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研究成果の概要(和文)：本プロジェクトでは、不平等を様々な側面から考察している。ア・賃金格差：女性が十分な教育を受け、特定の職業・産業に従事することで、差別による男女の賃金格差は解消される。政府が公正な競争を促進すれば、私的・公的な賃金格差は縮小される。イ・地理的えこひいきと企業：特に農村部や建設業において、民間企業が政治家の出身地えこひいきに込んでいることが分かる。さらに、工業地帯の設置は、その地域の民間企業の数を増やすのに役立つ。工業地帯の開発には、民間の協力が不可欠である。ウ・その他：暑さは、国で最も暑い地域であっても、テストの成績を低下させる。教育関係者は暑さの影響と生徒の予防策に気を配る必要がある。

## 研究成果の学術的意義や社会的意義

First, wage discrimination might be dismissed by the market mechanism. Second, the private sector is sensitive to economic incentives. Third, the development of the private sector is crucial for economic development. Fourth, heat waves/climate changes might lead to regional inequality.

研究成果の概要(英文)：The project considers various aspects of inequality. Regarding wage inequality, we find gender wage gap due to discrimination will subside when females gain enough education and participate in specific occupations/industries. Private and public wage differences can be diminished if the government promotes fair competition among sectors. Regarding geographic favoritism and firms, we find private firms respond to the home favoritism from politicians particularly in rural areas and construction industry. Besides, setting up industrial zones helps to increase the number of private firms in the locality. Private partnership in the zone development works best. In addition, we find heat does reduce test taking performance even among the hottest areas in the country. Educators should care about heat impacts and the prevention measures for students.

研究分野：Economics and Economic Policies

キーワード：Inequality Favoritism Household Firm Discrimination Wage gap Industrial zone Heat

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## 1 . 研究開始当初の背景

I expand the two main explanations in the literature for discrimination in the labor market: preference-based (Becker, 1954) and informational asymmetry (Arrow, 1973) to a broader context in a series of empirical studies. The key questions are whether the favoritism (discrimination) would change along with the life span and economic development and how individuals/firms responded to favoritism. Specifically, the project is to identify favoritism in various forms and analyze/decompose/estimate influencing factors. Then it compares favoritism among different periods of time and estimates how related identities responded to favoritism.

## 2 . 研究の目的

The project is to examine formal economic activities and economic consequences of favoritism. It would provide policy implications on economic roots of favoritism such as rent-seeking behaviors (corruptions) and infrastructure development in developing countries. The outcomes of this project have 5 components corresponding with 5 published papers (Vu, 2022; Vu and Yamada, 2018, 2020, 2021, In press). I am going to present this report according to the 5 components.

### *2.1 Decomposing Vietnamese gender equality by wage distribution*

The topic is to decompose the gender wage gap along the wage distribution, compare the components in different times (2002-2014) using household data.

### *2.2 Decomposing public and private enterprise wage gap in Vietnam*

The topic deals with the transition of state-owned enterprises (SOEs) in Vietnam from a wage perspective by decomposing the difference in wage distributions between SOE employees and non-SOE employees during 2002–2014. The topic also searches for the convergence between the two sectors during 2002-2014.

### *2.3 Firms and regional favoritism*

Using an unbalanced panel of 539 Vietnamese districts from 2000 to 2010 and the corresponding politicians' profiles, we examine firm behavior in response to favoritism by top-ranking politicians towards their districts of birth.

### *2.4 Impacts of Vietnamese enterprise zones on local business development*

We examine the effects of Vietnamese enterprise zones, under the initiative of the central government, on local businesses across different types of ownership of zone infrastructure developers (ZIDs). The key question is whether providing favorable policies (flat corporate tax, land rent holidays)—place-based policies, for certain firms (many are foreign-affiliated firms) would help local businesses or not. This is because foreign firms might be “footloose” investors, have no connection with local firms, and even compete with local firms. The topic is also to seek whether private partnerships in zone infrastructure development would be a better solution than

using entirely public funds.

### *2.5 Impacts of heat on mathematic test taking performance*

The topic is to examine the effects of average test-day temperature on the mathematics test performance of Vietnamese students who took the national university and college entrance examinations in 2009. The topic also examines whether the heat effect may be minimal in the hottest region or not.

## 3 . 研究の方法

### *3.1 Decomposing Vietnamese gender equality by wage distribution*

It focuses on the formal sector and further divides the sample by educational level, age profile, occupational type, and industry for the insights. The core method is to estimate two counterfactual distributions of the income of women: i) if they were having the same characteristics distribution and paid same price per skill as men but having the residuals of women, ii) if they were having the same characteristic distribution as men and under the conditional distribution of the price per skill as women. Then the gap will be decomposed into distribution of skills (characteristics difference), of skill price (gender discrimination), and of the residuals (unobservable factors).

