skill youths and informal sector operators
- Traditional apprenticeships involve on-the-job training in small informal firms
  - They are private arrangements that have existed for decades
- But it is not a model without questions (accessibility, quality,...)
  - The improvement of apprenticeship systems has become an important objective in many countries around the world

Source: Filmer et al. (2014), Youth Employment in SubSaharan Africa

# WHAT ARE THE POTENTIAL MARKET FAILURES TO ADDRESS? (1)

- Key questions: Is the training provided in firms the ‘optimal’ level? Are individuals investing in training at that ‘optimal’ level?
- General human capital theory (Becker, 1962)
  - Firms pay for training in firm-specific skills
  - Individuals pay for training in general skills (because they get returns on the labor-market)
  - The level of training provided is optimal if firms and individuals share the cost of training
  - If there are **capital market imperfections**, individuals may not be able to cover the cost of training (both direct costs and indirect costs such as forgone earnings while training)
- **Labor market imperfections** can mitigate this issue (Acemoglu and Pischke, 1998, 1999)
  - Firms may still invest in general skills training if labor market frictions limit worker’s mobility

# WHAT ARE THE POTENTIAL MARKET FAILURES TO ADDRESS? (2)

- But even in presence of labor market imperfections, there might be **commitment failures in firms**
  - Firms may not be able to credibly commit to a certain level of training, particularly in absence of complete contracts (Dustman and Schönberg, 2012)
  - Leads to an underinvestment in general training
- **Role of ‘institutions’: certification and regulation** can help ensure individuals get returns from training (Acemoglu and Pischke, 2000)
- Lastly, there can be **information asymmetries and imperfect intermediation** mechanisms that can hinder matches between youths and firms (Hardy and McCasland, 2015)

# THERE ARE VARIOUS POLICY APPROACHES TO UPGRADE APPRENTICESHIP SYSTEMS

## Example

### Facilitating access to apprenticeship

**Ghana** : « matching » system to facilitate youth' placement as apprentices into firms. Job fairs organized to facilitate intermediation/matching between youths and firms (Hardy & McCasland, 2017; Hardy et al., 2019)

**Uganda**: « subsidized traditional apprenticeships » (Alfonsi et al., 2019)

### Improving training quality

**Bénin**: improve access to technical training opportunities and facilitate certification for youths already in (traditional) apprenticeships

**Senegal**: improve quality of traditional apprenticeship (e.g. master skills, grant/technology for workshops, complementary training in literacy, socio-emotional or business skills)

### Facilitating access and improving training quality

**Côte d'Ivoire**: subsidized dual apprenticeships (Crepon & Premand, 2019)

- Screening of applicants, placement and wage subsidies
- Dual training: on-the-job training with follow-up by counsellors, and theoretical training in centers



# THE CASE OF SUBSIDIZED DUAL APPRENTICESHIPS IN COTE D'IVOIRE

SOURCE: CRÉPON & PREMAND, 2018

# EMERGENCY YOUTH EMPLOYMENT AND SKILLS DEVELOPMENT PROJECT (PEJEDEC)

- Set-up in 2012 following the post-electoral crisis
  - US\$50 million, with additional financing of US\$50 million in 2015
  - Managed by Coordination Office for Employment Projects (BCPE)
- Objective to improve access to temporary employment and skills development opportunities for young men and women in Côte d'Ivoire
- Tested different approaches
  - Component 1: Labor intensive public works (LIPW) for youths ([IE Policy Report](#), [IE technical Paper](#))
  - Component 2: Skills Development and Employment Support for Youth
    - Apprenticeship (in partnership with AGEFOP, national training agency)
    - Internship for skilled graduates, Professional training programs, Entrepreneurship training
    - Integrated economic inclusion/micro-entrepreneurship program in post-conflict setting ([IE Design](#))
  - Component 3: Strengthening institutional capacity

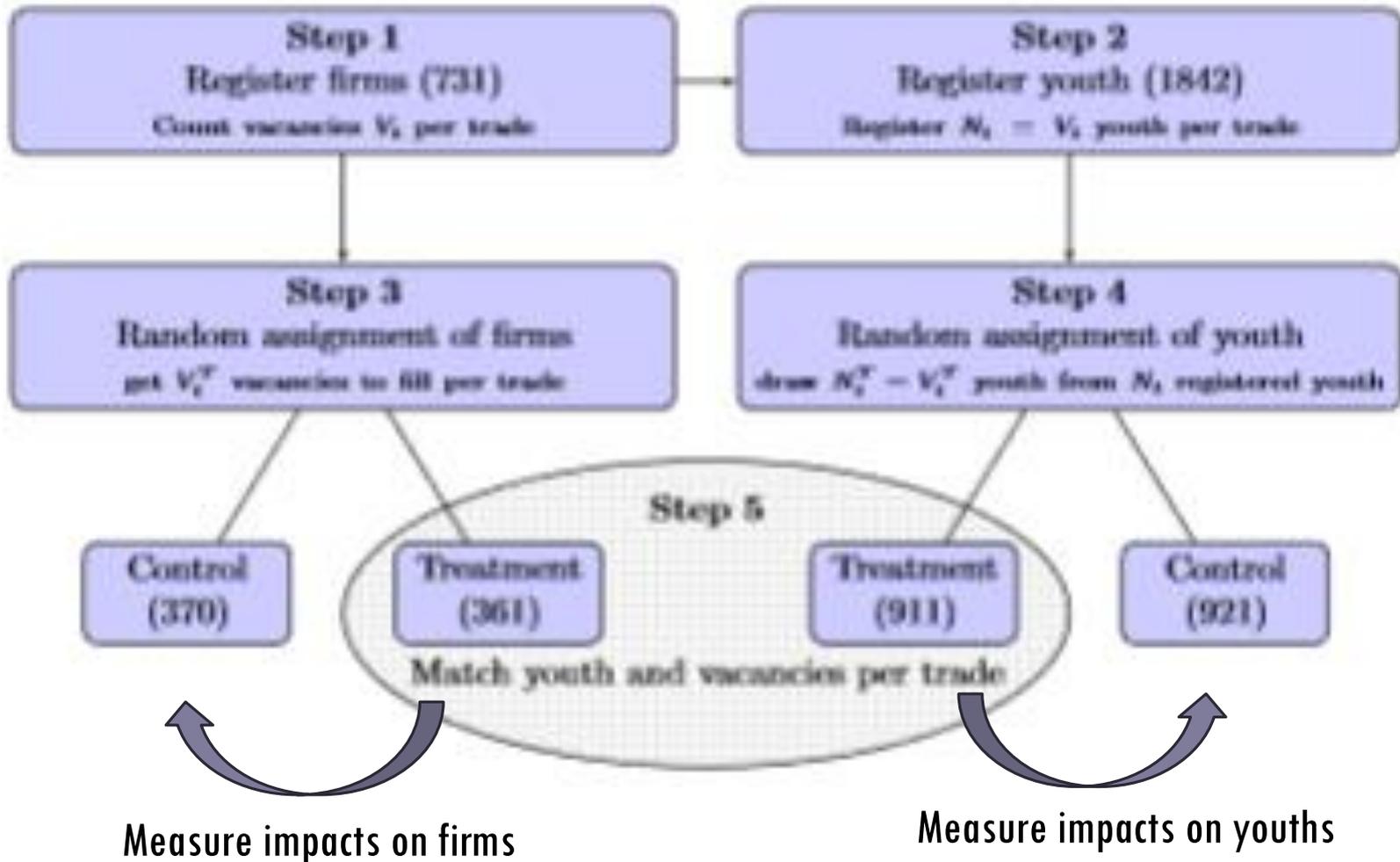
# COTE D'IVOIRE SUBSIDIZED DUAL APPRENTICESHIP PROGRAM (PEJEDEC)

- Selected youths sign an **apprenticeship contract**
  - **Subsidy** (FCFA 30,000, ~\$60/month, half minimum wage): not “salary”, but stipend to cover transport costs and meals.
  - Duration 12-24 months (depending on trades)
  - Health insurance
- **Dual Training approach:**
  - **On-the-job-training**
    - Supervision from master craftsman in firms
    - Regular visits from AGEFOP apprenticeship counsellors (monitoring of skill acquisition)
  - **Theoretical training**
    - Training centers (mix of private and public centers)
    - Specific training curriculum (and development of core set of skills for certification)
    - Approximately 180 hours per year (periodicity varies)
- **Certification:** Joint between mastercraftsmen, AGEFOP counsellor and expert
- **Equipment:** safety equipment for youths, toolkit for firms
- **Average Costs:** FCFA 1,135,030 (approximately USD 2,045 par apprentice)