### *3.2 Decomposing public and private enterprise wage gap in Vietnam*

Similar to the methods in 3.1, we apply the methods proposed by Chernozhukov et al. (2013) and a recentered influence function regression proposed by Firpo et al. (2009). The key point of both methods is to estimate a counterfactual distribution of the first group of workers based on a component distributed as if it were the second group's and the remaining components as if they were those of the first group. Based on appropriate counterfactuals, these methods decompose the wage distribution between SOE employees and non-SOE employees.

### *3.3 Firms and regional favoritism*

We adopt a standard difference-in-differences (DID) approach using panel data to compare the home districts of politicians in office during the period 2000–2010 with other districts. We also use several fixed effects including district fixed effects, baseline characteristic-year fixed effects, and province-year fixed effects.

### *3.4 Impacts of Vietnamese enterprise zones on local business development*

We constructed a panel of communes during 2000–2007 using data on zone-based firms, local firms, and zones. We use a modified panel-event study, which combines DID, a geographical discontinuity design, and an event study investigating commune fixed effects, district-year fixed effects, and fixed effects of the year–commune characteristics. We analyze the heterogeneity of zone types and ZID ownership.

### *3.5 Impacts of heat on mathematic test taking performance*

We use individual fixed effects and various controls (such as university-test group rank, university fixed effect, distance to test venues) to identify the effect of heat on mathematic test taking

performance. We also investigate sub-samples including the hottest regions and coolest regions, heterogenous numbers of mathematics tests taken, gender, regional economic disparities, and policy groups.

#### 4 . 研究成果

The research results show that economic incentives might lead to favoritism or change the existing favoritism. The results suggest several (policy) implications. First, wage discrimination might be dismissed by the market mechanism. Second, the private sector is sensitive to economic incentives. Third, the development of the private sector is crucial for economic development. Fourth, heat waves/climate changes might lead to regional inequality.

##### *4.1 Decomposing Vietnamese gender equality by wage distribution*

We find evidence for a consistent gender wage gap, with the price of skills being the main contributor. In contrast, labor market discrimination does not have a crucial influence. Some gender equality gained by the distribution of skills can be explained by the rise in women's education and women's participation in specific industries, occupations and the growing private sector. Therefore, discrimination against women in the labor market can be reduced by empowering women with more education and social capital.

##### *4.2 Decomposing public and private enterprise wage gap in Vietnam*

Although SOE employees received higher pay in 2002 because of differences in the characteristics and residuals, the differences in coefficients were minimal along the wage distribution during 2002–2014. The differences in characteristics decreased over time in the middle and middle-to-high wage distribution groups. University graduates were the main contributor to the difference in endowments. By 2014, the residuals difference vanished and the pay schemes between SOEs and non-SOEs converged. The results suggest that preference on the public sector will subside if the government policy secures fair competition between public and private sectors.

##### *4.3 Firms and regional favoritism*

Results show that the number of firms tend to increase in the home districts of Vietnamese politicians after they assume office. This favoritism is particularly pronounced for private domestic firms, construction firms and rural areas. We find construction firms most likely consistently respond to political favoritism. The birthplace favoritism is more pronounced among top politicians who lead the province and who were also born in the province.

##### *4.4 Impacts of Vietnamese enterprise zones on local business development*

We find that zone, a place-based policy (area favoritism), leads to an increased number of firms and increase employment in the communes hosting the zone, even after excluding zone-based firms. Our findings suggest that private partnerships in ZIDs worked best in attracting firms to the zone. The spatial spillover effects of the zone occurred up to a distance of 14 km.

#### 4.5 Impacts of heat on mathematic test taking performance

We find that an increase of 1°F results in an approximate 0.006 standard deviation loss of the standardized test scores (by age and test problem). The negative effects are persistent regardless of whether students were from the hottest or coolest climate regions in Vietnam. We also find that female students and students from rural areas and townships are most vulnerable to the effects of heat. Our results might also be used as a reference for school administrators when considering investments in school infrastructure. A reasonable heat–diffusion solution determined through cost–benefit analysis might offset the harms economically.

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## 5. 主な発表論文等

〔雑誌論文〕 計5件（うち査読付論文 5件/うち国際共著 5件/うちオープンアクセス 0件）

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2. 論文標題 Convergence of Public and Private Enterprise Wages in a Transition Economy: Evidence from a Distributional Decomposition in Vietnam, 2002-2014	5. 発行年 2020年
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〔学会発表〕 計15件 (うち招待講演 1件 / うち国際学会 10件)

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〔図書〕 計0件

〔産業財産権〕

〔その他〕

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6. 研究組織

	氏名 (ローマ字氏名) (研究者番号)	所属研究機関・部局・職 (機関番号)	備考
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7. 科研費を使用して開催した国際研究集会

〔国際研究集会〕 計0件

8. 本研究に関連して実施した国際共同研究の実施状況

共同研究相手国	相手方研究機関
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