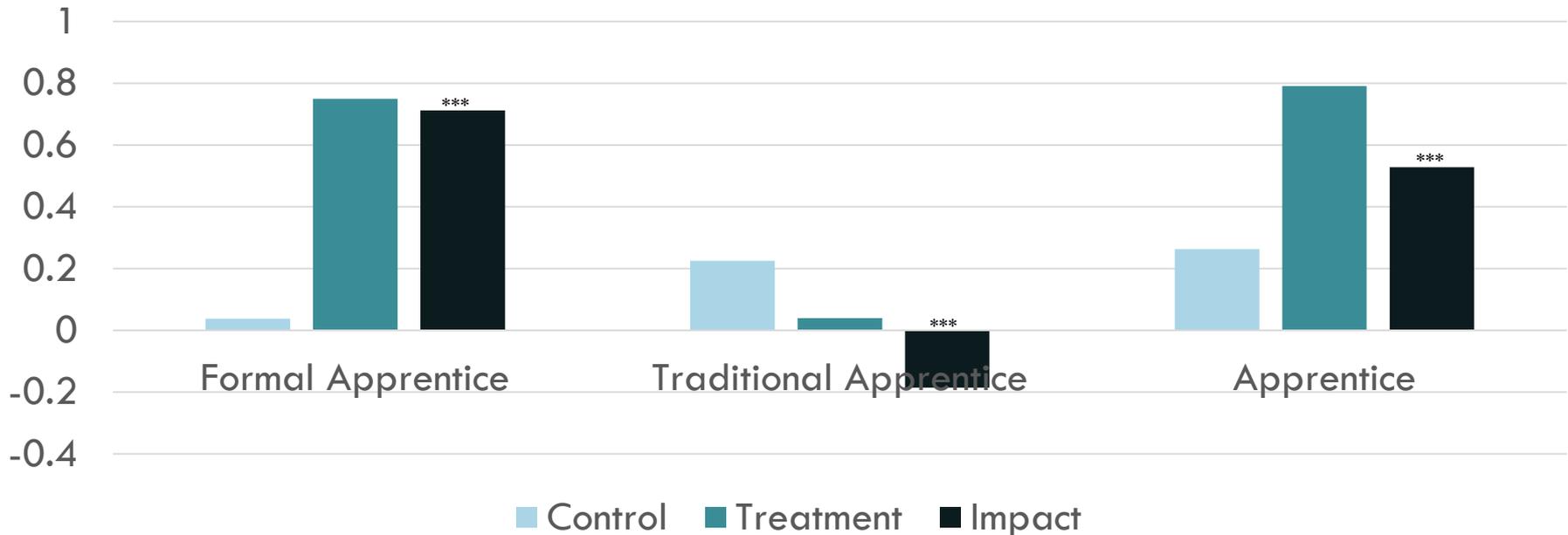
# KEY POLICY QUESTIONS ON THIS APPROACH

- ❑ **What is the impact of the apprenticeship training program on youths?**
  
- ❑ **What is the impact on firms hosting apprentices?**
  - ❑ Has the program created new apprenticeship positions, or have formal apprentices displaced traditional apprentices?
  - ❑ How does the placement of formal apprentices affect labor demand and productivity in firms?
  
- ❑ **Does the program expand the population of youth who can access apprenticeships? Do participants in the program have different profiles than traditional apprentices?**

# DOUBLE-SIDED RANDOMIZED EXPERIMENT



# IMPACTS ON YOUTH PARTICIPATION IN APPRENTICESHIP

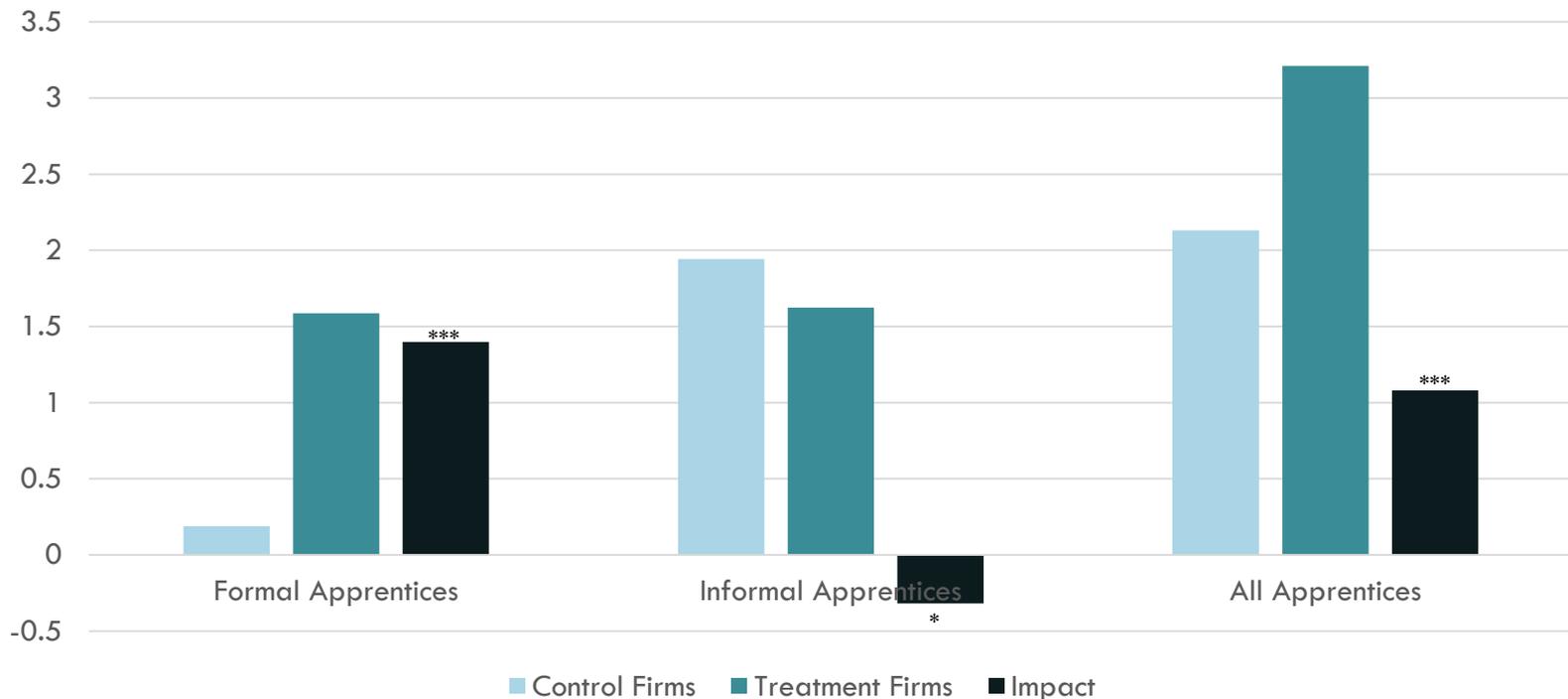


Large increase in participation in formal apprenticeships (71.2pp)

This is partly driven by youth not entering traditional apprenticeship (-18.5pp) (“windfall effect”: 26 percent of formal apprentices would have been in traditional apprenticeship)

Hence net increase in youths in apprenticeship is only 52.8pp.

# ARE WE JUST REPLACING TRADITIONAL APPRENTICES BY FORMAL APPRENTICES? IMPACTS ON INFLOW OF APPRENTICES IN FIRMS



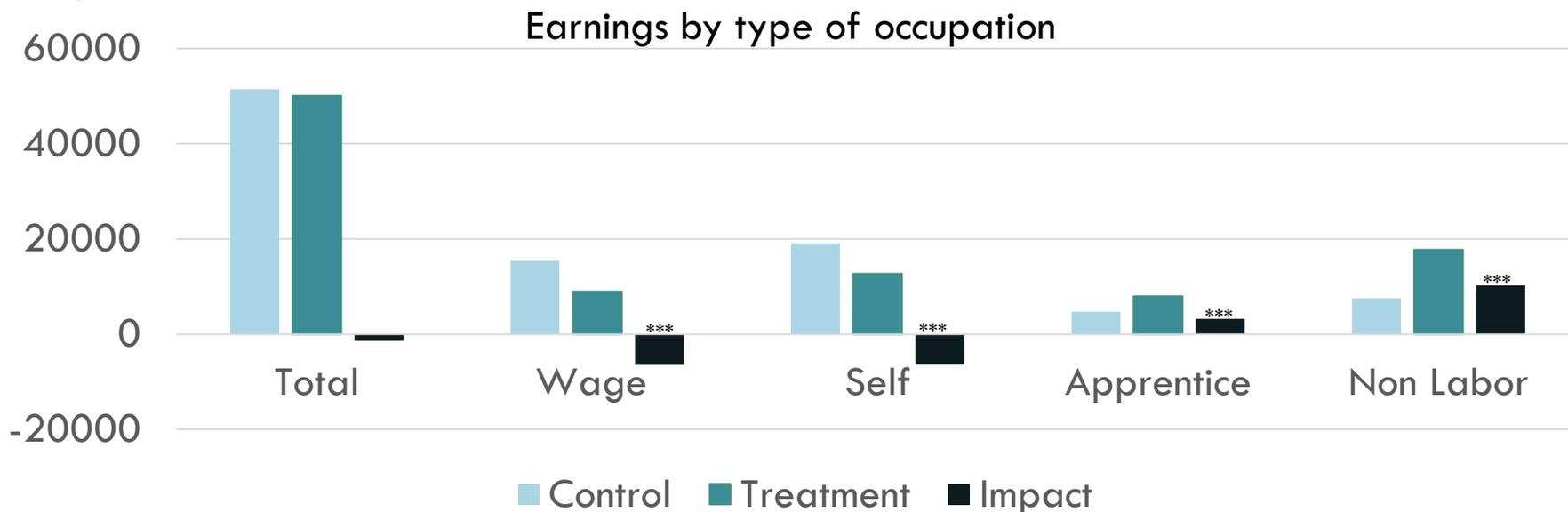
The number of formal apprentices increases strongly (+1.4), but the number of all apprentices increases a little less (+1.1).

Formal apprentices replace some informal apprentices (-0.3, “substitution effect”), but the effect is small (23% of subsidized apprentice placed)

# SUMMING UP IMPACTS ON TOTAL NUMBER OF APPRENTICESHIP POSITIONS CREATED

- **The net number of apprenticeship positions created by the program is between 0.74 and 0.77 percent of the number of formal apprentices placed**
  - **Effects for youth.** Large increase in youth participation in formal apprenticeships, but **26 percent** of formal apprentices placed did not enter traditional apprenticeships (“windfall effect”)
    - Provided a lower bound for # of positions created:  $1 - 0.26 = 0.74$
  - **Effects for firms.** Increase in the inflow of apprentices into firms but there are **23 percent** fewer traditional apprentices per formal apprentice placed in firms (“substitution effect”)
    - Provides an upper bound for # of positions created:  $1 - 0.23 = 0.77$
- **The program substantially expands access to apprenticeship**

# THE SUBSIDY OFFSETS LARGE OPPORTUNITY COSTS OF PARTICIPATION IN APPRENTICESHIP



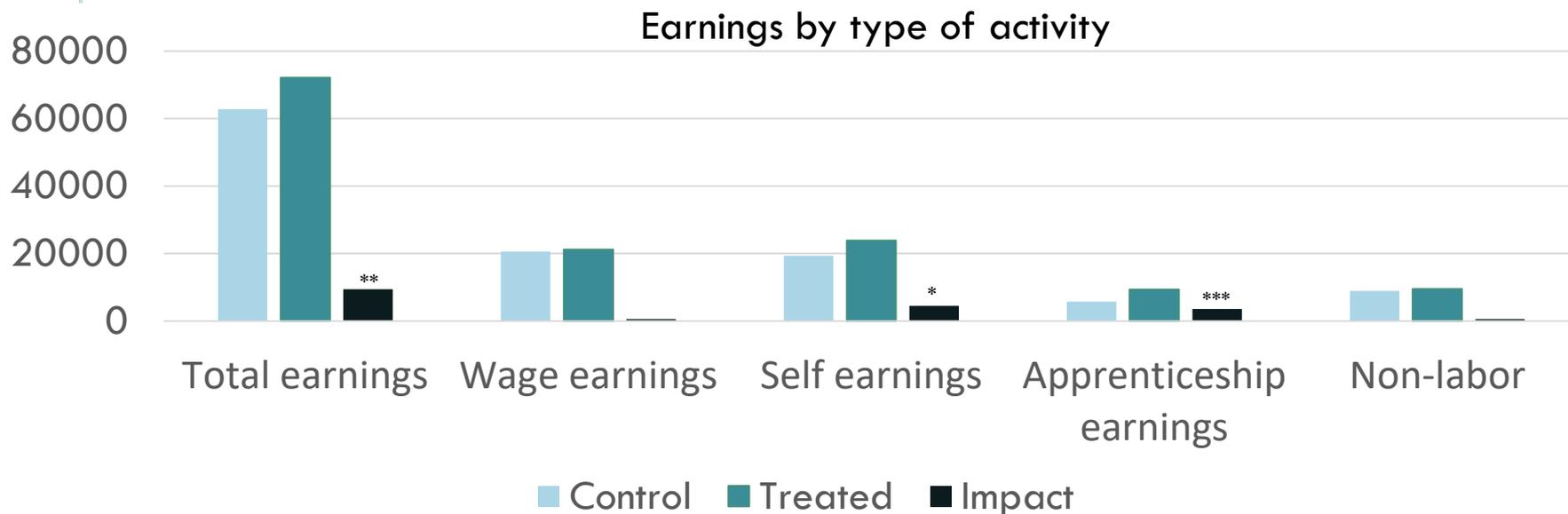
Treatment youths and control youths have a similar level of earnings

- Higher earnings from apprenticeship and non-employment income (program stipend)
- Lower wage income and self-employment income

Substantial opportunity costs for youths to participate in apprenticeship

- Foregone earnings from other wage jobs or self-employment
- The program stipend is key to allow youths to participate

# YOUTHS' EARNINGS ARE HIGHER 4 YEARS AFTER THE START OF THE PROGRAM

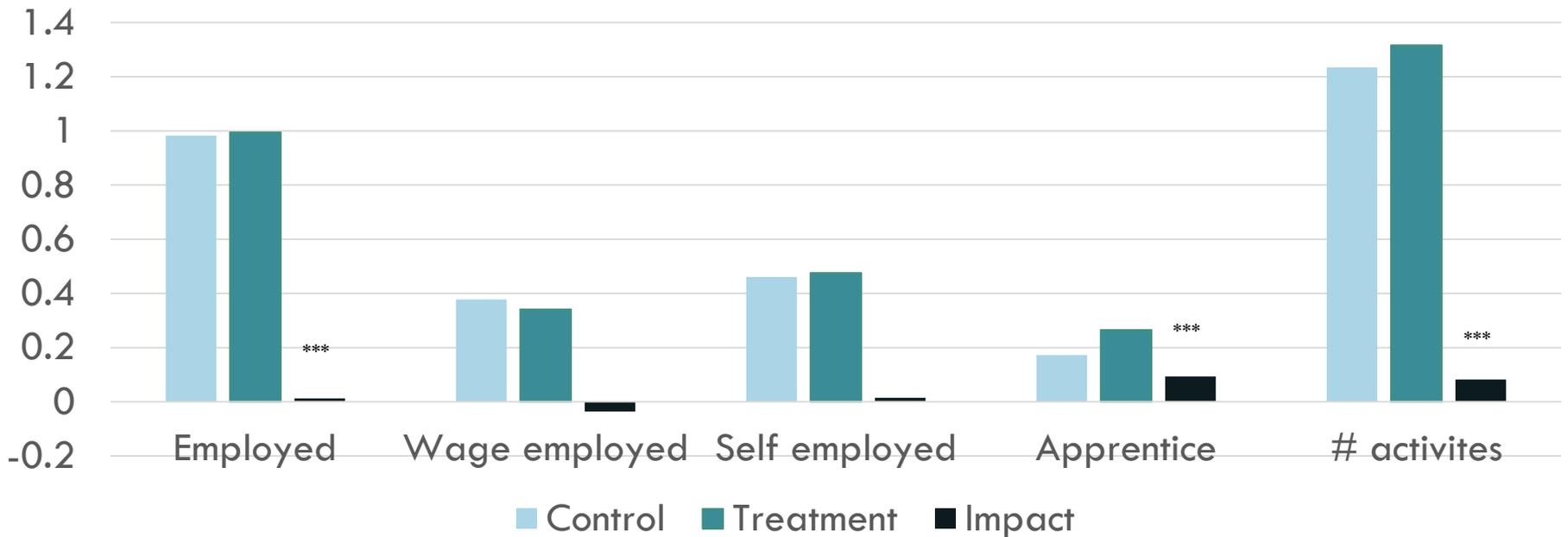


Treated youths have significantly higher earnings 18-24 months after the program (+9394 CFA per month, or 15 percent)

Higher earnings stem from higher earnings in self-employment (+4512 CFA per month, or 23 percent) and apprenticeship (+3593 CFA per month, or 62 percent)

Earnings in wage employment are stable.

# THE TYPES OF ACTIVITIES YOUTHS ARE WORKING IN DOES NOT CHANGE MUCH

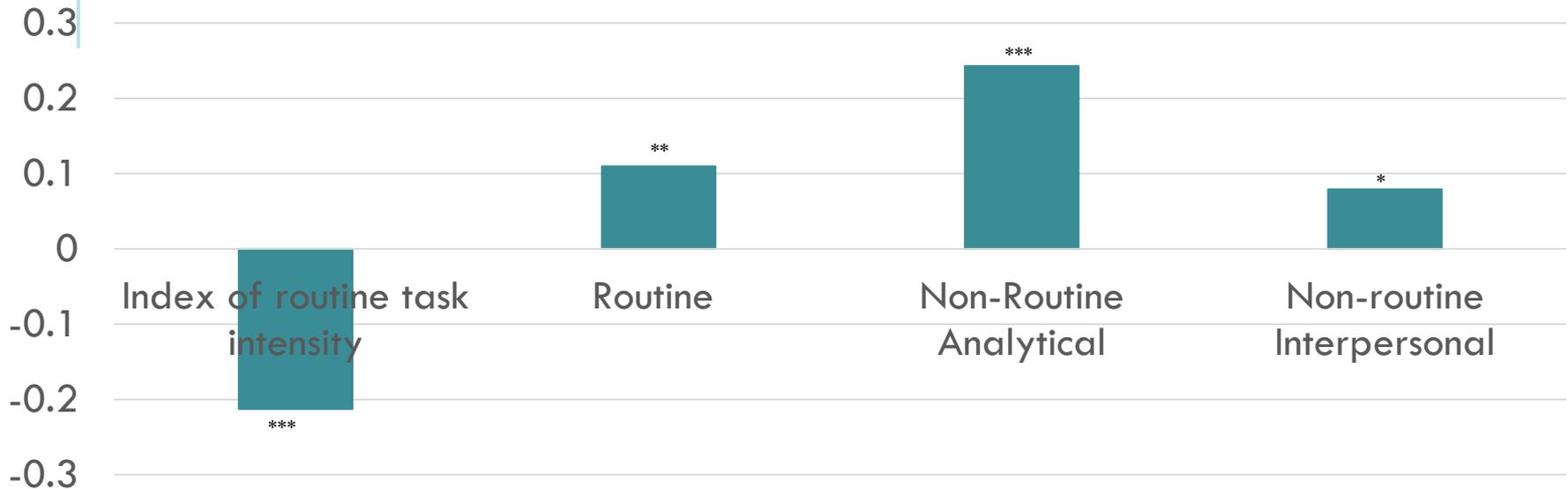


## Limited impact on the share of youths employed

- Almost all youths work : 98.2% of control group, 99.5% of treatment group

Small effect on employment (+0.01 pp) and number of activities (+0.08) driven by a larger share of treated youths still in apprenticeship (+0.09)

# YOUTHS PERFORM MORE COMPLEX TASKS

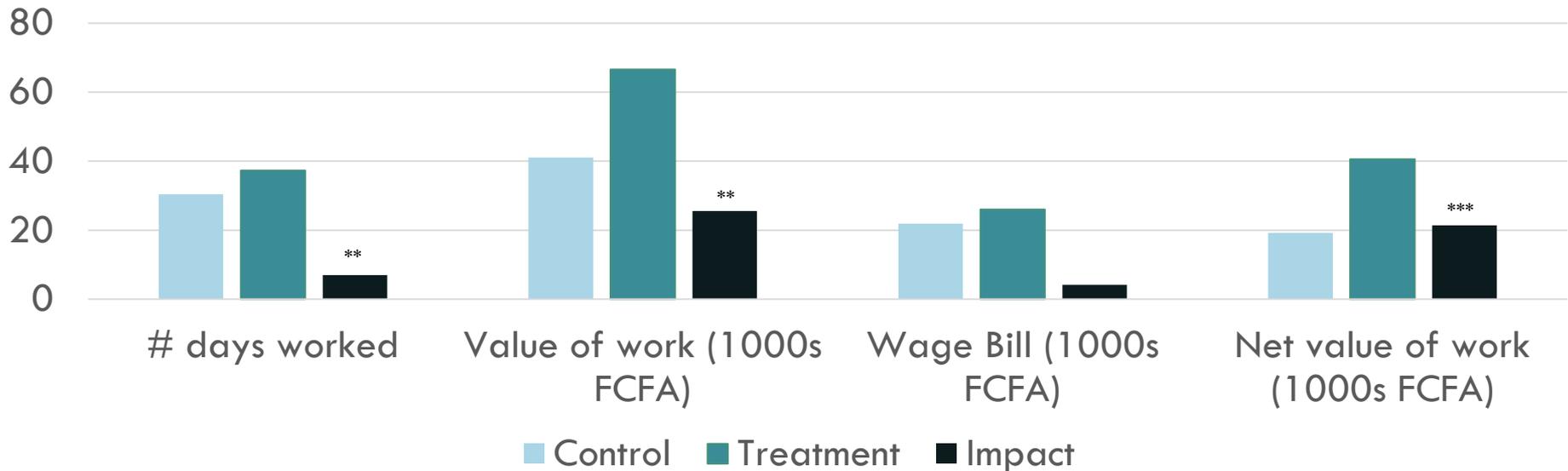


Treated youths are engaged in more complex tasks in their primary occupations :

- A broader mix of tasks
- In particular more non-routine analytical tasks
- But also slightly more routine and non-routine interpersonal tasks.

Consistent with treated youths having higher skills and being more productive

# APPRENTICES MAKE A POSITIVE NET CONTRIBUTION TO FIRMS



Firms see an increase in the value of work from apprentices

- Program apprentices are more productive than traditional apprentices, even if they work fewer hours
- Firms pay formal apprentices less than traditional apprentices, despite higher productivity. This is consistent with firms indirectly receiving compensation for the direct cost of training, such as the time spent teaching apprentices.

# CONCLUSION (1)

Importance to carefully assess context of interventions in apprenticeship sector

- Interactions with prevalent forms of informal apprenticeships
- Employment conditions and opportunity costs when underemployment predominates.

The Cote d'Ivoire formal apprenticeship program does expand access and create new apprenticeship positions

- Substitution and windfall effects are statistically significant but moderate in magnitude
- The net number of apprenticeship positions created is between 74 and 77 percent of the number of individuals placed
- Results do not support concerns that supply-side employment programs are purely redistributive.

Results show there is scope (and absorbing capacity in firms) to expand access to apprenticeship

## CONCLUSION (2)

- Participation in apprenticeship has large opportunity costs for youth
  - The subsidy helps offset these opportunity costs and allows some youths to participate
  - While youths are in the program, their earnings are not statistically different from youths in the control group
- There are substantial impacts on earnings 4 years after the start of the intervention (+15%)
  - Youths are engaged in more complex tasks. Consistent with the program increasing skills and productivity
- The entry of new apprentices in treatment firms is associated with an increase in the net value of work provided by apprentices in these firms during the program.
  - Gap between the productivity of apprentices and how much they are paid
  - Firms receive indirect compensation for providing training
- In sum: subsidized dual apprenticeships can increase incentives for youths to participate, in a way that is beneficial for individuals over the medium-term.

# INTERPRETATION AND CONTRAST WITH RESULTS ON OTHER TYPES OF PROGRAMS

- Ghana (Hardy et al., 2019) : placement intervention that addresses intermediation failures and entry costs has small effect on entry and negative effects on earnings
- Cote d'Ivoire: subsidized dual apprenticeships has large effects on entry and positive effects on earnings
- Suggests that the most binding constraints may not be related to information asymmetries or intermediation inefficiencies, but rather financial constraints and inability for firms to commit to provide general skills training.
  
- Uganda (Alfonsi et al., 2019): the impacts of traditional apprenticeship are concentrated in the year after the start of the intervention
- Cote d'Ivoire: subsidized dual apprenticeships combining theoretical training and a certification scheme with on-the-job training have impacts on earnings four years after the start of the intervention.
- Suggests that the dual approach can help overcome some limitations of traditional apprenticeships.

# SOME PENDING QUESTIONS

- What are the long-term impacts of apprenticeships?
- Which element of subsidized dual apprenticeship make the it (cost-)effective?
  - It would be interesting to isolate the impact of the subsidy, on-the-job training, theoretical training or follow-up by apprenticeship counsellors
  - Scope to formally test the relative effectiveness of various design features of dual apprenticeship program.
- Is upgrading informal apprenticeships more cost-effective?
  - Need more impact evaluation studies of programs that seek to improve the quality of training (e.g. Benin, Senegal)



**Thank you!**